Final Weeks to Register!

2019 Conference Tracks
1. Data & Storage Management
2. Data Computing
3. Software Applications & Services
4. Bioinformatics
5. Next-Gen Sequencing Informatics
6. FAIR Data
7. Clinical Research & Translational Informatics
8. Data Visualization & Exploration Tools
9. Blockchain in Pharma, R&D, and Healthcare
10. Pharmaceutical R&D Informatics
11. Cancer Informatics
12. Cloud Computing
13. Data Transfer
14. Edge
15. AI for Pharma & Biotech
16. AI for Genomics
17. AI for Healthcare

3,400+ Industry Professionals from 40+ Countries
160+ Industry-Leading Sponsors and Exhibitors
280+ Technology and Scientific Presentations
17 Diverse Conference Tracks

2019 PLENARY KEYNOTE SPEAKERS

John Wilbanks
Chief Commons Officer, Sage Bionetworks

Anne E. Carpenter, PhD
Senior Director of the Imaging Platform, Institute Scientist, Broad Institute of Harvard and MIT

Mariana Nacht, PhD
CSO, Vivid Biosciences; President, Board of Directors, WEST (Women in the Enterprise of Science and Technology)

Susie Stephens, PhD
Senior Director, Oncology & Vaccine R&D Information Technology, Pfizer

Iya Khalil, PhD
Chief Commercial Officer and Co-Founder, GNS Healthcare

Vijay K. Bulusu
Head, Data & Digital Innovation, Pfizer

Bio-ITWorldExpo.com #BioIT19
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- View Track 6: FAIR Data
- View Track 7: Clinical Research & Translational Informatics
- View Track 8: Data Visualization & Exploration Tools
- View Track 9: Blockchain in Pharma, R&D, and Healthcare
- View Track 10: Pharmaceutical R&D Informatics
- View Track 11: Cancer Informatics
- View Track 12: Cloud Computing
- View Track 13: Data Transfer
- View Track 14: Edge
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- View Track 16: AI for Genomics
- View Track 17: AI for Healthcare

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- View Sponsor & Exhibit Information
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Welcome

The Bio-IT space right now is rife with hype. Blockchain, AI, machine learning, data science, deep learning, edge, IoT, and more are being touted as panaceas, sure to at least facilitate a cure for what ails you. There are some legitimately cool technologies maturing in our space, but there is also plenty of smoke and mirrors designed to conceal the tech growing pains. At Bio-IT World we strive to clear the air with in-depth technical presentations in 17 tracks, education opportunities at 14 workshops, three expert-judged awards programs, and countless face-to-face conversations with the people you want to meet. When 3,400+ attendees from 40+ countries come together at the 2019 Bio-IT World Conference & Expo, it won’t be a conversation you can afford to miss.

Thank you for being part of our community.

Allison Proffitt
Editorial Director, Bio-IT World

Cindy Crowninshield
Executive Event Director
Bio-IT World Conference & Expo
## MONDAY, APRIL 15, 2019
**Registration Hours:**
- 8:00 - 5:00 Registration Open

**Schedule:**
- 9:00 - 5:00 Bio-IT FAIR Data Hackathon

## TUESDAY, APRIL 16, 2019
**Registration Hours:**
- 7:00 - 6:30 Registration Open

**Schedule:**
- 7:00 - 8:15 Morning Coffee
- 8:00 - 3:30 Bio-IT FAIR Data Hackathon
- 8:00 - 7:00 1-on-1 Networking Open
- 8:00 - 11:30 Morning Workshops
- 12:30 - 4:00 Afternoon Workshops
- 4:00 - 5:00 Plenary Keynote Session
- 5:00 - 7:00 Welcome Reception in the Exhibit Hall with Poster Viewing

## WEDNESDAY, APRIL 17, 2019
**Registration Hours:**
- 7:30 - 6:00 Registration Open

**Schedule:**
- 7:00 - 8:15 Morning Coffee
- 7:30 - 6:30 1-on-1 Networking Open
- 8:00 - 9:45 Plenary Keynote Session
- 9:45 - 10:50 Coffee Break in the Exhibit Hall and Poster Viewing
- 10:50 - 12:30 Tracks
- 12:30 - 12:40 Session Break
- 12:40 - 1:40 Luncheon Presentation or Enjoy Lunch on your Own
- 1:40 - 1:50 Session Break
- 1:50 - 3:25 Tracks
- 3:25 - 4:00 Refreshment Break in the Exhibit Hall with Poster Viewing
- 4:00 - 5:30 Tracks
- 5:30 - 6:30 Best of Show Awards Reception in the Exhibit Hall with Poster Viewing

## THURSDAY, APRIL 18, 2019
**Registration Hours:**
- 7:30 - 2:00 Registration Open

**Schedule:**
- 7:30 - 8:15 Morning Coffee
- 7:45 - 1:45 1-on-1 Networking Open
- 8:00 - 10:00 Benjamin Franklin Award Program, Innovative Practices Awards Program, and Plenary Keynote Session
- 9:45 - 10:30 Coffee Break in the Exhibit Hall and Poster Competition Winners Announced @ 10:00
- 10:30 - 12:10 Tracks
- 12:10 - 12:20 Session Break
- 12:20 - 12:40 Luncheon Presentation or Enjoy Lunch on your Own
- 1:20 - 1:55 Dessert Refreshment Break in the Exhibit Hall with Poster Viewing
- 1:55 - 4:00 Tracks
- 4:00 Conference Adjourns
Cambridge Heathtech Institute and Bio-IT World will again be recognizing and celebrating leaders in innovation through the following Awards Programs:

**Bio-IT World Innovative Practices Awards**

Bio-IT World has held a best practices award since 2003, highlighting outstanding examples of technology innovation in the life sciences. This year, we continue the tradition under a new name: Bio-IT World Innovative Practices Awards. The Innovative Practices Awards are designed to recognize partnerships and projects pushing our industry forward, striving to highlight strategies that can be widely shared and implemented across the industry to improve the quality, pace, and reach of our science. Winners will be announced during the plenary session at Bio-IT World Conference & Expo on Thursday, April 18. The advanced deadline (no fee) for entry is November 30, 2018 and the final deadline (fee) for entry is February 1, 2019. To view previous winners and submit a nomination, visit [www.bio-itworld.com/innovativepractices](http://www.bio-itworld.com/innovativepractices)

**Bio-IT World Best of Show Awards**

The 2019 Best of Show Awards offer exhibitors of the Bio-IT World Conference and Expo an exclusive opportunity to distinguish and highlight their products ranging from an innovative application, technology, tool, or solution from the competition. Judged by a team of leading industry experts, and Bio-IT World editors, this program identifies exceptional innovation in technologies used by life science professionals today. Products considered are new products, or significant product upgrades, introduced between April 2018 and April 2019. Winners are judged based on the products’ technical merit, functionality, innovation, and in-person presentations to the judges at the show. Please Note: Selection is NOT based upon level of sponsorship or exhibit participation.

To enter your product, fill out the online submission form. Access the form by visiting: [Bio-ITWorld.com/bioit_bestofshow_form.aspx](http://Bio-ITWorld.com/bioit_bestofshow_form.aspx)

**Benjamin Franklin Award**

The Benjamin Franklin Award for Open Access in the Life Sciences is a humanitarian/bioethics award presented annually by the Bioinformatics Organization to an individual who has, in his or her practice, promoted free and open access to the materials and methods used in the life sciences. Nominations are now being accepted! The winner will be announced during the plenary session at Bio-IT World Conference & Expo on Thursday, April 18. Full details including previous laureates and entry forms are available at [www.bioinformatics.org/franklin](http://www.bioinformatics.org/franklin)
SPONSORSHIP & EXHIBIT OPPORTUNITIES

Comprehensive sponsorship packages allow you to achieve your objectives before, during, and long after the event. Signing on earlier will allow you to maximize exposure to hard-to-reach decision-makers.

2018 Attendee Demographics

<table>
<thead>
<tr>
<th>COMPANY TYPE</th>
<th>DELEGATE TYPE</th>
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<tbody>
<tr>
<td>Biotech &amp; Pharma</td>
<td>Executive &amp; Director 39%</td>
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<tr>
<td>Services</td>
<td>Scientist/Technologist 28%</td>
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<tr>
<td>Academic &amp; Government</td>
<td>Sales &amp; Marketing 17%</td>
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<td>Healthcare</td>
<td>Manager 12%</td>
</tr>
<tr>
<td>Other (Financial, Press, Services)</td>
<td>Professor 2%</td>
</tr>
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<td></td>
<td>Assistant 2%</td>
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PODIUM PRESENTATIONS - Available Within the Main Agenda!
Showcase your solutions to a guaranteed, targeted audience through a 15- or 30-minute presentation during a specific conference program, breakfast, lunch, or separate from the main agenda within a pre-conference workshop. Package includes exhibit space, on-site branding, and access to cooperative marketing efforts by CHI. For the luncheon option, lunches are delivered to attendees who are already seated in the main session room. Presentations will sell out quickly, so sign on early to secure your talk!

ONE-ON-ONE MEETINGS
Select your top prospects from the pre-conference registration list. CHI will reach out to your prospects and arrange the meeting for you. A minimum number of meetings will be guaranteed, depending on your marketing objectives and needs. A very limited number of these packages will be sold.

INVITATION-ONLY VIP DINNER / HOSPITALITY SUITE
Sponsors will select their top prospects from the conference pre-registration list for an evening of networking at the hotel or at a choice local venue. CHI will extend invitations and deliver prospects, helping you to make the most out of this invaluable opportunity. Evening will be customized according to sponsor's objectives. (i.e.: Purely social, Focus group, Reception style, Plated dinner with specific conversation focus)

EXHIBIT
Exhibit space sells out quickly, so reserve yours today.

ADDITIONAL BRANDING & PROMOTIONAL OPPORTUNITIES INCLUDE:
• Hotel Room Keys SOLD!
• Footprint Trails
• Staircase Ads
• Conference Tote Bags SOLD!
• Badge Lanyards SOLD!
• Booth Crawl
• Conference or Track Notebooks
• Cell Phone Charging Station
• Golf Simulator
• Re-Charge Lounges
• Program Materials Advertisement
• Bio-IT World After Hours Reception
• Massage Lounge

NEW OPPORTUNITY FOR START-UPS
Is your company less than two years young and seeking an opportunity for exposure to investors and the venture capital investment community? Please contact us for more details on Bio-IT World’s Start-Up Showcase.

LOOKING FOR ADDITIONAL WAYS TO DRIVE LEADS TO YOUR SALES TEAM?
Bio-IT World’s Lead Generation Programs will help you obtain more targeted, quality leads throughout the year. We will mine our database of 800,000+ life science professionals to your specific needs. We guarantee a minimum of 100 leads per program! Opportunities include:
• Webinars
• White Papers
• Market Surveys
• Podcasts and More!

FOR ADDITIONAL INFORMATION ON SPONSORSHIP, PLEASE CONTACT:

<table>
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<tr>
<th>Companies A-K</th>
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<tr>
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<td>Patty Rose</td>
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<td>Sr Manager, Business Development</td>
<td>Sr Manager, Business Development</td>
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<tr>
<td>781-972-5458</td>
<td>781-972-1349</td>
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<td><a href="mailto:prose@healthtech.com">prose@healthtech.com</a></td>
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### AT BIO-IT WORLD

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**1-on-1 Networking**

Bio-IT World’s 1-on-1 networking service allows you to quickly find and connect with attendees who have similar interests and goals.

- Search comprehensive profiles of Bio-IT World participants
- Set up meetings and expand your network
- Access to 1-on-1 networking will be available one month prior to the event for conference session attendees only.

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**Bio-IT World Networking Receptions**

Beyond the sessions, Bio-IT World celebrates industry achievements and collaboration by bringing the community together for after-hours networking and entertainment.

- **WELCOME RECEPTION**
  - TUESDAY, APRIL 16 | 5:00 - 7:00 PM

- **BEST OF SHOW AWARDS CELEBRATION**
  - WEDNESDAY, APRIL 17 | 5:30 - 6:30 PM

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Learn more by visiting [Bio-ITWorldExpo.com/Networking](http://Bio-ITWorldExpo.com/Networking)
Cambridge Healthtech Institute is pleased to offer morning and afternoon pre-conference workshops on Tuesday, April 16, 2019. The workshops are designed to be instructional, interactive and provide in-depth information on a specific topic. They allow for one-on-one interaction and provide a great way to explain more technical aspects that would otherwise not be covered during the main conference tracks that take place Wednesday-Thursday.

**MORNING WORKSHOPS**

**TUESDAY, APRIL 16 | 8:00 - 11:30 AM**

**W1. Data Management for Biologics: Registration and Beyond**
Monica Wang, PhD, Principal Bioinformatics Architect, Project and Program Manager, Global Research IT, Takeda
Angelika Fuchs, Biologics Informatics Group, Roche
Sergio Rotstein, PhD, Director, R&D Business Technology, Pfizer Inc.
Clemens Wrzodek, PhD, Scientific Software Engineer, Technical Project Manager, Roche
Sebastian Schlicker, Head, Biologics Business Operations, Genedata AG

**W2. Data Visualization to Accelerate Biological Discovery**
Nils Gehlenborg, PhD, Assistant Professor, Department of Biomedical Informatics, Harvard Medical School

**W3. Lab Informatics: An Insider’s Guide to Project Success**
Randy Hice, Managing Director, Astrix Group

**W4. AI for Pharma**
Ken Aoshima, PhD, Executive Director, Data Science Laboratory, hhs Data Creation Center, Eisai Co., Ltd.
John Van Hemert, PhD, Research Scientist, Bioinformatics, Corteva Agri Science, A Dow-Dupont Division
Peter Henstock, PhD, Machine Learning & AI Technical Lead, Business Technology, Pfizer, Inc.
Bino John, PhD, Associate Director, AstraZeneca
Timothy Kassis, PhD, Lead Instructor, New Engineering Education Transformation (NEET), Massachusetts Institute of Technology

**W5. Managing Sensitive and HIPAA-Controlled Data with Globus**
Greg Nawrocki, Director of Customer Engagement, Globus, University of Chicago
Brigitte Raumann, Product Manager, Globus, University of Chicago

**W6. DNA Sequencing 101**
Adnan Derti, PhD, Director of Translational Science, Surface Oncology, Inc.

**W7. Blockchain 101**
Mark Treschok, Global Blockchain Solutions Leader, Healthcare and Life Sciences, IBM
Abigail Sirus, Senior Blockchain Consultant, IBM

**AFTERNOON WORKSHOPS**

**TUESDAY, APRIL 16 | 12:30 - 4:00 PM**

**W9. Research Project Management**
Gregg TeHennepe, Program Manager, Computational Scientist, The Jackson Laboratory
Beena Kadakkuzha, PhD, Research Project Manager, The Jackson Laboratory

**W10. Digital Biomarkers in Pharma R&D: Technical Challenges and Strategies for Advancing Personalized Medicine**
Amir Lahav, ScD, Rare Disease Research Unit, Pfizer
Graham Jones, PhD, Professor, Medicine, Clinical and Translational Science Institute, Tufts Medical Center
Timothy Aungst, PharmD, Associate Professor, Pharmacy Practice, MCPHS University
Elena Ismailova, PhD, CSO, Koneska Health

**W11. Digital Data Strategy for the Lab**
Dave Dorsett, Principal Software Architect, Astrix Technology Group

**W12. Data Science Driving Better Informed Decisions**
Farhan (CJ) Hameed, MD, MS, Senior Director, Global Real World Evidence Center of Excellence, Patient & Health Impact, Pfizer, Inc.
Meeta Pradhan, PhD, Senior Data Scientist, Indiana Biosciences Research Institute
Nigel Greene, PhD, Director, Head, Data Science and Artificial Intelligence, Drug Safety and Metabolism, AstraZeneca
Meghan Raman, Director, Digital Capability Management, R&D Data Lake and Integration, Bristol-Myers Squibb

**W14. The Gene Pattern Notebook Environment for Open Science and Reproducible Bioinformatics Research**
Thorin Tabor, Senior Computational Genomics Engineer, Mesirov Lab, Medicine, University of California, San Diego
Barbara Hill, Senior Test Engineer, Product Owner, GenePattern, The Broad Institute of Harvard and MIT, the University of California San Diego
TUESDAY, APRIL 16  4:00 - 5:00 PM

4:00 Welcome Remarks
Cindy Crowninshield, RDN, LDN, Executive Event Director, Cambridge Healthtech Institute

4:15 Plenary Keynote Presentation
Open Science: From Ideology to Methodology

John Wilbanks
Chief Commons Officer, Sage Bionetworks

From early efforts archiving the scholarly literature and the Bermuda Rules of the Human Genome Project through to the NIH Genomic Data Commons and robust mandates from government funders, we are now decades into the advance of “open” policies for biological and health sciences. With the rise of data science and sensors putting new urgency behind data sharing policies, driving text mining in articles and EHRs, new technologies now mirror and accelerate open policy development. Open science however is not a policy, nor is it a technology, nor is it about a single file or dataset being on the internet. Open science, like science, is fundamentally a methodological practice of knowledge generation – and we should be critically examining how, when, and where open approaches accelerate the creation and distribution of knowledge. Otherwise we risk conflating the rise of open and shared scientific assets with the end goal of increasing knowledge generation. This talk will examine specific cases of open and/or collaborative science including ongoing work at Sage Bionetworks in the AllOfUs Research Program.

5:00 Welcome Reception in the Exhibit Hall with Poster Viewing and Meet the Experts: Plenary Keynote Speaker

Co-sponsored by

WEDNESDAY, APRIL 17  8:00 - 9:45 AM

8:00 Welcome Remarks
Allison Proffitt, Editorial Director, Bio-IT World

8:05 Keynote Introduction:
Jason Stowe, Principal Group Program Manager, Engineering, Microsoft

8:15 Plenary Keynote Panel Discussion
AI in Practice: How New Technologies Are Changing Bio-IT

Moderator:

Allison Proffitt
Editorial Director, Bio-IT World

Panelists:

Anne E. Carpenter, PhD
Senior Director of the Imaging Platform, Institute Scientist, Broad Institute of Harvard and MIT

Iya Khalil, PhD
Chief Commercial Officer and Co-Founder, GNS Healthcare

Mariana Nacht, PhD
CSO, Vivid Bionesciences; President, Board of Directors, WEST (Women in the Enterprise of Science and Technology)

Susie Stephens, PhD
Senior Director, Oncology & Vaccine R&D Information Technology, Pfizer

9:45 Coffee Break in the Exhibit Hall with Poster Viewing and Meet the Experts: Plenary Keynote Panelists

THURSDAY, APRIL 18  8:00 - 9:45 AM

8:00 Organizer Remarks
Cindy Crowninshield, RDN, LDN, Executive Event Director, Cambridge Healthtech Institute

8:10 Benjamin Franklin Award and Laureate Presentation
J.W. Bizzaro, Managing Director, Bioinformatics.org

Eugene V. Koonin, PhD, Evolutionary Genomics Group Leader, Computational Biology Branch, National Center for Biotechnology Information (NCBI), National Library of Medicine (NLM), and National Institutes of Health (NIH)

8:35 Bio-IT World Innovative Practices Awards
Allison Proffitt, Editorial Director, Bio-IT World

9:00 Plenary Keynote Presentation
Converting Data to Insights Using an End-to-End Data Ecosystem

Vijay K. Bulusu
Head, Data & Digital Innovation, PharmSci Worldwide Research & Development, Pfizer

Every industry is going through the Data & Digital wave. In the Life Sciences industry, terms like Big Data, Machine Learning, Artificial Intelligence, Cloud Computing, Deep Learning etc. are becoming more and more common. The general perception is that if these technologies are helping companies like Netflix, Walmart, Facebook, BestBuy, Apple, Google innovate and find new opportunities for growth, the same must be true for Pharma companies as well. Significant data initiatives are being launched to apply these technologies to data from R&D, Clinical, Manufacturing and Commercial systems across the industry. However, most of these initiatives are facing a fundamental challenge – Data. They are finding out that their return on investment (ROI) and value propositions are not achievable because they failed to proactively answer questions on the data available such as Where is the data?, How is it stored?, What is it called?, What format is it in? and How is it accessible? Most of these initiatives are more focused on the application of these technologies and less on the fundamental problem of making high quality data available. To solve this challenge, a careful and deliberate approach is needed that tackles the problem to create an end-to-end data ecosystem. This talk will focus on the common problems that large enterprises face when implementing data driven projects and explore the concept of how to define and implement a holistic approach to solving them. Case studies highlighting best practices and techniques that can be used to create an end-to-end data ecosystem will be shared.

9:45 Coffee Break in the Exhibit Hall with Meet the Experts: Plenary Keynote Speaker and Poster Competition Winners Announced @ 10:00
Data & Storage Management

Infrastructure and Storage Solutions to Enable Discovery and Ease Data Bloat

Is the burden of managing your data growing larger every day? Do you have a scalable and robust data management infrastructure in place to process, analyze, and store vast quantities of data according to your organization's policies? Is your organization using new tools and analytical processes such as AI and deep learning that stress your supporting IT infrastructure beyond the expectations of system designers? Managing data has become a prevalent issue in the life sciences industry. Organizations are spending millions on systems and platforms to manage and store many types of data (e.g., experimental, operational, clinical) from many disparate sources. The role of data engineering is critical in orchestrating, configuring, managing, and scaling solutions to manage the data bloat problem. The Data & Storage Management track presents in-depth case studies from leading life sciences organizations who are implementing solutions to address these data issues. Presentations will focus on people, process and technology issues related to storage platforms, architectures, integration and migration plans, governance, collaboration, scalability and cost efficiencies.

TUESDAY, APRIL 16

7:00 am Workshop Registration Open and Morning Coffee

8:00 – 11:30 Recommended Morning Pre-Conference Workshops*

W5. Managing Sensitive and HIPAA-Controlled Data with Globus

12:30 – 4:00 pm Recommended Afternoon Pre-Conference Workshops*

W12. Data Science Driving Better Informed Decisions

* Separate registration required. Please click here for details.

2:00 – 6:30 Main Conference Registration Open

4:00 PLENARY KEYNOTE SESSION

Please click here for details.

5:00 – 7:00 Welcome Reception in the Exhibit Hall with Poster Viewing and Meet the Experts: Plenary Keynote Speaker

Co-Sponsored by NetApp

WEDNESDAY, APRIL 17

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION

Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Poster Viewing and Meet the Experts: Plenary Keynote Panelists

ARCHITECTING FOR SUCCESS: PLATFORM, DATABASE, DATA SHARING, AND SCALABLE SOLUTIONS

10:50 Chairperson's Remarks

Hongliang Tang, Senior Director and Chief Architect, Huawei American Storage Research Lab, Futurewei Technologies, Inc.

11:00 DB4Sci, Open Source Database as a Service (DBaaS) for On-Prem and Cloud

John Dey, HPC Systems Engineer, Scientific Computing, Fred Hutchinson Cancer Research Center

Cloud-based databases as a service (DBaaS) have extremely simplified database management. We can create database instances using best practice configuration including backup and DR plans with a single push of a button. However, databases are sensitive to latency and cloud-based databases cannot be used effectively from on-prem. Supporting Postgres, MongoDB, MariaDB/MySQL and Neo4J graph databases, DB4Sci is the ideal DBaaS solution for on-premise and multi-cloud deployments that supports high performance backup to cloud storage.

11:30 Data Centralization for Any Lab, Any Equipment, Any Software

Charles Fracchia, Founder and CEO, BioBright
Jarrod Medeiros, Director of Informatics and IT, Casma Therapeutics

It's all too easy to end up with cloud infrastructures that mirror the shortcomings of local data management. In this talk, we will present how carefully designed software can make data available seamlessly, removing the need for scientists to dig through disparate systems to find what they need and analyze it. We will present a new model that allows data centralization and cloud-based data analysis while minimizing the burden on the scientist and improving workflows and products.

12:00 pm Architecting for Success with Machine Learning Data Platforms for Image Analysis and Precision Medicine

William Beaudin, Director of Solutions Engineering, DDN Storage

Aspects of precision medicine, including automated image analysis or mining patient data to better target therapies, leverage AI and deep learning. While early training data fits in-node, successful approaches attract more data. Forward thinking organizations adopt scalable architectures; the unprepared fall behind. We review key considerations for machine-learning platforms ensuring effortless scaling, deeper insights, and shorter path to value.

12:15 Leveraging Distributed Resources to Speed Discovery

Dan Taylor, Director, Business Development, Internet2

Few Life Sciences organizations take advantage of the vast resources available to R&D organizations for continuous innovation and keeping pace with big data. This session will discuss the infrastructure underlying collaborations that use private, academic and public resources – including commercial cloud and supercomputing centers storage and processing - to maximize options and speed discovery.

12:30 Session Break

12:40 Luncheon Co-Presentation I: Accelerating Life Sciences Workflows Using Software Defined Storage

David Hiatt, Director, Product Marketing and Business Development, WekaIO
Aaron Gardner, Director, Technology, BioTeam

In this presentation we will compare the results of Cryo-EM and genomic pipelines run on a traditional storage architecture to those run on a modern scale-out storage system. See how the modern scale-out system can meet the mixed workload challenges of life sciences and outperform the storage system for the largest supercomputer in the world.

1:10 Luncheon Presentation II: Accelerate Precision Medicine with High Performance Data and AI

Frank Lee, PhD, Global Industry Leader for Healthcare and Life Sciences - IBM Systems
Get your data and apps ready for precision medicine and research in the multicloud era, to derive faster insights with high performance data and AI architecture. Join Frank Lee, PhD, Global Industry Leader for Healthcare and Life Sciences, as he presents real-life use cases and best practices for high performance genomics and imaging with deep learning that will help you deliver new records for speed and scale, cost efficiencies, collaboration and ease of use.

1:40 Session Break

**DATA SECURITY AND COMPLIANCE**

1:50 Chairperson’s Remarks
Brigitte Raumann, Product Manager, Globus, University of Chicago

1:55 Achieving Compliant Collaboration: Securely Managing Protected Data to Accelerate Discovery
Brigitte Raumann, Product Manager, Globus, University of Chicago
Researchers working with protected data face many challenges in managing this data and sharing it with colleagues. Meeting compliance requirements is complicated, and investigators must often either slow their process to address this burden, or resort to using distilled, de-identified data instead. With higher assurance levels provided by Globus, the leading research data management service, users can optimize their protected data environments by integrating secure, scalable data management capabilities into existing workflows and applications.

2:25 Research, Privacy and Risk
Kris Torgerson, Chief Information and Privacy Officer, Oak Ridge National Laboratory
Research, Privacy, and Security... can they coexist? How to enable research, influence outcomes, and protect the mission responsibly. In a world where well-funded bad actors are actively working to own your data, what are strategies to minimize risk?

2:55 Solving Genomic Data Privacy in the Age of AI
Esteban Rubens, Global Principal, Enterprise Imaging Healthcare, Pure Storage
Health data protection is of paramount importance, with all stakeholders in the healthcare industry looking to adopt AI to improve patient care. We will provide examples of an API-driven Data Hub solution that enables life-science & healthcare organizations to leverage the advancements of AI to help improve diagnoses, find better treatments, and discover new drugs while protecting confidential patient information.

3:25 Refreshment Break in the Exhibit Hall with Poster Viewing and Meet the Experts: Bio-IT World Editorial Director Allison Proffitt

3:25 Book Signing with Joseph C. Kvedar, MD, Vice President, Connected Health, Partners Healthcare; Professor, Harvard Medical School; Author, The Internet of Healthy Things™ (Book will be available for purchase onsite)

**TOOLS AND METHODS FOR INFRASTRUCTURE AUTOMATION, DATA COMPRESSION, AND DATA INTEGRATION**

4:00 Infrastructure Automation: Real Examples
Karl Gutwin, Senior Scientific Consultant, BioTeam, Inc.
A wide variety of infrastructure automation tools has existed for many years; however, it is still not consistently used. Automation has the potential to measurably improve clarity, reliability and capacity for engineering and operations teams. This talk walks through prevalent automation tools and gives real, working examples – covering why, how, and what could possibly go wrong when automating your infrastructure.

4:30 A Novel Psychiatric Registry System and Its Utilization for Clinical and Pharmaceutical Research
András London, PhD, Assistant Professor, University of Szeged
There has been a continuously growing demand to create patient registries where the collected data is readily applicable for statistical analysis using both standard and advanced methods, such as machine learning. A possible solution to the problem can be the integration of patient registries with the standard EHR patient administration systems. In this talk we present our experiences through the development of a psychiatric registry, its integration to patient administration systems and data mining to investigate the effects of negative symptoms of schizophrenia.

5:00 Managing Genomic Data with Regional Encryption for Efficient Storage, Regulated Access and Proven Compliance
Dan Greenfield, PhD, Co-founder & CEO, PetaGene
PetaGene has added encryption and data management to its award-winning compression. This enables organizations to manage access to their genomic data by internal and external teams, secured with fine-grain regional encryption and deep auditing of data usage. Moreover, this is done in a manner transparent to existing tools and pipelines and integrates with existing on-premises and cloud storage infrastructure.

5:30 Best of Show Awards Reception in the Exhibit Hall with Poster Viewing

THURSDAY, APRIL 18

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION & AWARDS PROGRAM
Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Meet the Experts: Plenary Keynote Speaker and Poster Competition Winners Announced @ 10:00

BUILDING OUT DATA MANAGEMENT CAPABILITIES

10:30 Chairperson’s Remarks
Bill Fox, Vice President, Vertical Strategy & Chief Strategist, Healthcare & Life Sciences, MarkLogic

10:40 The Evolution of DNA Encoded Library Data Management: Lessons Learned Along the Way
Neil Carlson, Investigator, Medicinal Science & Technology, GSK Cambridge – R&D
GSK’s DNA Encoded Library Technology (ELT) generates hundreds of millions of sequences each week as the primary readout for analysis. We have developed a robust data management, tracking and delivery platform to meet the often-changing needs of our diverse user base. This talk will review the 12-year evolution of our informatics platform, focusing on the specific challenges we’ve faced and how we’ve chosen to address them. Attendees will benefit from the lessons we’ve learned and will be able to apply these learnings when designing their own storage and delivery solutions.

11:10 The Usage of DNA Encoded Libraries to Predict Target Tractability: Application of the Informatics Platform
Ken Lind, PhD, Computational Chemist, GSK Cambridge – R&D
Recent advances in both genome-wide screening and genome-wide analyses have enabled the identification of numerous putative therapeutically relevant targets for hit identification programs. Pursuing all of these targets in small molecule hit ID programs is neither feasible nor warranted. We have developed and deployed Encoded Library Technology (ELT) protocols that rapidly predict the small molecule tractability of novel targets. Attendees will learn how we leverage our analysis platform to quickly prioritize novel therapeutically relevant targets and focus small molecule hit identification efforts on those that are most likely to succeed.
11:40 “Data Wars” What R&D Organizations Need to Do In Order to Survive The Near Future
John F. Conway, Global Head of R&D&C IT, Science and Enabling Units IT, AstraZeneca

R&D organizations, from startup to mature need to quickly transform a culture around Data, Information, and Knowledge as an Asset and Emulate a Data company. R&D organizations need improved stringency from data capture to contextualization to reuse. The FAIR principles are criteria to measure success in the journey, but it starts with a written scientific data strategy that outlines the what, the who and the how from a change management and cadence perspective. Simply put we have to stop treating our data like trash but instead as another form of currency that has immense value.

12:10 pm Session Break

12:20 Luncheon Co-Presentation: Building a Modern Research Data Hub
Bill Fox, Vice President, Vertical Strategy and Chief Strategist, Healthcare and Life Sciences, MarkLogic
Imran Chaudhri, Chief Architect for Healthcare & Life Sciences, MarkLogic

One of the primary challenges in transforming real world data into valuable real world evidence lies in its diverse format and structure. The need to extract greater value from this multi-structured data is compelling pharmaceutical companies to move away from outdated and siloed IT infrastructures in favor of more agile, modern data management solutions.

12:50 Session Break

1:20 Dessert Refreshment Break in the Exhibit Hall with Poster Viewing

CONSULTANCIES AND COMPUTING: ASSESSMENTS, ORGANIZATIONAL CHALLENGES & TRENDS

1:55 Chairperson’s Remarks
Chris Dwan, Senior Technologist and Independent Life Sciences Consultant

2:00 PANEL DISCUSSION: High Performance Consultancies
Moderator:
Chris Dwan, Senior Technologist and Independent Life Sciences Consultant
Panelists:
Tanya Cashorali, CEO, Founder, TCB Analytics
Aaron Gardner, Director of Technology, BioTeam, Inc.
Eleanor Howe, PhD, Founder and CEO, Diamond Age Data Science

An organization must learn and understand the value of why, when and how to use a consultancy. Highly trained and skilled professional experts gather to discuss their role in leading and managing projects for organizations to help them achieve goals. They will discuss a variety of themes including the best kinds of projects to hire a consultancy for, the timeline of when an organization should hire a consultant vs. full time staff, and big challenges on the horizon. The session will feature short podium presentations, followed by a moderated Q&A panel with attendees. The topic of hiring a consulting company came up in the data science plenary keynote at Bio-IT 2018. We want to spend time at Bio-IT 2019 exploring this topic in finer detail.

3:20 KEYNOTE PRESENTATION: Trends from the Trenches 2019
Chris Dagdigian, Co-Founder and Senior Director, Infrastructure, BioTeam, Inc.

The “Trends from the Trenches” in its original “state of the state address” returns to Bio-IT! Since 2010, the “Trends from the Trenches” presentation, given by Chris Dagdigian, has been one of the most popular annual traditions on the Bio-IT Program. The intent of the talk is to deliver a candid (and occasionally blunt) assessment of the best, the worthwhile, and the most overhyped information technologies (IT) for life sciences. The presentation has helped scientists, leadership, and IT professionals understand the basic topics related to computing, storage, data transfer, networks, and cloud that are involved in supporting data intensive science.

4:00 Conference Adjourns
There is an increased demand in computing power from life science researchers and scientists tackling big data issues. To do their work, their storage and infrastructure must be able to scale to handle billions of data points and files efficiently. The Data Computing track will explore data computing resources and application deployment tools that are needed to process computational workflows and drive automation, advance analytics capabilities, reproduce software deployment, maximize application performance, and drive broad organizational decision processes.

TUESDAY, APRIL 16
7:00 am Workshop Registration Open and Morning Coffee
8:00 – 11:30 Recommended Morning Pre-Conference Workshops*
W4. AI for Pharma
12:30 – 4:00 pm Recommended Afternoon Pre-Conference Workshops*
W9. Research Project Management
* Separate registration required. Please click here for details.

2:00 – 6:30 Main Conference Registration Open

4:00 PLENARY KEYNOTE SESSION
Please click here for details.

5:00 – 7:00 Welcome Reception in the Exhibit Hall with Poster Viewing and Meet the Experts: Plenary Keynote Speaker

WEDNESDAY, APRIL 17
7:30 am Registration Open and Morning Coffee
8:00 PLENARY KEYNOTE SESSION
Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Poster Viewing and Meet the Experts: Plenary Keynote Panelists

DATA TOOLS AND PLATFORMS FOR PROCESSING WORKFLOWS AND DRIVING AUTOMATION

10:50 Chairperson’s Remarks
Shweta Maniar, Global Client Executive, Google Cloud

11:00 Reaction Explorer
Raquel Dias Miranda Hoggett, Small Molecule Workflow Service Manager, F. Hoffmann-La Roche
The presentation will discuss how Roche has addressed the challenges of navigating reactions linked by synthetic route or Intellectual Property space. The following themes will be covered: the Reaction Explorer workflow tool for capturing, processing and mining reaction information; key analysis functionalities such as synthesis trees, reaction component property comparisons, key intermediates & precursors identification; facilitating patent writing, condition optimization and enabling synthesis proposals.

11:30 A Fully Integrated Platform for Pharmacology in vivo Study Data Management
Lian Shen, Software Engineer, Five Prime Therapeutics
In vivo studies are an indispensable component of the drug discovery process. However, current study workflow management and data capture mostly involve manual data entries and spreadsheet manipulations, which can be both cumbersome and error-prone. We developed an integrated software platform using in-house development and custom commercial software to streamline end-to-end in vivo study workflow management, from protocol design and initiation to data collection, analysis, and reporting.

12:00 pm K Biobank – Delivering Insights for Reverse and Forward Translation
Jason Tetrauld, Global Head Data Engineering and Emerging Technologies, Takeda
Sandor Szalma, PhD, Global Head, Computational Biology, Takeda San Diego, Inc.

12:30 Session Break

12:40 Luncheon Presentation: Intelligent Automation of Biomedical Data Processing Using Metadata Enabled Analytics
Georges Heiter, CEO, Databiology
Today's research uses highly specialized siloed data and analytics with poor reproducibility. Traditional monolithic architectures prevent easy modernization of R&D compute environments. Learn about a new frontier in data computing, how a platform that uses a ubiquitous metadata approach combined with a modern microservices architecture enables automation and intelligently assists researchers in obtaining insights from heterogeneous datasets.

1:10 Session Break

DATA TOOLS AND PLATFORMS FOR PROCESSING WORKFLOWS AND DRIVING AUTOMATION (CONT.)

1:50 Chairperson’s Remarks
Vas Vasiliadis, Chief Customer Officer, Globus, University of Chicago

1:55 Model of Efficiency: How Automating Data Exchange Can Improve the Flow of Complex Information between Partners in a Distributed Resource Model
Rebecca Carazza, PhD, Director, Research Informatics, Nimbus Therapeutics
As a "virtual" biotechnology company, Nimbus Therapeutics’ operations are entirely enabled through partnering with a wide array of academic and contract research organizations across the globe. Within this model, the coordination of data transfer and integration between multiple partners has historically been a challenge and negatively affected the speed and scalability of the organization. After deploying an automated workflow solution, data exchange is scalable, less error prone and content is available to scientific decisionmakers faster.

2:25 Automating Workflows in Bioscience Research: Approaches and Examples
Vas Vasiliadis, Chief Customer Officer, Globus, University of Chicago
This talk describes the Globus research data management platform and illustrates how it can be used to automate research data flows. Through hands-on examples and references to implementations in bioscience projects, we will demonstrate how to leverage Globus to provide researchers with scalable, automated data management capabilities. We will also describe how Globus REST APIs may be combined with high-speed networks to provide a research data platform on which developers can create entirely new classes of scientific applications, portals, and gateways in the life sciences.
5:00 Genomic Analyses on Google Cloud Platform
Andrew Moschetti, Solutions Architect, Healthcare & Life Sciences, Google Cloud
Using Google Cloud Platform and other open source tools such as GATK Best Practices and DeepVariant, learn how to perform end-to-end analysis of genomic data. Starting with raw files from a sequencer, progress through variant calling, importing to BigQuery, variant annotation, quality control, BigQuery analysis and visualization with phenotypic data. All the datasets will be publicly available and all the work done will be provided for participants to explore on their own.

5:30 Best of Show Awards Reception in the Exhibit Hall with Poster Viewing

THURSDAY, APRIL 18

7:30 am Registration Open and Morning Coffee

8:00 PLenary Keynote Session & Awards Program
Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Meet the Experts: Plenary Keynote Speaker and Poster Competition Winners Announced @ 10:00

10:30 Chairperson’s Remarks
Mahmood Mohammadi Shad, PhD, Scientific Software Engineer, FAS Research Computing, Harvard University

ACCELERATING RESEARCH THROUGH ADVANCED COMPUTING RESOURCES

10:40 Accelerating Neuroscience Research Utilizing Advanced Research Computing Resources
Mahmood Mohammadi Shad, PhD, Scientific Software Engineer, FAS Research Computing, Harvard University
Working on cutting-edge research on discovering brain mysteries requires dealing with a large amount of data processing and interacting with advanced software tools in order to facilitate the research. Research Computing at Harvard University provides the storage/compute infrastructure as well as research software engineering (RSE) services to different labs within the Center for Brain Science (CBS). Three different projects in Ölveczky Lab at CBS will be presented to show how advanced RSE combined with modern storage/compute resource is shaping the research on the brain.

11:10 Improving Laboratory Ordering Patterns and Patient Safety Using Integrated Electronic Health Record (EHR) and Laboratory Information System (LIS): The Brigham and Women’s Hospital Experience
Milenko Tanasijevic, MD, MBA, Vice Chair for Clinical Pathology and Quality, Department of Pathology, Brigham and Women’s Hospital and Dana-Farber Cancer Institute; Director of Clinical Laboratories, Brigham and Women’s Hospital; Associate Professor of Pathology, Harvard Medical School
We report on the features and advantages of an integrated EHR/LIS laboratory ordering system in a large, academic-based tertiary medical center. The system consists of an EHR-based computerized physician order entry system, positive patient identification system for both nursing and phlebotomy staff, order communication to the LIS and an automated, robotic routine chemistry and hematology systems with result auto-filing capabilities. We present a detailed timeline of the system’s development along with benefits for patient care and lessons learned during the process.

11:40 Building an Image Analytics capabilities platform for Pharmaceutical Science (PS) - Pathology
Michel Petrovic, Senior Scientist/Business Analyst, pRED Informatics, Roche Pharmaceutical Research and Early Development (pRED), Roche Innovation Center Basel
The PS pathology group provides toxicology and investigative pathology support for all pRED DTAs and functions with increasing image analysis projects. A complete data management and image analytics solution is requested to fulfill the following: 1. Tools allowing for slide visualization and annotation in a collaborative manner (Digital Pathology Slide Management), 2. Integration of analytics software solutions for both the primary image analysis and data mining, and 3. Ability to launch image analysis solutions from the slide viewer. This talk will discuss the flexibility to independently develop fit-for-purpose image analysis solutions to support the portfolio. I will also talk about proper integration with the TIMAP-LIMS workflow (Tissue Management and Analytics Platform) component.

12:10 pm Enjoy Lunch on Your Own

1:20 Dessert Refreshment Break in the Exhibit Hall with Poster Viewing
CONSULTANCIES AND COMPUTING: ASSESSMENTS, ORGANIZATIONAL CHALLENGES & TRENDS

1:55 Chairperson’s Remarks
Chris Dwan, Senior Technologist and Independent Life Sciences Consultant

2:00 PANEL DISCUSSION: High Performance Consultancies
Moderator:
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4:00 Conference Adjourns
Software Applications & Services

Tools that Best Utilize Data to Drive Scientific & Clinical Decision Making

As data generation increases, there is a need for workflows that are reproducible across infrastructures, able to empower scientists and researchers to apply cutting-edge analysis methods. A main challenge is scientific data is not centralized or standardized and is fragmented – from instrumentation to clinical research to legacy software. The Software Applications & Services track explores how biopharma companies are utilizing software tools to leverage data platforms to advance data strategies. Themes of case studies that will be presented will focus on data analytics approaches, data methods and standards approaches, transparency, efficiency, security, and cost-effective solutions.

TUESDAY, APRIL 16

7:00 am Workshop Registration Open and Morning Coffee

8:00 – 11:30 Recommended Morning Pre-Conference Workshops*
W1. Data Management for Biologics: Registration and Beyond

12:30 – 4:00 pm Recommended Afternoon Pre-Conference Workshops*
W9. Research Project Management

* Separate registration required. Please click here for details.

2:00 – 6:30 Main Conference Registration Open

4:00 PLENARY KEYNOTE SESSION
Please click here for details.

5:00 – 7:00 Welcome Reception in the Exhibit Hall with Poster Viewing and Meet the Experts: Plenary Keynote Speaker

WEDNESDAY, APRIL 17

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION
Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Poster Viewing and Meet the Experts: Plenary Keynote Panelists

TOOLS THAT BEST UTILIZE DATA TO DRIVE CLINICAL DECISION-MAKING AND BIOLOGICAL KNOWLEDGE

10:50 Chairperson’s Remarks
Robert Zeigler, PhD, Director, Customer Solutions, L7 Informatics, Inc.

11:00 Making Clinical Data Available to Researchers at the Princess Máxima Center for Pediatric Oncology with tranSMART and cBioPortal
Patrick Kemmeren, PhD, Principal Investigator, Princess Máxima Center for Pediatric Oncology

The Princess Máxima Center for Pediatric Oncology is the centralized pediatric oncology center for all children with cancer in the Netherlands since 2018. Attendees will learn about our new center, how to set up research IT infrastructure in a (inter)nationally oriented research hospital, without being limited by legacy software. Besides this, they will be informed on the latest developments on an important set of open source research IT software tools, including tranSMART, Glowing Bear, and cBioPortal.

11:30 Building a Standards-Based Clinical Data Resource for Cancer: Challenges, Goals, and Progress
Eva Lepisto, Data Services Team Lead, Dana-Farber Cancer Institute

Oncology’s pioneering role in precision medicine has led to routine tumor sequencing; Dana-Farber has clinically sequenced more than 30,000 tumors. However, the incompleteness and inconsistency of clinical data from EHRs and other sources present significant challenges to building the patient-specific diagnosis, treatment and outcome data that are required to discover correlates to genomic data that inform diagnosis, prognosis, and personalized treatment. At DFCI, we are striving to improve the quality and coverage of clinical data decision support.

12:00 pm CO-PRESENTATION: Discngine presents 3decision, a Collaborative Platform for Structural Knowledge Management
Eric Le Roux, CEO, Discngine
Peter Schmidtke, Scientific Project Manager, Discngine

Discngine develops innovative IT solutions for Life Science research. In 2018, it launched 3decision, a web application that combines a fully annotated & searchable protein structure database and a web-based user interface with state-of-the-art structural analytical tools. The user interface is designed to give molecular modelers, medicinal chemists and structural biologists a common ground for structure-based drug discovery.

12:15 CASE STUDY: How a Top Pharmaceutical Company Supports Scientific Discovery with Contextualized Information Retrieval
Michael Iarrobino, Senior Product Manager, Copyright Clearance Center

A pharmaceutical company needed a better way to support scientific discovery and realize the value of its information assets. But, with siloed data, a lack of awareness of available licensed resources, and multiple discovery workflows it was taking researchers too long to find information and synthesize data to advance research. In this session, learn how the organization tackled these challenges.

12:30 Session Break

12:40 Luncheon Presentation I: Keys to Success in Preclinical Informatics Development; All About That Data
Graeme Dennis, Commercial Director, Pre-Clinical Pharma IDBS

In the R&D industry today, beleaguered system implementations are more common than anyone would prefer to admit. Data harmonization tasks, expectation management, and risk mitigation opportunities can pass before their urgency is even fully appreciated. This 30-minute talk will explore the keys to success for developing a data-centric approach to R&D, which acknowledges the breadth of project workstreams.

1:00 Luncheon Presentation II: Certara Integral: Next Generation Data Repository
Kevin Trimm, Senior Director, Product Strategy & Services, Software, Certara

A successful drug development program relies on data being centralized in an accessible, understandable, mineable, traceable, and secure location for analysis and interpretation. Provisioning
data to scientists in an organized manner with high performance can be a challenge. Certara Integral is a validated and 21 CFR Part 11 compliant software as a service data and model repository utilizing the CDISC data model and Amazon Web Services Infrastructure, providing an intuitive solution to this problem.

1:40 Session Break

TOOLS THAT BEST UTILIZE DATA TO DRIVE CLINICAL DECISION-MAKING AND BIOLOGICAL KNOWLEDGE (CONT.)

1:50 Chairperson’s Remarks
Susan A. Roberts, Senior Director, Scientific Computing, Vertex Pharmaceuticals

1:55 Turning WGS Genetic Testing into a Dialogue between Physicians and Labs with GenomeDiver
Christian Stolte, Data Visualization Designer, Informatics Research Innovation, New York Genome Center
Developed as part of the NYCKidSeq project, GenomeDiver fosters a dialogue between the clinician and genetic testing lab. The software leverages the physician’s knowledge of their patient by asking them to provide additional information to the lab, which then forms the basis for reanalysis. It delivers understandable information about mutations in the entire genome, using knowledge about functional variants coming from an increasing number of public sources, in particular the GTEx project.

2:25 Crowdsourcing Network Biology
William Hayes, PhD, CTO, BioDati, Inc.
Through the use of a publicly available application, BioDati Studio, and an open standards-based language, BEL, we provide an application and platform to allow users to take standard, shareable notes as BEL Nanopubs. These Nanopubs are processed into Edges, which are stored in a database and used to create networks for any biological context, drive insights, and power analytics. BioDati Studio powers network biology by providing the capability to host biological knowledge from a variety of sources and provide powerful knowledge sharing/collaboration for the life sciences.

2:55 Scientific Information Management (SIM) – Elevating the Health and Science Process to the Next Level
Robert Zeigler, PhD, Director, Customer Solutions, L7 Informatics, Inc.
Precision medicine and new classes of treatments, including gene and cell therapies, require a new category of companion informatics platforms that automate and synchronize complex drug discovery and therapeutic processes. This talk will discuss how to enable SIM from bench to bedside in life sciences and healthcare organizations with real-world case studies.

3:25 Refreshment Break in the Exhibit Hall with Poster Viewing and Meet the Experts: Bio-IT World Editorial Director Allison Proffitt

3:25 Book Signing with Joseph C. Kvedar, MD, Vice President, Connected Health, Partners Healthcare; Professor, Harvard Medical School; Author, The Internet of Healthy Things™ (Book will be available for purchase onsite)

SOFTWARE TOOLS AND METHODS TO FACILITATE DATA MANIPULATION, CALCULATION, GRAPHICAL DISPLAY, AND IMPROVED USER INTERFACES

4:00 beRi Suite of Tools for Managing the R Language
Robert Gilmore, Researcher II, Psychiatry and Human Behavior, University of Mississippi Medical Center
beRi “beri environments for R installations” is an R environment, R installation, and R package management system for the R programming language. beRi is a suite of Python packages composed of the following components: (1) renv, a virtual environment manager for R; (2) rinse, an R version manager; and (3) rut, an R utility tool for installing packages. These CLIIs were originally developed at Hackseq 2018 at which the project won by popular vote.

4:30 Design Ops in Life Science UX
Kirk Brote, Owner & Founder, Kirk Brote Consulting; Former Director, Communications Team, UX Working Group, The Pistoia Alliance
Last year the Pistoia Alliance introduced a UX toolkit specific to Life Science to address the lack of design methodology in the biopharmaceutical industry. Design Ops for Life Science UX makes it possible to take those tools and workflows and distribute them across all of your working teams to accelerate innovation, a critical goal in the bio-IT space, where stakes are high and patients are in need.

5:00 Data Integration and Analytics Strategies for Pharma
John McCarthy, Pre Sales Director, Global Life Sciences, Dassault Systemes
Automated lab procedures, sensor technologies and digitalization has increased the amount of available data. Companies need flexible workflows that enable ad hoc analytics, fast indexing/ontology building and a way to manage best practices within their organization, and need to be able to integrate their own data/data collected from the public domain, and productize the resulting models generated by their teams.

5:30 Best of Show Awards Reception in the Exhibit Hall with Poster Viewing

THURSDAY, APRIL 18

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION & AWARDS PROGRAM
Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Meet the Experts: Plenary Keynote Speaker and Poster Competition Winners Announced @ 10:00

IMPLEMENTING INNOVATIVE CLINICAL TRIAL AND PROJECT DESIGNS

10:30 Chairperson’s Remarks
Gurpreet Kanwar, MBA, PMP, Senior Project Manager, NAV CANADA

10:40 CO-PRESENTATION: Implementation of Complex Innovative Designs (CID) at Janssen
Raj Malathker, Manager, Quantitative Sciences IT, Johnson & Johnson Pharmaceutical R&D
Vlad Dragalin, PhD, Vice President & Scientific Fellow, Global Quantitative Sciences, Janssen Pharmaceuticals R&D
Both the 21st Century Cures Act and the PDUFA VI legislations call for wider use and acceptance of complex innovative clinical trial designs with the goal of streamlining drug development and bringing needed new medicines to patients in a more timely and efficient manner. We are the first PhRMA company to build an in-house platform, aptly named ACTIVE (Adaptive Clinical Trial’s Interactive Virtual Environment), for efficient implementation of such complex innovative designs.

11:10 Effectively Complete Your Projects
Gurpreet Kanwar, MBA, PMP, Senior Project Manager, NAV CANADA
Most organizations say they have too many projects on the go and are not able to manage with backlog still growing. They want to achieve a high throughput of successful projects, however many are unable or unwilling to allocate an appropriate level of resourcing to approved initiatives. Methodologies to execute projects are not consistent and lacking standard processes. There is a need to manage project delivery expectations, satisfaction of business stakeholders and balance the demand to help them achieve their strategic goal.
11:40 **Increasing the Velocity of Team Data Science**  
*Gregg TeHennepe, Program Manager, Computational Scientist, The Jackson Laboratory*  
*Beena Kadakkuzha, PhD, Research Project Manager, The Jackson Laboratory*  

Learn how the Jackson Laboratory has leveraged concepts and processes from Agile and Scrum to significantly increase the effectiveness and pace of teams focusing on data science.

12:10 pm **Enjoy Lunch on Your Own**

1:20 **Dessert Refreshment Break in the Exhibit Hall with Poster Viewing**

**CONSULTANCIES AND COMPUTING: ASSESSMENTS, ORGANIZATIONAL CHALLENGES & TRENDS**

1:55 **Chairperson’s Remarks**  
*Chris Dwan, Senior Technologist and Independent Life Sciences Consultant*

2:00 **PANEL DISCUSSION: High Performance Consultancies**  
*Moderator:*  
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*Tanya Cashorali, CEO, Founder, TCB Analytics*  
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4:00 **Conference Adjourns**
The Bioinformatics track assembles thought leaders who will present case studies using computational resources and tools that take data from multiple -omics sources and align it with clinical action. Turning big data into smart data can lead to real time assistance in disease prevention, prognosis, diagnostics, and therapeutics. With the ever-increasing volume of information generated for curing or treating diseases and cancers, bioinformatics technologies, tools and techniques play a critical role in turning data into actionable knowledge to meet unstated and unmet medical needs.

**TUESDAY, APRIL 16**

- **7:00 am** Workshop Registration Open and Morning Coffee
- **8:00 – 11:30** Recommended Morning Pre-Conference Workshops*
  - W2. Data Visualization to Accelerate Biological Discovery
- **10:50** Chairperson's Remarks
  - Andrew LeBeau, PhD, Senior Manager, Biologics Marketing, Marketing, Dotmatics
- **11:00** Visualizing and Integrating Pathway Information
  - Sebastian Scharf, PhD, Data Scientist, Roche
- **11:30** Identifying Key Mechanisms of Alzheimer's Disease with Omics Data
  - Sudeshna Das, PhD, Assistant Professor, Neurology, Massachusetts General Hospital/Harvard Medical School
- **12:00 pm** Advanced Bioinformatics Techniques for Biologics Drug Discovery
  - Andrew LeBeau, PhD, Senior Manager, Biologics Marketing, Marketing, Dotmatics
- **12:15** Understanding Disease Mechanisms Through Integrative Multi-OMICS Data Analysis
  - Alexandr Ivliev, Director, Bioinformatics, Clarivate Analytics

**WEDNESDAY, APRIL 17**

- **7:30 am** Registration Open and Morning Coffee
- **8:00** PLenary Keynote Session
  - Please click here for details.
- **9:45** Coffee Break in the Exhibit Hall with Poster Viewing and Meet the Experts: Plenary Keynote Speaker
- **10:45** Advanced Bioinformatics Techniques for Biologics Drug Discovery
  - Andrew LeBeau, PhD, Senior Manager, Biologics Marketing, Marketing, Dotmatics
- **11:10** Methods: Case Studies of Collaborative Global Efforts
  - REVOLUTIONIZING DRUG DEVELOPMENT WITH NEW DISEASE MODELS AND SIMULATION METHODS: CASE STUDIES OF COLLABORATIVE GLOBAL EFFORTS
  - 1:50 PANEL DISCUSSION: Revolutionizing Drug Development with New Disease Models and Simulation Methods: Case Studies of Collaborative Global Efforts

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*Separate registration required. Please click here for details.*
BIOMARKER DETERMINATION IN A DIAGNOSTIC CONTEXT: ISSUES AND CHALLENGES WITH IDENTIFICATION, VALIDATION, DEVELOPMENT, AND IMPLEMENTATION OF TOOLS FOR CANCER SCREENING, DIAGNOSIS, AND TREATMENT

Chairperson and Moderator:
Anil Srivastava, President, Open Health Systems Laboratory

Panelists:
Jeffrey Buchsbaum, MD, PhD, AM, Medical Officer and Program Director, Radiation Research Program, Division of Cancer Treatment and Diagnosis, National Cancer Institute/NIH
Rajendra Joshi, PhD, Associate Director and HOD Bioinformatics Group, Centre for Development of Advanced Computing (C-DAC), Pune University Campus
Tonglei Li, PhD, Allen Chao Chair and Professor of Department of Industrial and Physical Pharmacy, College of Pharmacy, Purdue University

By example, literature analysis of 250,000 papers listing biomarkers in cancer yield less than 100 FDA approved diagnostics. Every experiment yields a biomarker; however, every experiment does not yield a diagnostic that can more accurately drive clinical action. How can we close this gap? It is critical to develop a better understanding of the disease process and how observations from genomics, proteomics, and metabolomics may impact that process in different ways. This interactive panel will explore experimental and analytic methods, issues and challenges impacting identification, validation, development and implementation in cancer, diagnosis and treatment.

5:30 Best of Show Awards Reception in the Exhibit Hall with Poster Viewing
METHODS AND MODELS TO BETTER UTILIZE DATA FOR RISK ASSESSMENT, DIAGNOSIS AND TREATMENT DECISIONS

1:55 Chairperson’s Remarks
Yuval Itan, PhD, Assistant Professor, Department of Genetics and Genomic Sciences; Member, Charles Bronfman Institute for Personalized Medicine, Icahn School of Medicine at Mount Sinai

2:00 Pinpointing Transcript-Damaging Disease-Causing Variants as a Major Step towards RNA Therapeutics
Sahar Gelfman, PhD, Associate Research Scientist, Columbia University Medical Center
Since its publication in 2017, the Transcript-inferred Pathogenicity (TraP) model has become a major resource for genetic diagnostics, identifying pathogenic non-coding variants, and helping to change the common conception that pathogenic genetic variation is caused solely by coding mutations. TraP has been incorporated in diagnostic pipelines in tens of research institutes worldwide. TraP is also available as a website for single queries (www.trap-score.org), providing successful diagnosis of genetic disorders and affecting treatment decisions.

2:30 AI Assisted Rapid Clinical Whole Genome Sequencing for Critical Care
Ray Veeraraghavan, PhD, Director of IT & Informatics, Rady Children’s Institute for Genomic Medicine

3:00 Deciphering the Complex Heterogeneity of Cancer
Patrice M. Milos, PhD, Co-Founder/President and CEO, Medley Genomics, Inc.
Medley Genomics provides a software platform that uses patent-pending algorithms and advanced data analytics to describe a patient’s diverse tumor cell mixture. This enables creation of unique molecular diagnostic fingerprints for improving patient diagnosis, monitoring and treatment of cancer, and helps to improve novel oncology therapies and therapeutic combinations including individual cancer vaccine development.

3:30 Estimating Genotypic Heterogeneity Underlying Human Disease
Yuval Itan, PhD, Assistant Professor, Department of Genetics and Genomic Sciences; Member, Charles Bronfman Institute for Personalized Medicine, Icahn School of Medicine at Mount Sinai
Whole exome and whole genome sequencing provide hundreds of thousands of genetic variants per patient, of them only very few are pathogenic. Current computational methods are inefficient in differentiating pathogenic mutations from neutral genetic variants that are predicted to be damaging and cannot predict the functional outcome of mutations. We will present deep learning approaches and machine learning methods in the role of detecting pathogenic mutations. Visualization tools for better utilizing NGS data will be presented to understand human disease genomics.

4:00 Conference Adjourns
Tremendous advancements have been made to broaden NGS applications from research to the clinic. Especially as genomics becomes more integrated with precision medicine initiatives. In spite of this, enormous challenges for NGS still exist including data analysis pipelines and platforms; data integration, interpretation and visualization; application of sequencing to cancer, immunology, diagnostics, and therapeutic development and emerging sequencing technologies. The Next-Gen Sequencing Informatics track presents case studies on these challenges.

**TUESDAY, APRIL 16**

7:00 am Workshop Registration Open and Morning Coffee

8:00 – 11:30 Recommended Morning Pre-Conference Workshops

W6. DNA Sequencing 101

12:30 – 4:00 pm Recommended Afternoon Pre-Conference Workshops

W12. Data Science Driving Better Informed Decisions

* Separate registration required. Please click here for details.

2:00 – 6:30 Main Conference Registration Open

**PLENARY KEYNOTE SESSION**

Please click here for details.

5:00 – 7:00 Welcome Reception in the Exhibit Hall with Poster Viewing and Meet the Experts: Plenary Keynote Speaker

**WEDNESDAY, APRIL 17**

7:30 am Registration Open and Morning Coffee

8:00 **PLENARY KEYNOTE SESSION**

Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Poster Viewing and Meet the Experts: Plenary Keynote Panelists

**CURRENT AND EMERGING TECHNOLOGIES**

10:50 Chairperson’s Remarks

David LaBrosse, Director, Genomics, Research, Life Sciences & Healthcare, NetApp

11:00 Long Read Sequencing

Justin Zook, PhD, Researcher, National Institute of Standards and Technology

11:20 NovoGraph: Loading 7 Human Genomes into Graphs

Evan Biederstedt, Computational Biologist, Memorial Sloan Kettering Cancer Center

11:40 Building a Usable Human Pangenome: A Human Pangenomics Hackathon Run by NCBI at UCSC

Ben Busby, PhD, Scientific Lead, NCBI Hackathons Group, National Center for Biotechnology Information (NCBI)

12:00 pm **CO-PRESENTATION: Faster Genomic Data**

Michael Hultner, PhD, Senior Vice President, Strategy; General Manager, US Operations, PetaGene

David LaBrosse, Director, Genomics, Research, Life Sciences & Healthcare, NetApp

Genetic testing demand is driving up the volume of genomic data that must be processed, analyzed, and stored. Gigabyte-scale genome sample files and terabyte- to petabyte-scale cohort data sets must be moved from data generation to processing to analysis sites, historically a slow, arduous process. NetApp and PetaGene will describe compression and data transfer technologies that overcome I/O bottlenecks to accelerate the movement of genomic data and reduce the time to process and analyze it.

12:30 Session Break

12:40 Luncheon Presentation I: Deep Phenotypic and Genomic Analysis of UK Biobank Data on the WuXi NextCODE Platform

Salima Yilmaz, PhD, Research Geneticist, WuXi NextCODE

The increasing size and complexity of genetic and phenotypic data to include hundreds of thousands of participants poses a significant challenge for data storage and analysis. We demonstrate use of the GOR database and query language underlying our platform to mine UK Biobank and other datasets for efficient phenotype selection, GWAS and PheWAS, and to archive and query the results.

1:00 Luncheon Co-Presentation II: Optimizing Drug Discovery and Development with Data-Driven Insights

Christian Frech, PhD, Associate Director, Scientific Operations, Seven Bridges

Devin Locke, PhD, Senior Vice President, Science, Seven Bridges

1:40 Session Break

**DATA VISUALIZATION, EXPLORATION & ANALYSIS**

1:50 Chairperson’s Remarks

Jeffrey Rosenfeld, PhD, Manager of the Biomedical Informatics Shared Resource and Assistant Professor of Pathology, Rutgers Cancer Institute of NJ

1:55 AbbVie’s Target and Genomics Compilation (ATGC): A Target Knowledge Platform

Rishi Gupta, PhD, Senior Research Scientist, Information Research, AbbVie, Inc

Author: Anne-Sophie Barthelet, Scientific Developer, Discgenome

ATGC is a web-based platform that allows AbbVie scientists to gather relevant information to make accurate decisions on target ID, target validation, biomarker selection and drug discovery. This platform provides in-depth information on several key pieces of information such as gene expression, RNA expression, protein expression, mouse knockout studies, etc. for each target. This talk focuses on key aspects of this application including application architecture, currently available tool sets and how various pieces of information are provided to the user.

2:25 Self Service Data Visualization and Exploration at Genentech Research

Kiran Mukhyala, Senior Software Engineer, Bioinformatics and Computational Biology, Genentech Research and Early Development

Genomic data requires specialized infrastructure to enable data exploration and analysis at scale. We built an integrated, modular, end-to-end gene expression analysis platform implementing data import, storage, processing, analysis and visualization. The multi-layered architecture of the platform supports general, high-level applications for self-service analytics, as well as infrastructure for prototyping, incubating and integrating scientist-driven innovations.
The platform coexists with other in-house and commercial software to provide a wide range of genomic data analysis and visualization options for Research scientists.

2:55 Exploring and Visualizing Single-cell RNA Sequencing Data
Michael DeRan, PhD, Scientific Consultant, Diamond Age Data Science
Recent advances in single-cell RNA sequencing (scRNA-seq) technology have made this powerful method accessible to many researchers, but have not brought with them a clear, simple workflow for data analysis. As the number of scRNA-seq datasets has increased, so too has the number of analysis tools available; for those looking to perform their first scRNA-seq analysis the range of options can seem daunting. In working with our clients, I have had the opportunity to apply many different tools to scRNA-seq data from a variety of tissues and organisms. I have used this experience to select a set of tools that are flexible and suitable to many common scRNA-seq analysis tasks. In this talk I will introduce popular tools and methods for identifying cell populations, assessing differential expression and visualizing biological processes. I will discuss common pitfalls encountered in analyzing this data and make recommendations that anyone can use in their own analysis.

3:25 Refreshment Break in the Exhibit Hall with Poster Viewing and Meet the Experts: Bio-IT World Editorial Director Allison Proffitt

3:25 Book Signing with Joseph C. Kvedar, MD, Vice President, Connected Health, Partners Healthcare; Professor, Harvard Medical School; Author, The Internet of Healthy Things™ (Book will be available for purchase onsite)

NGS APPROACHES FOR CANCER
4:00 Comparison of Different Approaches for Clinical Cancer Sequencing
Jeffrey Rosenfeld, PhD, Manager of the Biomedical Informatics Shared Resource and Assistant Professor of Pathology, Rutgers Cancer Institute of NJ
The sequencing of tumors is important for guiding the treatment of cancer patients. While it is agreed that there is a need to perform sequencing of the tumor, there are a wide variety of approaches ranging from paired whole genome tumor-normal sequencing to tumor-only small panel sequencing with many intermediate possibilities. Each of the approaches has a different cost and associated benefit. I will present a comparison of different methods and their efficacy for guiding cancer treatment.

4:30 Integrated NGS Analysis to Accelerate Disease Understanding for Drug Discovery
Helen Li, Director Research IT - Biologics & Informatics, Eli Lilly and Company

5:00 Identification of Cancer Biomarker Genes
Maryam Nazarian, PhD, Postdoctoral Researcher, Center for Bioinformatics, Universität des Saarlandes, Saarbrücken, Germany

5:30 Best of Show Awards Reception in the Exhibit Hall with Poster Viewing

THURSDAY, APRIL 18
7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION & AWARDS PROGRAM
Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Meet the Experts: Plenary Keynote Speaker and Poster Competition Winners Announced @ 10:00

9:50 SEQUENCING APPROACHES AND VARIANT ANNOTATION FOR HUMAN DISEASE AND GENETIC DISORDERS

10:30 Chairperson’s Remarks
Konrad Karczewski, PhD, Computational Biologist, Broad Institute

10:40 Leveraging Human Genetic Electronic Medical Record-Linked Biobank Data to Guide Drug Discovery
Ron Do, PhD, Assistant Professor, Department of Genetics and Genomic Sciences, Icahn School of Medicine at Mount Sinai
High failure rates of drug development in clinical trials are due in large part to inefficacy of drug therapeutics, and unforeseen adverse side effects. Genetic associations from genome-wide association (GWA) studies have shown potential in guiding drug target prioritization. Electronic medical record (EMR)-linked biobank data have recently emerged as a source to conduct GWA scans on a broad spectrum of medical and clinical phenotypes. My talk will evaluate the utility of such data in the context of drug research and development.

11:00 VCNA - A Cloud-Based SNP/Indel Variant Calling Pipeline and Data Management Tool Used for Analysis of WGS/WES for the Alzheimer's Disease Sequencing Project
Yuk Yee Leung, PhD, Research Assistant Professor, Pathology and Laboratory Medicine, Perelman School of Medicine, University of Pennsylvania
The Alzheimer’s Disease Sequencing Project (ADSP) will analyze whole-genome sequencing (WGS) from > 20,000 late-onset AD patients and cognitively normal elderly to find new genetic variants associated with disease risk. To process all sequencing data consistently and efficiently, “Variant Calling Pipeline and Data Management Tool” (VCNA) was developed by the Genome Center for Alzheimer’s Disease in collaboration with ADSP. VCNA is optimized for large-scale production of WGS data and includes a tracking database with web frontend for users to track production.

11:40 Variation Across 141,456 Individuals Reveals the Spectrum of Loss-of-Function Intolerance of the Human Genome
Konrad Karczewski, PhD, Computational Biologist, Broad Institute

12:10 pm Session Break

12:20 Luncheon Presentation: The Future State of NGS Data Analysis
Anthony Philippakis, MD, PhD, Chief Data Officer, Broad Institute of MIT and Harvard
Pankaj Srivastava, Computer Science BSc, Vice President of Software and Informatics, Bioinformatics, Illumina
Data analysis is the key to unlocking the power of the genome – turning raw sequencing information into the answers that matter most. Join Illumina and the Broad Institute for a discussion around the future state of next generation sequencing data analysis, and an update on the Illumina® DRAGEN™ Bio-IT Platform.

12:50 Session Break

1:20 Dessert Refreshment Break in the Exhibit Hall with Poster Viewing

METHODS AND MODELS TO BETTER UTILIZE DATA FOR RISK ASSESSMENT, DIAGNOSIS AND TREATMENT DECISIONS

1:55 Chairperson’s Remarks
Yuval Itan, PhD, Assistant Professor, Department of Genetics and Genomic Sciences; Member, Charles Bronfman Institute for Personalized Medicine, Icahn School of Medicine at Mount Sinai
2:00 Pinpointing Transcript-Damaging Disease-Causing Variants as a Major Step towards RNA Therapeutics
Sahar Gelfman, PhD, Associate Research Scientist, Columbia University Medical Center
Since its publication in 2017, the Transcript-inferred Pathogenicity (TraP) model has become a major resource for genetic diagnostics, identifying pathogenic non-coding variants, and helping to change the common conception that pathogenic genetic variation is caused solely by coding mutations. TraP has been incorporated in diagnostic pipelines in tens of research institutes worldwide. TraP is also available as a website for single queries (www.trap-score.org), providing successful diagnosis of genetic disorders and affecting treatment decisions.

2:30 AI Assisted Rapid Clinical Whole Genome Sequencing for Critical Care
Ray Veeraraghavan, PhD, Director of IT & Informatics, Rady Children's Institute for Genomic Medicine

3:00 Deciphering the Complex Heterogeneity of Cancer
Patrice M. Milos, PhD, Co-Founder/President and CEO, Medley Genomics, Inc.
Medley Genomics provides a software platform that uses patent-pending algorithms and advanced data analytics to describe a patient's diverse tumor cell mixture. This enables creation of unique molecular diagnostic fingerprints for improving patient diagnosis, monitoring and treatment of cancer, and helps to improve novel oncology therapies and therapeutic combinations including individual cancer vaccine development.

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Yuval Itan, PhD, Assistant Professor, Department of Genetics and Genomic Sciences; Member, Charles Bronfman Institute for Personalized Medicine, Icahn School of Medicine at Mount Sinai
Whole exome and whole genome sequencing provide hundreds of thousands of genetic variants per patient, of them only very few are pathogenic. Current computational methods are inefficient in differentiating pathogenic mutations from neutral genetic variants that are predicted to be damaging and cannot predict the functional outcome of mutations. We will present deep learning approaches and machine learning methods in the role of detecting pathogenic mutations. Visualization tools for better utilizing NGS data will be presented to understand human disease genomics.

4:00 Conference Adjourns
FAIR Data

Making Data More Findable, Accessible, Interoperable, and Reusable

As the volume of data being produced by pharma companies, medical centers, and academic organizations continues to rise, the capacity for fully making use of this data is being hampered by a series of limitations. The FAIR (findable, accessible, interoperable, reusable) principles are a very powerful initiative which has the potential to significantly increase the value of data sets. The FAIR Data track, which complements the Bio-IT Hackathon, brings together data scientists who are pioneering the use of FAIR data, with specific examples of how its use is enhancing the value of the data for specific applications including, but not limited to, omics, imaging, and clinical trial data.

TUESDAY, APRIL 16

7:00 am Workshop Registration Open and Morning Coffee

8:00 – 11:30 Recommended Morning Pre-Conference Workshops*

W5. Managing Sensitive and HIPAA-Controlled Data with Globus

12:30 – 4:00 pm Recommended Afternoon Pre-Conference Workshops*

W14. The Gene Pattern Notebook Environment for Open Science and Reproducible Bioinformatics Research

* Separate registration required. Please click here for details.

2:00 – 6:30 Main Conference Registration Open

4:00 PLENARY KEYNOTE SESSION

Please click here for details.

5:00 – 7:00 Welcome Reception in the Exhibit Hall with Poster Viewing and Meet the Experts: Plenary Keynote Speaker

WEDNESDAY, APRIL 17

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION

Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Poster Viewing and Meet the Experts: Plenary Keynote Panelists

ADVANCEMENTS IN FAIR DATA

10:50 Chairperson’s Remarks
Anne Deslattes Mays, PhD, Principal Computational Scientist, The Jackson Laboratory for Genomic Medicine

11:00 Community Convergence onto an Internet of FAIR Data and Services
Erik Schultes, PhD, International Science Coordinator, GO FAIR International Support and Coordination

11:30 FAIRness and Accountability: Expectations vs. Reality
Helena Deus, PhD, Technology Research Director, Elsevier Labs, Elsevier, Inc.

For many scientists, the prose and charts on a scientific article constitute the proper way to report scientific data. From a data scientist’s perspective, there is an expectation that scientific data is findable, available, interoperable and reproducible. There is a gap between expectations and reality. In this talk, we will dive deeper into that gap and explore how and why that gap is wider or narrower in different scientific domains.

12:00 pm FAIR data + FAIR apps = new frontier in deriving meaning and insights
Juan Caballero, PhD, CSO, Databiology

There has been significant progress in applying FAIR data principles to the data available today. Having FAIR data is a great start, but what if the rest of your research process isn’t FAIR? Learn about how to make apps FAIR and how this enables self-describing analysis, opens new frontiers for intelligent analysis processes and automatic capturing of research insights

12:30 Enjoy Lunch on Your Own

PHARMA PERSPECTIVES: ADOPTING FAIR

1:50 Chairperson’s Remarks
Helena Deus, PhD, Technology Research Director, Elsevier Labs, Elsevier, Inc.

1:55 KEYNOTE PRESENTATION: From Finding to Exploiting FAIR Data
Mathew Woodwark, PhD, Director, Research Bioinformatics, Data Science and AI, BioPharmaceuticals R&D, AstraZeneca

Much effort with the FAIR data community has focused on dataset catalogues, a prerequisite towards Finding FAIR data. But once discovered, what can we do with FAIR datasets? At AZ/Medimmune we are building an internal and external FAIR data ecosystem that can provide a loosely-coupled knowledge graph; an environment for initiating complex analytics and recording key insights; a human and machine agnostic data science playground for meaningful collaboration and knowledge extension to drive novel discovery and informed decision making. Both experts and novices should participate and derive value from the FAIR ecosystem.

2:25 CO-PRESENTATION: Building a Unified Data Model
Roman Affentranger, PhD, Head, Small Molecule Discovery Workflows, Roche Pharma Research and Early Development Informatics, Roche Innovation Center Basel, F. Hoffmann-La Roche Ltd.

Carmen I. Nitsche, Business Development Consultant, Pistoia Alliance

The Unified Data Model (UDM) is a common effort of vendors and life science organizations to create a well-defined data format for exchange of information about compound synthesis and their biological testing. Run under the umbrella of the Pistoia Alliance, the project released the first open and publicly available version of the Unified Data Model (UDM) in June 2018 and this saw a significant step in the ability to store and exchange information about compound synthesis and their biological testing. Without this common language and structure to describe experiments, data integration has been limited and a significant part of published data has not been readily available for processing or analysis. The first public release of UDM was closely followed by an enhanced version 5.0, including numerous extensions and it is expected that the model will continue to be improved as demand dictates working with the Pistoia FAIR data implementation by industry community.

2:55 Building an Enterprise Data Lake that is FAIR
Irene Pak, Lead R&D Data Architect, Bristol-Myers Squibb
As with many companies, Bristol-Myers Squibb has embarked on its journey to implement an enterprise data lake as one of the means to reach data nirvana, a state where human and machine can effectively mine our disparate digital data assets and turn them into business insights that will ultimately help our patients. The FAIR data principles play an important role in our undertaking by providing a framework to make our data findable, accessible, interoperable, and reusable. In this presentation, I will share some of our learnings in the pursuit of FAIRness for our complex data ecosystem.

3:25 Refreshment Break in the Exhibit Hall with Poster Viewing and Meet the Experts: Bio-IT World Editorial Director Allison Proffitt

3:25 Book Signing with Joseph C. Kvedar, MD, Vice President, Connected Health, Partners Healthcare; Professor, Harvard Medical School; Author, The Internet of Healthy Things™ (Book will be available for purchase onsite)

BIO-IT WORLD FAIR DATA HACKATHON

4:00 Introduction to FAIR Data Hackathon
Ben Busby, PhD, Scientific Lead, NCBI Hackathons Group, National Center for Biotechnology Information (NCBI)

Over the past two days, teams have been working hard to evaluate and improving the FAIRness of data sets, tools, and pipelines. Before the teams present their results NIH data hackathon coordinator, Ben Busby, will introduce us to FAIR data hackathons and what our teams have been up to for the past 2 days.

4:15 Hackathon Report Outs
During the FAIR Data Hackathon, which will take place April 15-16, project teams will work on various data sets with two goals in mind. The first task is to evaluate the FAIRness of a given data set, comparing it to FAIR principles. Next they will work on various modifications of the data set that would improve the FAIRness of the information. Representatives from the project teams will report out on the work that was done, and lessons learned from the hackathon.

BioAssay Express: Applying FAIR Principles to Bioassay Protocols
Collaborative Drug Discovery

BLAST, Pipelines, and FAIR
NCBI, NIH

FAIR Beyond Data – Applications as FAIR
The Jackson Laboratory

The Broad Institute’s Single-Cell RNA-Seq Data Set
The Broad Institute

Bringing the Power of Synthetic Data Generation to the Masses
The Broad Institute

DOE JGI Genomics Data Set
U.S. Department of Energy Joint Genome Institute

Generating a Fungal Index for the SRA
Find Bioscience

Integrating Globus into Galaxy to Enable FAIRifying Data
Globus, University of Chicago

5:30 Best of Show Awards Reception in the Exhibit Hall with Poster Viewing

THURSDAY, APRIL 18

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION & AWARDS

PROGRAM

Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Meet the Experts: Plenary Keynote Speaker and Poster Competition Winners Announced @ 10:00

CHALLENGES AND OPPORTUNITIES IN APPLYING FAIR

10:30 Chairperson’s Remarks
Les Mara, Founder, Databiology

10:40 Powering AI Innovation with the Emerging Internet of FAIR Data and Services
Michel Dumontier, PhD, Distinguished Professor, Institute of Data Science, Maastricht University

The rapid and worldwide endorsement and adoption of the FAIR (Findable, Accessible, Interoperable, Reusable) principles is contributing to the establishment of a new Internet of FAIR Data and Services. This emerging network of knowledge and services offers new opportunities to power AI-based applications in a manner that is both scalable and responsible.

11:40 Fostering Autonomous and Inclusive Research
Brian M. Bot, Principal Scientist, Outreach and Strategic Development, Sage Bionetworks

12:10 pm Enjoy Lunch on Your Own

DATA STEWARDSHIP TO PROMOTE FAIRNESS

1:55 Chairperson’s Remarks
Eric Neumann, PhD, Founder & CEO, AIDAKA LLC

2:00 Using the BioCompute Framework for FAIR Communication of Data Provenance
Elaine Thompson, PhD, Senior Staff Fellow, CBER, FDA

The BioCompute Framework is designed for communicating high-throughput sequencing (HTS) computations and analyses. It provides a FAIR method for exchanging data provenance, workflows, or pipelines in a JSON structure. BioCompute Objects can facilitate communication between scientists, researchers, and regulatory agencies including FDA. BioCompute is described in a Standard Trial Use document available at Open Science Foundation (OSF) and will be published by IEEE.

2:30 FAIR as a Working Principle for Cancer Genomic Data
Ian Fore, PhD, Senior Biomedical Informatics Program Manager, Center for Biomedical Informatics and Information Technology, National Cancer Institute

Working with the National Center for Biotechnology Information the National Cancer Institute uses the Sequence Data Delivery Pilot (SDDP) to store data “as is” from multiple cancer genomic studies. Short of the full harmonization employed in its Genomic Data Commons the NCI uses the FAIR principles as a yardstick for making SDDP data usable by the cancer genomics community.
3:00 Data Stewardship for Single-Cell Genomics  
Eric Weitz, Senior Software Engineer, Data Sciences Platform, Broad Institute of MIT and Harvard  
Single-cell genomics assays can measure gene expression in thousands of cells, simultaneously. In order for such data to be useful for biomedical researchers and developers, it must be findable, accessible, interoperable, and reusable. This presentation will discuss implementation of those FAIR principles for single-cell genomics in the Human Cell Atlas, the Data Sciences Platform at Broad Institute, and the Single Cell Portal.

3:30 A Journey through the Data Commons Architecture  
Tom Quaiser, PhD, Roche Pharmaceuticals  
Over the last couple of years, we at early research in Roche have been building up a new data architecture - the pRED Data Commons. Main ingredient to this architecture is modularity and FAIRness of data. In this talk we will take you on a journey through the components of the pRED Data Commons and demonstrate the benefits of such an architecture.

4:00 Conference Adjourns
Clinical Research & Translational Informatics
Transforming Biological Data to Clinical Development

Advancing clinical trials and translational research requires transforming biological insights and raw research data into clean, actionable data using innovative techniques for its integration, visualization and analysis. The Clinical Research & Translational Informatics track explores new approaches to the integration, visualization, analysis, and application of biological and clinical trial data, including machine learning, artificial intelligence, big data analytics, and additional technologies with case studies from across pharma and academia.

TUESDAY, APRIL 16
7:00 am Workshop Registration Open and Morning Coffee
8:00 – 11:30 Recommended Morning Pre-Conference Workshops*
12:30 – 4:00 pm Recommended Afternoon Pre-Conference Workshops*
* Separate registration required. Please click here for details.

2:00 – 6:30 Main Conference Registration Open

4:00 PLENARY KEYNOTE SESSION
Please click here for details.

5:00 – 7:00 Welcome Reception in the Exhibit Hall with Poster Viewing and Meet the Experts: Plenary Keynote Speaker

WEDNESDAY, APRIL 17
7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION
Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Poster Viewing and Meet the Experts: Plenary Keynote Panelists

DATA-DRIVEN DRUG DEVELOPMENT
10:50 Chairperson's Remarks

11:00 Digital Health and Big Data for Drug Development
Ray Liu, PhD, Senior Director & Head, Statistical Innovation & Consultation, Takeda

Novel digital technology allows study subjects to be assessed with new metrics, monitored remotely and continuously, and deep phenotyped to reveal new patterns. Coupled with Big Data, digital technology has great potential to make the drug more efficient and fulfill the promise of personalized medicine. The presentation is introductory in nature to help researchers understand the status of digital technology implementation in clinical trials. Challenges and opportunities for analytical development will also be discussed.

11:30 How One Bold Data Hub Project Can Inspire an R&D Organization
Krista McKee, Director, Data and Analytics, Takeda Data Science Institute

Takeda's R&D Data Hub was established to maximize the value of data by providing better access and better means to aggregate and analyze data efficiently. With its Platypus project, a winner of last year's Bio-IT World Best Practices Awards, Takeda aggressively and successfully pursued the Data Hub vision for a specific set of users. Along the way, multiple R&D functions were inspired to pursue more data-driven futures, enabled by the R&D Data Hub. From Clinical Science to Pharmacovigilance to Translational Research, this presentation will focus on the Data Hub projects that emerged from Platypus and their impact on the organization. Specific projects include pursuing cross-portfolio, program-level analytics on clinical safety data; piloting the utilization of machine learning algorithms/predictive analytics to monitor adverse event risk for an ongoing clinical trial; and igniting efforts within translational research to more broadly and systematically pursue data to inform and influence program benchmarking and decision-making.

12:00 pm Leverage the Cancer Genome Atlas for Data Discovery in Oncology
Rob Rittberg, Global Marketing Manager, PerkinElmer

Patient stratification based on molecular profiles has shifted the paradigm, as evident in the field of Oncology. Combining large genomic datasets and sharing them is an important strategy for Oncology research to accelerate the comprehensive understanding of cancer genetics. See how translational scientists can effectively access, integrate, and search the TCGA dataset for complex analytics.

12:15 Characterizing Targeted Cancer Therapies via a Comprehensive Gene Fusion Database
Mark Kiel, MD, PhD, Founder & Chief Science Officer, Genomenon

Possessing a comprehensive view of the research related to gene fusions can significantly accelerate the drug discovery and development process. This presentation demonstrates how a Gene Fusion Database allows researchers to find fusion pairs for any disease of interest, identify targeted treatment strategies, and refine gene fusion breakpoint analysis.

12:30 Session Break

12:40 Luncheon Presentation I: Building an Enterprise-wide, API-first Platform to Conduct Analytics of Real World and Observational Data
Vasu Chandransekran, PhD, Director of Data Sciences, Merck

The FDA recently created a strategic framework to advance the use of Real World Evidence (RWE) as well as issued final guidance on how manufacturers can communicate this evidence to our customers. Merck launched the development of the Real World Data Exchange (RWDEx) platform to meet this need.

1:10 Luncheon Presentation II: Patrick Bosco Global Alliances Director Sales InterSystems Corporation

Real time clinical data promises to accelerate clinical trial processes and efficiency. Despite widespread EMR adoption, life science companies encounter barriers to utilizing this data in critical clinical trial processes. In this round table discussion we will explore the barriers to leveraging real world data and the opportunities to overcome them. This session is sponsored by InterSystems, a leading healthcare technology company supporting over 500 million patient records around the world.

1:40 Session Break
LEVERAGING REAL WORLD DATA

1:50 Chairperson's Remarks
Farhan (CJ) Hameed, MD, MS, Senior Director, Global Real World Evidence Center of Excellence, Patient & Health Impact, Pfizer, Inc

1:55 Use of Real World Data for Evidence Generation through ML & AI
Farhan (CJ) Hameed, MD, MS, Senior Director, Global Real World Evidence Center of Excellence, Patient & Health Impact, Pfizer, Inc.

There is a growing regulatory application of RWE beyond safety and with a particular interest in using RWE to bridge the evidentiary gap between regulators, HTAs and payers enabled an increase in availability of real world data from traditional claims and EHR data sources to patient generated data from mobile wearables/sensor devices and genomic data facilitated by advanced analytics such as AI, ML and NLP, for an end to end drug development across products life cycle.

2:25 Machine Learning/Deep Learning Applications in RWE
Xiaoying Wu, MD, MS, Director, RWE IT CoE & Medical Informatics, Data Sciences, Janssen IT, Johnson & Johnson

With massive computing power resources at one’s fingertips, Deep Learning finally became a reality in understanding complex patterns in patient journey: how they have been diagnosed, how they have been treated and how disease progressed. Leveraging cloud-based AI solutions, we can apply Deep Learning to Electronic Health Record and reveal hidden patterns in patient journey and better understanding the dynamics in the real-world setting. In this talk, we will be discussing technology enablers with DL applications in RWE.

2:55 Handling Real World Data to Inform Healthcare Decisions: Case Study Diabetes
Meeta Pradhan, PhD, Senior Data Scientist, Indiana Biosciences Research Institute

Despite progress in treatment of Type 2 Diabetes (T2D), T2D remains a growing global health issue. In Indiana approximately 12.9% of adult population have diabetes. Due to the multiple factors driving the increase in T2D, there is a need for precision approach to T2D that would enable better treatment to patients. This talk demonstrates the complexity of real-world data, how to prepare it for research, and its utility in understanding T2D leveraging different machine learning approaches to support better decision making.

3:25 Refreshment Break in the Exhibit Hall with Poster Viewing and Meet the Experts: Bio-IT World Editorial Director Allison Proffitt

3:25 Book Signing with Joseph C. Kvedar, MD, Vice President, Connected Health, Partners Healthcare;

Professor, Harvard Medical School; Author, The Internet of Healthy Things™ (Book will be available for purchase onsite)

CLINICAL BIOMARKER VISUALIZATIONS FOR DISCOVERY

4:00 FEATURED PRESENTATION: Expanding Access to Dynamic Clinical Biomarker Visualizations: Automation, Integration and Exploration of Data Lakes
Philip Ross, PhD, Head of Translational Bioinformatics Data Science, Translational Medicine, BMS

With biomarker samples from thousands of patients across multiple indications, how do we detect meaningful clinical biomarker results in a reasonable timeframe and at reasonable levels of effort? Dynamic visualizations with up-to-date data provide evolving insights. We are automating the integration of clinical and biomarker results in data lakes and leveraging dynamic visualizations to give the best possible access and exploration of emerging clinical biomarker data signals and trends.

4:30 Universal Spotfire Template (UniSpoT) for Clinical Biomarker Discovery
Sittichoke Saisant, PhD, Principal Scientist, Data Science, Pharma Research and Early Development Informatics (pREDi), Roche Innovation Center New York

UniSpot is the Roche pRED standardized visual analytics platform for clinical biomarker data. Enabled by the underlying BRAVE data process, it addresses the increasing and unmet business need for near real-time access to biomarker data, integrated with clinical data for exploratory analysis. It has been used for early clinical studies which have open-label design (e.g. phase 1b). Using UniSpot, scientists can gain earlier and better understanding of biology, generate hypothesis, improve biomarker strategy and quality of data collection.

ANALYTIC AND VISUALIZATION TOOLS FOR IMPROVED DATA INSIGHTS

5:00 CO-PRESENTATION: Addressing High Performance Analytics Needs with the RSVP Platform
Satish J. Murthy, Solutions Architect, Janssen R&D IT
Paulo Bargo, Scientific Director, Statistics and Decision Sciences, Janssen R&D

The use of R for statistical computing is growing quickly among statisticians in Janssen Research & Development. They need an environment where they can collaborate in real time with colleagues across the world, run simulations with High Performance Computing (HPC), and deploy Shiny Applications to share their analyses. The Janssen R&D IT team developed and implemented the R as a Service for Visualization and Processing (RSVP) platform which combines Rstudio Server, Rshiny, cloud-bursted HPC, and Rconnect to address the challenges that Janssen scientists presented them with. This talk will present the design and architecture of RSVP from the IT side, and present a use case from the R&D side of an application that runs on the platform.

5:30 Best of Show Awards Reception in the Exhibit Hall with Poster Viewing

THURSDAY, APRIL 18

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION & AWARDS PROGRAM
Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Meet the Experts: Plenary Keynote Speaker and Poster Competition Winners Announced @ 10:00

IMPLEMENTING INNOVATIVE CLINICAL TRIAL AND PROJECT DESIGNS

10:30 Chairperson’s Remarks
Gurpreet Kanwar, MBA, PMP, Senior Project Manager, NAV CANADA

10:40 CO-PRESENTATION: Implementation of Complex Innovative Designs (CID) at Janssen
Raj Malathker, Manager, Quantitative Sciences IT, Johnson & Johnson Pharmaceutical R&D
Vlad Dragalin, PhD, Vice President & Scientific Fellow, Global Quantitative Sciences, Janssen Pharmaceuticals R&D

Both the 21st Century Cures Act and the PDUFA VI legislations call for wider use and acceptance of complex innovative clinical trial designs with the goal of streamlining drug development and bringing needed new medicines to patients in a more timely and efficient manner. We are the first PhRMA company to build an in-house platform, aptly named ACTIVE (Adaptive Clinical Trial’s Interactive Virtual Environment), for efficient implementation of such complex innovative designs.

11:10 Effectively Complete Your Projects
Gurpreet Kanwar, MBA, PMP, Senior Project Manager, NAV CANADA

Most organizations say they have too many projects on the go and...
are not able to manage with backlog still growing. They want to achieve a high throughput of successful projects, however many are unable or unwilling to allocate an appropriate level of resourcing to approved initiatives. Methodologies to execute projects are not consistent and lacking standard processes. There is a need to manage project delivery expectations, satisfaction of business stakeholders and balance the demand to help them achieve their strategic goal.

11:40 Increasing the Velocity of Team Data Science
Gregg TeHennepe, Program Manager, Computational Scientist, The Jackson Laboratory
Beena Kadakkuzha, PhD, Research Project Manager, The Jackson Laboratory

Learn how the Jackson Laboratory has leveraged concepts and processes from Agile and Scrum to significantly increase the effectiveness and pace of teams focusing on data science.

12:10 pm Enjoy Lunch on Your Own

1:20 Dessert Refreshment Break in the Exhibit Hall with Poster Viewing

BLOCKCHAIN FOR CLINICAL TRIALS

1:55 Chairperson's Remarks
Jay Bergeron, Director, Translational Research Business Technologies, Pfizer

2:00 CASE STUDY: Cross-Industry Collaboration Evaluating How Blockchain Can Transform the Pharmaceutical and Healthcare Industry, Part of Emerging Trends & Technology PhUSE Workgroup
Disa Lee Choun, Director Head of Innovation, Global Clinical Sciences & Operations, UCB
Adama Ibrahim, Associate Director, Clinical Operations, Biogen

This presentation will cover an understanding of the landscape in the pharma and healthcare settings, explore the areas where blockchain could be used, and present two detailed used cases (a. Drug Supply Chain using Smart Contracts; b. Patient Data Access/Transparency) to support future development and implementation for proof of concept.

3:00 Applying a Digital Rights Blockchain to Patient Data Exchange: Simulating Patient Trial Matching with the Bitmark Blockchain
Jay Bergeron, Director, Translational Research Business Technologies, Pfizer

The use of blockchains to enable complicated multiparty processes, pertinent to many patient use cases, generally requires blockchain customization or supplemental applications. A multiparty clinical trial matching simulation was implemented using only the “Bitmark” digital rights blockchain. The simulation's development inspired the design of other blockchain applications based on the digital rights model, including biomarker data management and processing.

3:30 Securing Clinical Trial and Biological Experiment Data with the Blockchain
Lu Yu, PhD, Instructor, Electrical and Computer Engineering, Clemson University

A bio-statistician survey found 31% of respondents active in medical research had knowingly committed fraud. The FDA mandates an inviolable audit trail, but when there are large financial stakes it is hard to believe this data will remain unchanged. One approach is to secure this data using the blockchain, but blockchain discussions maintain that data is globally available and transparent. This is not desirable for HIPAA or proprietary information. This talk explains how these issues are addressed by a prototype developed by Clemson University, University of Tennessee Chattanooga and the Medical University of South Carolina. We specifically address the differences between blockchain hype and reality.

4:00 Conference Adjourns
With a sharp increase in the volume and complexity of big data sets for research and drug discovery labs, data visualization is needed to clearly express the complex patterns. It is more important than ever to develop data visualization and exploration tools alongside the rest of the analytics, as opposed to later in the game. The Data Visualization & Exploration Tools track will address ways to not only develop, design, and implement visualization tools in genomics, drug discovery, clinical development, and translational research, but also address real-world case studies where these tools have been successfully used.

**TUESDAY, APRIL 16**

7:00 am Workshop Registration Open and Morning Coffee

8:00 – 11:30 Recommended Morning Pre-Conference Workshops*

<table>
<thead>
<tr>
<th>W2. Data Visualization to Accelerate Biological Discovery</th>
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</table>

12:30 – 4:00 pm Recommended Afternoon Pre-Conference Workshops*

| W9. Research Project Management |

* Separate registration required. Please click [here](#) for details.

2:00 – 6:30 Main Conference Registration Open

4:00 PLENARY KEYNOTE SESSION

Please click [here](#) for details.

5:00 – 7:00 Welcome Reception in the Exhibit Hall with Poster Viewing and Meet the Experts: Plenary Keynote Speaker

**WEDNESDAY, APRIL 17**

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION

Please click [here](#) for details.

9:45 Coffee Break in the Exhibit Hall with Poster Viewing and Meet the Experts: Plenary Keynote Panelists

**LEVERAGING MACHINE LEARNING FOR VISUALIZATION**

10:50 Chairperson's Remarks
Simon Taylor, Vice President, Global Partners & Alliances, Lucidworks

11:00 Data-Driven Healthcare: Visual Analytics for Exploration and Prediction of Clinical Data
Adam Perer, PhD, Assistant Research Professor, School of Computer Science, Human-Computer Interaction Institute, Carnegie Mellon University

Healthcare institutions are now recording more electronic health data about patients than ever before. Many hope that if researchers tap into this real world observational data, the collective experience of the healthcare system can be leveraged to unearth insights to improve the quality of care. My research focuses on building interactive visual systems that leverage machine learning so clinicians and researchers can derive such insights.

11:30 Interactive Concept Learning for Visual Exploration of Epigenetic Patterns
Fritz Lekschas, PhD Candidate, Hanspeter Pfister Lab, Computer Science, Harvard University

Epigenetic datasets contain rich sets of patterns but searching and exploring non-standard patterns is often time consuming and visual feedback is needed for verification of the results. I am going to present Peax, a new web-based tool for interactively training a classifier that learns your notion of interestingness and operates on deep learning-based unsupervised featurizations of the epigenetic datasets.

12:00 pm Data Analysis Without Borders: Eliminating Data Silos in Life Science R&D
Douglas Williams, Executive Director, Commercial Development, Riffyn, Inc.

Deeper insights into R&D results require close collaboration across teams. The cloud-based Riffyn software structures and links experimental designs and measurement data across organizational boundaries. Riffyn is helping R&D organizations use this capability to identify unexpected correlations, uncover root causes of error, and deliver right-first-time technology scale-up and technology transfer.

12:30 Enjoy Lunch on Your Own

**INTERACTING WITH MULTI-OMIC DATA**

1:50 Chairperson's Remarks
Hector Corrada Bravo, PhD, Assistant Professor, Center for Bioinformatics and Computational Biology, Department of Computer Science, University of Maryland, College Park

1:50 Data-Driven Healthcare: Visual Analytics for Exploration and Prediction of Clinical Data
Adam Perer, PhD, Assistant Research Professor, School of Computer Science, Human-Computer Interaction Institute, Carnegie Mellon University

Interactive visual analysis integrated with computational analyses has gained popularity in genomics. We have previously built interactive analysis systems that are efficient and effective for exploratory analyses of large datasets arranged over richly structured features. Here, we discuss the next generation of tools where tighter integration between visualization and computation is used to guide and steer data analysts exploration based on the results of computations of interest.

2:25 MERmaid: A WebGL-Based Tool for Exploring Spatially Resolved Single-Cell Transcriptomics Data
Jean Fan, PhD, Postdoctoral Fellow, Chemistry and Chemical Biology, Harvard University

Recent advancements in highly multiplexed spatially-resolved single-cell gene expression measurements demand scalable computational tools to assist in data exploration and hypothesis generation. We present MERmaid, an open-source visualization tool built on WebGL, that provides a rich interface for rapid exploration of spatially-resolved transcriptomics data. We apply MERmaid to visualize cell-type heterogeneity in tissues as well as intra-cellular heterogeneity in mRNA localization in MERFISH data. MERmaid is available online at https://jef.works/MERmaid/.
**CLINICAL BIOMARKER VISUALIZATIONS FOR DISCOVERY**

### 4:00 FEATURED PRESENTATION: Expanding Access to Dynamic Clinical Biomarker Visualizations: Automation, Integration and Exploration of Data Lakes

**Philip Ross, PhD, Head of Translational Bioinformatics Data Science, Translational Medicine, BMS**

With biomarker samples from thousands of patients across multiple indications, how do we detect meaningful clinical biomarker results in a reasonable timeframe and at reasonable levels of effort? Dynamic visualizations with up-to-date data provide evolving insights. We are automating the integration of clinical and biomarker results in data lakes and leveraging dynamic visualizations to give the best possible access and exploration of emerging clinical biomarker data signals and trends.

### 4:30 Universal Spotfire Template (UniSpoT) for Clinical Biomarker Discovery

**Sittichoke Saisant, PhD, Principal Scientist, Data Science, Pharma Research and Early Development Informatics (pREDi), Roche Innovation Center New York**

UniSpot is the Roche pRED standardized visual analytics platform for clinical biomarker data. Enabled by the underlying BRAVE data process, it addresses the increasing and unmet business need for near real-time access to biomarker data, integrated with clinical data for exploratory analysis. It has been used for early clinical studies which have open-label design (e.g. phase 1b). Using UniSpot, scientists can gain earlier and better understanding of biology, generate hypothesis, improve biomarker strategy and quality of data collection.

### HELPING PATIENTS SHARE DATA WITH RESEARCHERS

**5:00 From Data Inspection to Disease-Specific Data Viewing**

**David Kreda, Sync for Science Project, Harvard Medical School Department of Biomedical Informatics**

We will present a new data inspection tool for examining a patient’s structured data in a disease-agnostic way. We will then show how adding disease-specific views can assist human medical reasoning. Finally, we will discuss our approach for integrating computational services to annotate and organize disease-specific views.

### 5:30 Best of Show Awards Reception in the Exhibit Hall with Poster Viewing
New immuno-profiling assays and liquid biopsies have enabled researchers to study tumor development over time and to explore the effect of different therapies on cancer. To support exploration of such datasets, we developed OncoThreads, a tool for the visualization of longitudinal cancer genomics data in patient cohorts (http://oncothreads.gehlenborglab.org/). The tool is based on alignment of patient timelines into blocks, which can show data associated with patient samples or events such as drug administration. We demonstrate how the design of OncoThreads enables researchers to find temporal patterns in longitudinal cancer genomics data, such as effects of treatments on mutation patterns.

12:10 Enjoy Lunch on Your Own

1:20 Dessert Refreshment Break in the Exhibit Hall with Poster Viewing

DISEASE-AGNOSTIC STRATEGIES TO IMPROVE YOUR VISUALIZATION

1:55 Chairperson’s Remarks
Baohong Zhang, PhD, Director of Genome Informatics, Translational Biology, Biogen

2:00 Creating Effective Visualizations – Design and Choreography for the Chaos of Data
Martin Krzywinski, Staff Scientist, Genome Sciences Centre, BC Cancer Research Centre

The process of design, which is a kind of choreography for the page, can be of great help in assembling individual data visualizations into a cohesive explanation across many levels of detail. In the same way that visualizations are a way to organize data, design is a way to organize visualizations. I will share with you my experiences in combining science, visualization and design to create explanations, promote engagement, inspire imagination and, where possible, provide visual support in the often vexing process of research.

2:30 Big Data to Insights Visually
Baohong Zhang, PhD, Director of Genome Informatics, Translational Biology, Biogen

How to utilize the most advanced JavaScript visualization tool kits, such as D3.js, canvasXpress.js and canvasDesigner.js to empower everyday scientists to extract biological insights from ever growing data sets.

3:00 CanvasXpress: An R-Library Data Visualization for Reproducible Research
Issac M. Neuhaus, PhD, Director, Computational Genomics, BMS

CanvasXpress is a standalone JavaScript library used for visualization of genomics and non-genomics data sets. It has a user-friendly and unobtrusive interface to allow users to explore data sets and customize their visualizations. It also has a sophisticated mechanism to track all user interactions and modifications, which makes it ideal for use in reproducible research. More information can be found at https://canvasxpress.org.

3:30 Interactive Visualization of Person-Generated Health Data for Precision Health: Challenges & Possibilities
Arlene E. Chung, MD, MHA, MMCi, Associate Director of Health & Clinical Informatics, University of North Carolina School of Medicine; Lead Informatics Physician for Patient Engagement, UNC Health Care

While there is much interest in remote monitoring using person-generated health data (PGHD) from wearables and other data streams, transforming these data into meaningful and actionable insights for precision health is an open challenge as heterogeneity, missingness, and sparsity are inherent within these data. This presentation focuses on how interactive data visualization approaches could allow clinicians and patients to better understand the impact of lifestyle on symptoms and health outcomes.

4:00 Conference Adjourns
Blockchain in Pharma, R&D, and Healthcare
Empowering the Networking Ecosystem

Blockchain is becoming increasingly adopted to address the perennial networking challenges of visibility, integrity, security, and speed for data management in pharma, R&D, and healthcare. Innovative personalized therapies are driving this shift of proprietary data-driven life sciences supply chains, from basic research to R&D to clinical trials to manufacturing to patient. During the Inaugural Blockchain in Pharma, R&D, and Healthcare track, early adopters share their experiences on how this tool is empowering their management of end-to-end life science networking ecosystems.

TUESDAY, APRIL 16

7:00 am Workshop Registration Open and Morning Coffee

8:00 – 11:30 Recommended Morning Pre-Conference Workshops*
W7. Blockchain 101

12:30 – 4:00 pm Recommended Afternoon Pre-Conference Workshops*
W12. Data Science Driving Better Informed Decisions
* Separate registration required. Please click here for details.

2:00 – 6:30 Main Conference Registration Open

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WEDNESDAY, APRIL 17

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9:45 Coffee Break in the Exhibit Hall with Poster Viewing and Meet the Experts: Plenary Keynote Panelists

BUSINESS CASE FOR BLOCKCHAIN

10:50 Chairperson’s Remarks
Rama Krishna Rao, CEO, Bloqcube, Inc.

11:00 Can We Use Blockchain for Clinical Trial Efficiency?
Basker Gummadi, MS, PMP, PgMP, Digital Innovation Deputy Director, Bayer
This talk will identify the business case for Blockchain in typical clinical trials, and how it can solve the patient’s lack of access to medical results, costs of maintaining data integrity and data provenance, and poor workflow in the patient informed consent process. Blockchain, in combination with other technology enablers, can provide possible solutions such as consolidating data from patient providers, offering a transparent final clinical summary report for regulatory authorities, and building a traceable patient consent workflow.

11:30 Patient Consent to Track Health Outcomes Using Blockchain Technology
Pravin Chandran, Director, Advisory, KPMG LLP

12:00 Enjoy Lunch on Your Own

1:40 Session Break

ENABLING PRODUCTIVITY

1:50 Chairperson’s Remarks
Richard Shute, PhD, Project Manager & Consultant, The Pistoia Alliance

1:55 Blockchain Technology in Preclinical R&D
Richard Shute, PhD, Project Manager & Consultant, The Pistoia Alliance
Blockchain technology has been identified as having high value in the preclinical R&D space with potential to help improve scientific data sharing. This presentation provides the background to this assertion and shows how distributed ledger technology could bring to life a vibrant, global scientific data sharing “market,” enabling better R&D collaboration and leading to improved R&D effectiveness.

2:25 Documen: An Open Source Decentralized Application (dAPP) for Clinical Trials
Jean-Remy Behaeghel, Senior Director, Clinical, Quality and Manufacturing Systems, Vertex Pharmaceuticals

The aim of the Documen project is to eliminate third parties from document transfers in clinical trial management and to create an industry-wide, tamper-proof ledger of document exchanges. Documen is a Decentralized Application (dAPP) and utilizes Quorum, an open-source framework for the deployment of a permissioned blockchain network. The guaranteed immutability, transparency, and fault-tolerance of an un-compromised blockchain produces a significantly more robust audit trail than any existing solutions.

2:55 Facilitating Encrypted, Decentralized, Permissioned Data Sharing Using Blockchain Technology
Marek Cyran, Senior Lead Scientist, Strategic Innovation Group, Booz Allen Hamilton

3:25 Refreshment Break in the Exhibit Hall with Poster Viewing and Meet the Experts: Bio-IT World Editorial Director Allison Proffitt

3:25 Book Signing with Joseph C. Kvedar, MD, Vice President, Connected Health, Partners Healthcare; Professor, Harvard Medical School; Author, The Internet of Healthy Things™ (Book will be available for purchase onsite)

ENABLING PRODUCTIVITY (CONT.)

4:00 Presentation to be Announced

4:30 PANEL DISCUSSION: Applying Blockchain in Pharma, R&D, and Healthcare
There is currently interest in applying blockchain to the life sciences community. Is it a solution? Potential applications include medical records, collection of clinical data/clinical trials, protection of intellectual property/contracts, integrity of supply chain – anywhere the data must be shared and secure. Panelists and evangelists from different sectors share their blockchain adoption, experiences and solutions.
Moderator: Richard Shute, PhD, Project Manager & Consultant, The Pistoia Alliance
Panelists:
Jean-Remy Behaeghel, Senior Director, Clinical, Quality and Manufacturing Systems, Vertex Pharmaceuticals
Pravin Chandran, Director, Advisory, KPMG LLP
Marek Cyran, Senior Lead Scientist, Strategic Innovation Group, Booz Allen Hamilton
Adrian Gropper, MD, CTO, Patient Privacy Rights
Basker Gummadi, MS, PMP, PgMP, Digital Innovation Deputy Director, Bayer
Rama Krishna Rao, CEO, Bloqcube, Inc.

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**REGISTER EARLY & SAVE!**

**BLOCKCHAIN IN PHARMA, R&D, AND HEALTHCARE CONTINUED**

3:30 Securing Clinical Trial and Biological Experiment Data with the Blockchain
Lu Yu, PhD, Instructor, Electrical and Computer Engineering, Clemson University
A bio-statistician survey found 31% of respondents active in medical research had knowingly committed fraud. The FDA mandates an inviolable audit trail, but when there are large financial stakes it is hard to believe this data will remain unchanged. One approach is to secure this data using the blockchain, but blockchain discussions maintain that data is globally available and transparent. This is not desirable for HIPAA or proprietary information. This talk explains how these issues are addressed by a prototype developed by Clemson University, University of Tennessee Chattanooga and the Medical University of South Carolina. We specifically address the differences between blockchain hype and reality.

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**GENOMICS AND PATIENT PRIVACY**

10:30 Chairperson's Remarks
Adrian Gropper, MD, CTO, Patient Privacy Rights

10:40 The Value of Personal Information in the Age of Machine Learning
Adrian Gropper, MD, CTO, Patient Privacy Rights
The HIE of One Trustee project uses public blockchains, standards, and open source software to enable patient-controlled independent health records that can last a lifetime. This reference implementation informs blockchain standards development for identity, credentials, and reputation with groups that include W3C, IEEE, Kantara, OpenID Foundation, and others. The homeless health record project with Emory in Atlanta is a case study.

11:10 Tapping into a New Era of Genomics by Jointly Building the World’s Largest Precision Medicine Ecosystem
Axel Schumacher, PhD, Founder & CSO, Shivom
Moving precision medicine into the next era, researchers need an open & global ecosystem of genomic-, health- & socioeconomic data together with novel analysis capabilities. The Shivom Healthcare Platform enables people worldwide to anonymously share, own & manage their healthcare data. Researchers can access the data & study cohorts, combined with a library of bioinformatics pipelines, and newest AI-algorithms to make datasets actionable.

11:40 Nebula – A Privacy-Focused Personal Genomics Service
Dennis Grishin, MSc, CSO, Nebula Genomics
Nebula Genomics uses cryptography to empower consumers and patients to stay in control of their personal genomic data. Our user-centric genomics platform enables researchers to generate data on demand, access it in an ethical and transparent manner and more easily engage study participants.

12:10 Enjoy Lunch on Your Own

1:20 Dessert Refreshment Break in the Exhibit Hall with Poster Viewing

**CLINICAL TRIALS**

1:55 Chairperson's Remarks
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Adama Ibrahim, Associate Director, Clinical Operations, Biogen
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Pharmaceutical R&D Informatics

Strategic Initiatives in Collaboration, Data Science, and Technologies

There is no end in sight for the amount of data we can generate in pharmaceutical R&D – the amount of clinical, translational, genomic, and electronic health data we generate and collect necessitates effective strategies and infrastructure for managing, integrating, and analyzing these data for better decision making. As new tools and technologies emerge – from digital biomarkers to artificial intelligence – we must ensure that our data is not only of high quality, but also correct and consistent. The Pharmaceutical R&D Informatics track explores real-world projects and strategies for integrating and analyzing complex data sets that are driving R&D and precision medicine.

TUESDAY, APRIL 16

7:00 am Workshop Registration Open and Morning Coffee

8:00 – 11:30 Recommended Morning Pre-Conference Workshops*
W4. AI for Pharma
W10. Digital Biomarkers in Pharma R&D: Technical Challenges and Strategies for Advancing Personalized Medicine
* Separate registration required. Please click here for details.

2:00 – 6:30 Main Conference Registration Open

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9:45 Coffee Break in the Exhibit Hall with Poster Viewing and Meet the Experts: Plenary Keynote Panelists

DIGITAL TRANSFORMATION OF PHARMA R&D

10:50 Chairperson's Remarks
Christopher Waller, PhD, Life Sciences, EPAM Systems, Inc.

11:00 The Foundation for the Digital Transformation of the Laboratory
Dana E. Vanderwall, PhD, Director, Biology & Preclinical IT, Discovery IT, Bristol-Myers Squibb Company

An intelligent laboratory – where data, methods, and disparate hardware and software components are completely inter-operable – can ensure data and its context and relationships are seamlessly captured, shared, integrated and ready for analytics to deliver knowledge and insights. This digital transformation requires basic foundational changes in mindset, informatics and data architectures. Doing so also enables more hardware and workflow automation, and drastically improves the integrity and quality of data feeding decisions.

11:30 Intelligent Lab Data Streaming
Ralph Haffner, Global Area Head, Research Informatics, Roche

Is there a way to ‘real time’ stream the relevant data from lab instruments into drug project decision platforms? It usually starts with a vision and first steps. That’s where we in Roche Discovery Informatics are. Good concepts and promising approaches, a couple of PoCs. Some evolutionary some more revolutionary. I would like to expose our model, show first implementations and invite you to join in an open discussion to further explore this exciting and promising space.

12:00 pm A Cloud Based Approach for Automated SAR/SPR Analysis of Focused Compound Libraries
Csaba Peltz, PhD, Product Owner, ChemAxon Synergy, ChemAxon

This presentation demonstrates a process and the corresponding cloud based tools that make the work of data aggregation and analysis easy and seamless for all parties that collaborate in the hit-to-lead optimization efforts. Data coming from different sources can be made available for joint queries, while executing automated statistical methods on the results.

12:15 Natural Language Processing: Enabling Data-Driven Rather than Document-Driven Decision Making
Jane Reed, Head, Life Science Strategy, Linguamatics, an IQVIA company

Organizations are embracing the digital revolution, including developing strategies to access information buried in text. Top pharma are using Linguamatics NLP to transform unstructured text into actionable structured data for decision support from bench to bedside. In this talk we will present use cases including access to real world insights.

12:30 Luncheon Presentation I: Becoming Information-Driven
Sean Liu, Global Head, Translational Science Systems, Takeda Pharmaceuticals

In the past, Takeda scientists faced challenges when attempting to access the right information quickly and across different discovery, medical and clinical groups. The vast amounts of accumulated scientific content – such as electronic lab notebooks, statistical analysis plans, protocols, clinical reports, and others - is siloed in countless repositories, making it difficult to access relevant information in a timely manner and collaborate effectively. Learn how Takeda tackled these challenges with Sinequa’s AI-Powered Search & Analytics platform to break information silos, shorten the path to knowledge-mining, accelerate innovation, and become information-driven.

12:45 Luncheon Presentation II: BSI Studio – The Platform for Digital Love Stories
Jan Nielsen, Senior Project Manager & Community Manager, CTMS, BSI Business Systems Integration AG
Maria Andreassen, Pharma Business and IT Consultant, HERAX

BSI Studio is a multi-functional “director’s tool” for digitized person interactions, a life science journey management platform, a content management tool, and an analytics tool – all in one. With BSI Studio, you as a corporate leader can make sure that your life science
processes are consistently aligned between your patients, study centers, suppliers and the clinical operation teams, while you are simultaneously driving the digital transformation of all life science relationships and business processes.

1:40 Session Break

DIGITAL TRANSFORMATION OF PHARMA R&D (CONT.)

1:50 Chairperson's Remarks
Ralph Haffner, Global Area Head, Research Informatics, Roche

1:55 Accelerating Digital Transformation In R&D
Anastasia Christianson, Vice President, R&D Operations and Oncology IT, Janssen

Pharma R&D generates, collects, and analyzes myriad types of data – from laboratory, translational, and clinical to commercial. In order to strategically utilize this data, R&D departments must drive forward a digital transformation. This talk will discuss strategic and practical steps to make this a reality.

INTEGRATING AND ANALYZING DIFFERENT DATA TYPES IN A COMPLEX DATA LANDSCAPE

2:25 Building Structured Data at the Onset of Collection in Real World Evidence Generation – Lessons Learned from Biogen’s Learning Health System for MS
Eunice Jung, Associate Director, Real World Evidence Strategy and Analytics, Medical Evidence, Research & Innovation, Biogen

Biogen’s evidence-based LHS built for MS PATHS uses clinical terminology dictionaries to curate data which are used for real world evidence analytics. This case study will look at lessons learned from integrating disparate data types, importance of enhancing usability by cleaning and standardizing data, leveraging technology-enable approaches to curate diverse dataset and maximize completeness, and ensuring consistency in data values and data quality.

2:55 Building a Strong Data Foundation: from Instrument Integration to Machine Learning
Reed Mobjak, Product Manager, Benchling

High-quality data is a prerequisite for machine learning and advanced analytics. A first step is to ensure data is centralized and standardized. Learn how leading biopharma companies are using modern informatics to organize and structure R&D data - all the way from results-producing instruments to advanced analysis.

3:10 Collaborative Drug Discovery with LiveDesign: Integrated Computational Chemistry and Cheminformatics
Paul Sanschagrin, Strategic Deployment Manager, Enterprise Informatics, Schrödinger

Collaboration across computational and medicinal chemistry project teams for idea generation and evaluation, data querying, and project management has become vital to the success of modern drug discovery projects. Here we will present LiveDesign, a collaborative, web-based, modeling platform that brings together computational tools, experimental data, workflow management, and informatics to accelerate the design of new compounds.

3:25 Refreshment Break in the Exhibit Hall with Poster Viewing and Meet the Experts: Bio-IT World Editorial Director Allison Proffitt

3:25 Book Signing with Joseph C. Kvedar, MD, Vice President, Connected Health, Partners Healthcare; Professor, Harvard Medical School; Author, The Internet of Healthy Things™ (Book will be available for purchase onsite)

INTEGRATING AND ANALYZING DIFFERENT DATA TYPES IN A COMPLEX DATA LANDSCAPE (CONT.)

4:00 Biomarker Data Management Framework – Accomplishments and Challenges
Christina Lu, Director and Head of Data Management and Engineering, Development Sciences Informatics, Genentech (A member of the Roche Group)

Everyone wants to generate insights from their data. Where do you even start when data is not centrally available and is constantly evolving? Data needs to have the proper linkage information and metadata and be stored in a flexible way so it can be used for downstream analysis. This talk focuses on the work done to date with establishing a framework for exploratory biomarker data so it can be consumed for analysis.

4:30 Building/Testing Drug-Sensitivity Predictive Models to Support Translational Research
Bin Li, PhD, Director, Translational Bioinformatics, Computational Biology, Takeda

We developed and tested various machine learning methods to build drug-sensitivity predictive models utilizing genetic and genomic data, to support patient stratification, disease indication selection, mechanism of action study, as well as reverse translation efforts.

5:00 Leveraging an Informatics Platform to Derive Scientific Insights

Marc Siladi, Product Manager, Data Analytics, Thermo Fisher Scientific

The discovery of a life transforming therapy requires the generation of large sums of data. Making sense of this data and determining what is vital to support a novel discovery is time consuming and requires collaboration. Thermo Fisher™ Platform for Science™ software utilizes powerful data visualization tools and provides collaboration and integration capabilities to drive scientific research.

5:15 Co-Presentation: Collaborating to Create a Better Screening Data Process
Daniel Weaver, PhD, Senior Product Manager and Solutions Architect, PerkinElmer, Inc.
Dana Kawahara, PhD, Research Scientist, AMRI (Albany Molecular Research Inc.)

Despite years of effort in the pharmaceutical R&D informatics space, many organizations still process their screening data through Excel spreadsheets or home-grown data systems. These organizations likely own TIBCO® Spotfire® which has robust data analysis functionality, but, for various reasons, they do not use it for screening data.

5:30 Best of Show Awards Reception in the Exhibit Hall with Poster Viewing
The mission of the Digital Medicine group and the Pfizer Innovation Research (PfIRe) Lab is to solve key business problems using digital endpoints and advanced-STEM platforms. Our goal is to utilize digital remote monitoring of patients’ symptoms to develop and validate novel clinical endpoints for disease diagnosis and health state assessment. This talk will highlight the unique challenges of digital endpoints have in terms of data consistency, quality, and fit for purpose, as well as explore ways to overcome those challenges.

11:10 Digital Disease Markers from Speech and Accelerometer Data

Vladimir Morozov, PhD, Bioinformatics Solutions Architect, Shire

Proliferation of wearable devices combined with advancements in machine learning enable development of digital disease markers. We present cases of developing biomarkers for ALS and Parkinson’s from speech and accelerometer data. We show that deep neural networks (“deep learning”) make it possible to construct markers from raw data without labor intensive signal analysis. The obtained biomarkers are competitive with hand-crafted ones.

11:40 Co Presentation: Drug Discovery Innovation in a PreCompetitive Cloud Platform

Joe Donahue, Managing Director, Accenture

Carol Rohl, Executive Director, Research IT, Research Labs, Merck

Today, the informatics systems used by scientists come from many vendors, were developed over time with various UI standards, and it is often challenging to easily access and integrate the heterogeneous siloed data generated in the research process in a meaningful way that facilitates innovation and collaborations. Accenture and Merck will discuss the capabilities and benefits – to both drug discovery organizations and software providers - of a new research platform that allows the research science world to leverage highly elastic, commodity infrastructure while accelerating and enabling competitive differentiation for all parties.

12:50 Luncheon Presentation I: Supporting Scientific Experimentation from Design to Decide Using a Modern Informatics Approach

Andrew Anderson, Vice President, Innovation & Informatics Strategy, ACD/Labs

Many organizations are transitioning from human-initiated experiments, summarized in documents, to automation-initiated experiments, summarized in comprehensive digital formats. Such comprehensive digital characterization requires a variety of application, architecture, and data standards. This presentation will cover comprehensive digital representations of scientific experiments: from initial experimental design, planning, execution, and observation to final analysis – with an emphasis on high-throughput, parallel experimentation.

1:20 Dessert Refreshment Break in the Exhibit Hall with Poster Viewing

AI AND MACHINE LEARNING PHARMA R&D

2:00 FEATURED PRESENTATION: Application of Machine Learning and Artificial Intelligence as a Driver of Productivity in Drug Discovery & Development

Morten Sogaard, Vice President, Target Sciences & Technologies, External Sciences & Innovation, Worldwide R&D, Pfizer

This talk will provide an overview of the impact of AI on productivity on pharma with the focus on three areas – process engineering & automation, drug design and manufacturing, and target and biomarker discovery and validation, illustrated by specific examples.

2:30 Intersection of AI Techniques and Rare Disease Diagnosis

Margaret Bray, PhD, Senior Data Scientist, Alexion

A look into the latest AI techniques applied to the field of rare disease diagnostics as well as a look at the limitation of current methodologies and areas for future growth.

3:00 Automated Compliance and Quality Checks

Etzard Stolte, PhD, Global Head Knowledge Management PTD, F. Hoffmann-La Roche

Machine learning technologies, like Natural Language Processing (NLP), have the maturity for automated quality controls of operational information, e.g. as compliance and quality supervision tools. Over the last years Pharma Technical Development at Roche has created a single front end for many business and validated systems, that uses a mixture of curation and supervised learning tools to increase compliance and reduce operational costs. This talk will present our learnings, as well as the limitations and opportunities we see for the future.

3:30 AI for Improving Drug Safety to Accelerate Drug Development

Bino John, PhD, Associate Director, AstraZeneca

Drug candidates that result from millions of dollars in investment frequently fail during clinical or preclinical testing phases due to safety concerns. Such safety related failures continue to pose a challenge to the industry. This talk will highlight some of the efforts at AstraZeneca that seek to use AI/ML approaches to minimize such clinical/preclinical failures.

4:00 Conference Adjourns
The Cancer Informatics track explores the important technology and informatics trends and challenges of applying computational biology and clinical data to cancer research and care. Themes that will be covered in expert-led presentations include collaboration and network models, data access/management/integration strategies, visualization tools, and applications of biological interpretation to aid in research at the bench side or care at the bedside.

**TUESDAY, APRIL 16**

7:00 am Workshop Registration Open and Morning Coffee

8:00 – 11:30 Recommended Morning Pre-Conference Workshops*
W6. DNA Sequencing 101

12:30 – 4:00 pm Recommended Afternoon Pre-Conference Workshops*
W12. Data Science Driving Better Informed Decisions
* Separate registration required. Please click here for details.

2:00 – 6:30 Main Conference Registration Open

4:00 PLENARY KEYNOTE SESSION
Please click here for details.

5:00 – 7:00 Welcome Reception in the Exhibit Hall with Poster Viewing and Meet the Experts: Plenary Keynote Speaker

**WEDNESDAY, APRIL 17**

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION
Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Poster Viewing and Meet the Experts: Plenary Keynote Panelists

**TOOLS THAT BEST UTILIZE DATA TO DRIVE CLINICAL DECISION MAKING AND BIOLOGICAL KNOWLEDGE**

10:50 Chairperson's Remarks
Robert Zeigler, PhD, Director, Customer Solutions, L7 Informatics, Inc.

11:00 Making Clinical Data Available to Researchers at the Princess Máxima Center for Pediatric Oncology with tranSMART and cBioPortal
Patrick Kemmeren, PhD, Principal Investigator, Princess Máxima Center for Pediatric Oncology
The Princess Máxima Center for Pediatric Oncology is the centralized pediatric oncology center for all children with cancer in the Netherlands since 2018. Attendees will learn about our new center, how to set up research IT infrastructure in a (inter)nationally oriented research hospital, without being limited by legacy software. Besides this, they will be informed on the latest developments on an important set of open source research IT software tools, including tranSMART, Glowing Bear and cBioPortal.

11:30 Building a Standards-Based Clinical Data Resource for Cancer: Challenges, Goals, and Progress
Eva Lepisto, Data Services Team Lead, Dana-Farber Cancer Institute
Cancer Informatics presents 3decision, a Collaborative Platform for Structural Knowledge Management.

11:45 CASE STUDY: How a Top Pharmaceutical Company Supports Scientific Discovery with Contextualized Information Retrieval
Michael Iarrobino, Senior Product Manager, Copyright Clearance Center
A pharmaceutical company needed a better way to support scientific discovery and realize the value of its information assets. But, with siloed data, a lack of awareness of available licensed resources, and multiple discovery workflows it was taking researchers too long to find information and synthesize data to advance research. In this session, learn how the organization tackled these challenges.

12:00 pm CO-PRESENTATION: Discngine presents 3decision, a Collaborative Platform for Structural Knowledge Management
Eric Le Roux, CEO, Discngine
Peter Schmidtke, Scientific Project Manager, Discngine
Discngine develops innovative IT solutions for Life Science research. In 2018, it launched 3decision, a web application that combines a fully annotated & searchable protein structure database and a web-based user interface with state-of-the-art structural analytical tools. The user interface is designed to give molecular modelers, medicinal chemists and structural biologists a common ground for structure-based drug discovery.

12:15 Luncheon Presentation I: Keys to Success in Preclinical Informatics Development; All About That Data
Graeme Dennis, Commercial Director, Pre-Clinical Pharma IDBS
In the R&D industry today, beleaguered system implementations are more common than anyone would prefer to admit. Data harmonization tasks, expectation management, and risk mitigation opportunities can pass before their urgency is even fully appreciated. This 30-minute talk will explore the keys to success for developing a data-centric approach to R&D, which acknowledges the breadth of project workflows.

1:10 Luncheon Presentation II: Certara Integral: Next Generation Data Repository
Kevin Trimm, Senior Director, Product Strategy & Services, Software, Certara
A successful drug development program relies on data being centralized in an accessible, understandable, mineable, traceable, and secure location for analysis and interpretation. Provisioning data to scientists in an organized manner with high performance can be a challenge. Certara Integral is a validated and 21 CFR Part 11 compliant software as a service data and model repository utilizing the CDISC data model and Amazon Web Services Infrastructure, providing an intuitive solution to this problem.

12:30 Session Break
1:40 Session Break

REVOLUTIONIZING DRUG DEVELOPMENT WITH NEW DISEASE MODELS AND SIMULATION METHODS: CASE STUDIES OF COLLABORATIVE GLOBAL EFFORTS

1:50 PANEL DISCUSSION: Revolutionizing Drug Development with New Disease Models and Simulation Methods: Case Studies of Collaborative Global Efforts

Chairperson and Moderator:
Anil Srivastava, President, Open Health Systems Laboratory

Panelists:
Jeffrey Buchsbaum, MD, PhD, AM, Medical Officer and Program Director, Radiation Research Program, Division of Cancer Treatment and Diagnosis, National Cancer Institute/NIH
Rajendra Joshi, PhD, Associate Director and HOD Bioinformatics Group, Centre for Development of Advanced Computing (C-DAC), Pune University Campus
Carlos Rios, PhD, Senior Research Investigator, Computational Genomics - Translational Medicine, Bristol-Myers Squibb

3:25 Refreshment Break in the Exhibit Hall with Poster Viewing and Meet the Experts: Bio-IT World Editorial Director Allison Proffitt

3:25 Book Signing with Joseph C. Kvedar, MD, Vice President, Connected Health, Partners Healthcare; Professor, Harvard Medical School; Author, The Internet of Healthy Things™ (Book will be available for purchase onsite)

BIOMARKER DETERMINATION IN A DIAGNOSTIC CONTEXT: ISSUES AND CHALLENGES WITH IDENTIFICATION, VALIDATION, DEVELOPMENT, AND IMPLEMENTATION OF TOOLS FOR CANCER SCREENING, DIAGNOSIS, AND TREATMENT

4:00 PANEL DISCUSSION: The Difference between Biomarkers and Diagnostics: It’s Bigger Than You Think

Moderator:
Michael N. Liebman, PhD, IPQ Analytics, LLC and Strategic Medicine, Inc.

Panelists:
Michael Montgomery, MD, Global Executive Director, Incyte Corporation

Jonathan Morris, MD, Vice President, Provider Solutions; Chief Medical Informatics Officer, Real World Insights, IQVIA
Jun Zhu, PhD, Professor, Genetics and Genomic Sciences, Icahn School of Medicine at Mount Sinai

Biomarkers are used to evaluate cancer risk, detect end stage cancer and suggest optimal therapy for specific patients. Recent advances in -omics research continue to enable researchers to classify molecular fingerprints of specific cancers. Discovery and development of new cancer markers remains a major research focus to improve screening, diagnosis, and treatment but is hampered by the limited knowledge of the details of disease progression. This challenges the ability to identify markers that may be causal rather than correlative and impacts their use as true diagnostics. By example, literature analysis of 250,000 papers listing biomarkers in cancer yield less than 100 FDA approved diagnostics. Every experiment yields a biomarker; however, every experiment does not yield a diagnostic that can more accurately drive clinical action. How can we close this gap? It is critical to develop a better understanding of the disease process and how observations from genomics, proteomics, and metabolomics may impact that process in different ways. This interactive panel will explore experimental and analytic methods, issues and challenges impacting identification, validation, development and implementation in cancer, diagnosis and treatment.

5:30 Best of Show Awards Reception in the Exhibit Hall with Poster Viewing

THURSDAY, APRIL 18

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION & AWARDS PROGRAM

Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Meet the Experts: Plenary Keynote Speaker and Poster Competition Winners Announced @ 10:00

9:45 VISUALIZING PRECISION ONCOLOGY

10:30 Chairperson’s Remarks

Carlos Rios, PhD, Senior Research Investigator, Computational Genomics - Translational Medicine, Bristol-Myers Squibb

10:40 Longitudinal and Context Visualization for Precision Oncology

Jeremy Goecs, PhD, Assistant Professor of Biomedical Engineering and Computational Biology, Oregon Health and Science University

The goal of precision oncology is to find effective treatments for each patient’s cancer based its molecular profile. Visualization plays a key role in precision oncology, helping to understand and integrate longitudinal and complex data analyses and then communicate results to physicians, patients, and other stakeholders. We will discuss our work applying visualization for precision oncology and identify opportunities and challenges for visualization in precision oncology going forward.

11:10 Sharing and Visualizing Cancer Genomics Datasets Using cBioPortal

Carlos Rios, PhD, Senior Research Investigator, Computational Genomics - Translational Medicine, Bristol-Myers Squibb

BMS has been using cBioPortal for visualizing cancer genomics datasets since early 2016, supported by The Hyve, an open source bioinformatics company based in the Netherlands. The cBioPortal server runs on Amazon AWS and is tied to the company’s Active Directory for authentication and uses Keycloak for authorization. Data can be loaded through a pipeline that takes input files from Amazon S3. For BMS, cBioPortal was extended with support for rich metadata and canvasXpress integration.

11:40 OncoThreads: Exploratory Visualization of Longitudinal Cancer Genomics Data

Theresa Anisja Harbig, MS, Research Associate, Visiting Graduate Student, Biomedical Informatics, Gehlenborg Lab, Harvard Medical School

New immuno-profiling assays and liquid biopsies have enabled researchers to study tumor development over time and to explore the effect of different therapies on cancer. To support exploration of such datasets, we developed OncoThreads, a tool for the visualization of longitudinal cancer genomics data in patient cohorts (http://oncothreads.gehlenborglab.org/). The tool is based on alignment of patient timelines into blocks, which can show data associated with patient samples or events such as drug administration. We demonstrate how the design of OncoThreads enables researchers to find temporal patterns in longitudinal cancer genomics data, such as effects of treatments on mutation patterns

12:10 Enjoy Lunch on Your Own

1:20 Dessert Refreshment Break in the Exhibit Hall with Poster Viewing
METHODS AND MODELS TO BETTER UTILIZE DATA FOR RISK ASSESSMENT, DIAGNOSIS AND TREATMENT

1:55 Chairperson’s Remarks
Yuval Itan, PhD, Assistant Professor, Department of Genetics and Genomic Sciences; Member, Charles Bronfman Institute for Personalized Medicine, Icahn School of Medicine at Mount Sinai

2:00 Pinpointing Transcript-Damaging Disease-Causing Variants as a Major Step towards RNA Therapeutics
Sahar Gelfman, PhD, Associate Research Scientist, Columbia University Medical Center
Since its publication in 2017, the Transcript-inferred Pathogenicity (TraP) model has become a major resource for genetic diagnostics, identifying pathogenic non-coding variants, and helping to change the common conception that pathogenic genetic variation is caused solely by coding mutations. TraP has been incorporated in diagnostic pipelines in tens of research institutes worldwide. TraP is also available as a website for single queries (www.trap-score.org), providing successful diagnosis of genetic disorders and affecting treatment decisions.

2:30 AI Assisted Rapid Clinical Whole Genome Sequencing for Critical Care
Ray Veeraraghavan, PhD, Director of IT & Informatics, Rady Children’s Institute for Genomic Medicine

3:00 Deciphering the Complex Heterogeneity of Cancer
Patrice M. Milos, PhD, Co-Founder/President and CEO, Medley Genomics, Inc.
Medley Genomics provides a software platform that uses patent-pending algorithms and advanced data analytics to describe a patient’s diverse tumor cell mixture. This enables creation of unique molecular diagnostic fingerprints for improving patient diagnosis, monitoring and treatment of cancer, and helps to improve novel oncology therapies and therapeutic combinations including individual cancer vaccine development.

3:30 Estimating Genotypic Heterogeneity Underlying Human Disease
Yuval Itan, PhD, Assistant Professor, Department of Genetics and Genomic Sciences; Member, Charles Bronfman Institute for Personalized Medicine, Icahn School of Medicine at Mount Sinai
Whole exome and whole genome sequencing provide hundreds of thousands of genetic variants per patient, of them only very few are pathogenic. Current computational methods are inefficient in differentiating pathogenic mutations from neutral genetic variants that are predicted to be damaging and cannot predict the functional outcome of mutations. We will present deep learning approaches and machine learning methods in the role of detecting pathogenic mutations. Visualization tools for better utilizing NGS data will be presented to understand human disease genomics.

4:00 Conference Adjourns
Cloud computing has become the platform enterprises turn to for their application analysis as well as data storage. Data-intensive life scientists from biological researchers to biopharmaceutical organizations realize this practicality and necessity. Thus, adoption has been greater than anyone expected and users continue to expand applications. Through case studies, the Cloud Computing track explores the rapid growth and progressive maturation of cloud as well as evolving provider and user experiences.

**TUESDAY, APRIL 16**

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**APPLYING CLOUD**

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<td>1:10</td>
<td>Luncheon Presentation II: Accelerating Drug Development: The Role of IT as a Strategic Partner</td>
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<td>CASE STUDY: Processing, Analyzing, and Sharing One Million Genomes (and More) in the Cloud</td>
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**CASE STUDY: Transforming M&A: Collaboration in the Cloud**

Bridget Behringer, MBA, Head, R&D Mergers and Acquisitions IT, Science and Enabling Units IT, AstraZeneca

Ajit Acharya, MS, PMP, Project Delivery Lead, R&D Mergers and Acquisitions IT, Science and Enabling Units IT, AstraZeneca

In recent years, Mergers and Acquisitions (M&A) has become a key strategic driver for growth within the pharmaceutical industry. Implicit in all deals is the transaction of large volumes of regulated data, documents and intellectual property, all of which underpin the development lifecycle. Cloud computing enabled the M&A capability to be flexible, cost effective and regulatory-compliant.

**CASE STUDY: Transforming R&D: Collaboration in the Cloud**

Sandeep Namburi, MSc, Cloud Systems Analyst, Information Technology, The Jackson Laboratory

Like many organizations, our initial exploration of cloud services was uncoordinated. To move forward, we regrouped all stakeholders and established a common direction by developing a Cloud Charter. A Core Team responsible for architecture and technical decisions was formed. A Cloud Steering Committee with governance responsibilities was established. In seven months we transitioned from chaos to reproducible processes provisioning internal and external systems for research support.

**CASE STUDY: Avoiding Storms: Our Journey to Using Cloud Platforms for Research**

Diane Pacheco, CISM, Information Security Officer, Information Technology, The Jackson Laboratory

Google Cloud enables scientists to change the way they perform research and collaborate with one another. This presentation will highlight how Google Cloud is accelerating life sciences research and finding new ways to innovate.

**CASE STUDY: Transforming R&D Productivity and Innovation Landscape through Cloud Computing**

Li Ming Shen, PhD, Director, Translational Informatics, R&D, Sanofi

We started the journey of building an internal cloud-based computing platform a year ago and it has already made a significant business impact across R&D in enabling large-scale modeling and simulation in clinical trial models, quantitative system pharmacology models, PK/PD analyses, AI/deep learning projects and in removing bottlenecks in NGS data storage and processing.

**CASE STUDY: Processing, Analyzing, and Sharing One Million Genomes (and More) in the Cloud**

Stacey Gabriel, PhD, Senior Director, Genomics Platform, The Broad Institute of MIT and Harvard

We highlight how Google Cloud is accelerating life sciences research and collaborate with one another. This presentation will
The Broad Institute has fully embraced a transition to public clouds to power its world-class genome center. In this talk, we describe the many lessons learned over this journey and how we’re using the cloud to process and share over one million human genomes.

2:55 Modern Architectures for Image Analysis and Precision Medicine
Molly Presley, Director, Product Marketing, Qumulo
Technologies are evolving rapidly to enable precision medicine to derive results more accurately and more quickly. In this session, you will learn about new file systems architectures that simplify deployment and management. We will delve in to how these modern file systems accelerate on premise workloads while optionally leveraging cloud storage and compute in a unified hybrid workflow.

3:25 Refreshment Break in the Exhibit Hall with Poster Viewing and Meet the Experts: Bio-IT World Editorial Director Allison Proffitt

3:25 Book Signing with Joseph C. Kvedar, MD, Vice President, Connected Health, Partners Healthcare; Professor, Harvard Medical School; Author, The Internet of Healthy Things™ (Book will be available for purchase onsite)

APPLYING CLOUD (CONT.)

4:00 Building a Low-Cost Sample Tracking System with G Suite & Jira Cloud
Bruce Kozuma, MSCS, PMP, CPIM, CSM, CPO, Principal Systems Analyst, Broad Information Technology Services, The Broad Institute of MIT and Harvard

Current off-the-shelf technology allows for development of a low-cost, serverless sample tracking solution, using commonly used components (G Suite and Jira Cloud). Combined with Agile principles (e.g., minimum viable product, short cycle and iterative delivery) has resulted in a solution that is helping reduce cost of research at the Broad Institute of MIT and Harvard.

4:30 CASE STUDY: Successful Cloud Migration Strategies & Techniques
Lance Smith, Associate Director, IT, Celgene
Steve Sivak, HPC Engineer, IT, Celgene

The public cloud is going mainstream and most pharma/biotech have started moving select workloads. New workloads are easy to create in the cloud; the challenge has been what to do with the legacy software in our industry. We discuss various strategies to migrate HPC, database and other biotech applications, and some technologies to assist your organization during this phase. We’ll also cover our lessons learned and overall recommendations.

5:00 Rapidly Aggregate and Share Large Data Sets Using IBM Aspera
Joseph Hansen, Aspera Technical Sales & Delivery Expert, IBM
The life sciences industry is generating massive data stores as a result of modern techniques. This rich data is stored in a variety of methods, lacking standardization. Capturing the aggregate value of the data is critical to new discoveries, yet such analysis required data consolidation. Learn how IBM Aspera accelerates big data analysis in life sciences, using any deployment environment.

5:30 Best of Show Awards Reception in the Exhibit Hall with Poster Viewing

THURSDAY, APRIL 18

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION & AWARDS PROGRAM
Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Meet the Experts: Plenary Keynote Speaker and Poster Competition Winners Announced @ 10:00

DATA SECURITY IN CLOUD

10:30 Chairperson's Remarks
John Mattison, MD, CMIO, Kaiser Permanente

10:40 Fog Computing Concept Model
Larry Feldman, PhD, Senior Security Engineer, G2, Inc.
Cisco estimated that by 2020 there will be over 50 billion interconnected, heterogeneous, smart devices that will require an adequate infrastructure to support them. Fog computing is the next new technology that offers a distributed and federated compute model, which provides low-latency computational resources, elastic capabilities, data analytics, and management.

11:10 FEATURED PRESENTATION: Cloud Migration: Experiences from a Large Complex Integrated Delivery Network: Options, Trade-Offs, and Early Experiences from a Value-Based Delivery System
John Mattison, MD, CMIO, Kaiser Permanente

11:40 R&D Data, Cloud, and the Pursuit of Happiness
Brady Haggstrom, Product Manager, IDBS

12:10 pm Session Break

12:20 Luncheon Presentation I: Accelerating Product Pipeline with Nutanix
Dana Racine, Senior Systems Engineer, Sales Technology, Nutanix
Through machine learning, simplicity, and rapid scaling, Nutanix provides a solution to accelerate time to market for products in the pharma, medical device, and biotechnical industries. As a “cloud in a box” solution, Nutanix is more than just software or hardware: a complete platform for increasing operational efficiencies and reducing complexity is available to any organization in need of a competitive advantage. Session content will include a Nutanix overview, technical specifications, and a case study.

12:50 Luncheon Presentation II: Talk Title to be Announced
Chris Bellmare, Vice President of Northeast and Canadian Operations, Arista Networks

1:20 Dessert Refreshment Break in the Exhibit Hall with Poster Viewing

CONSULTANCIES AND COMPUTING: ASSESSMENTS, ORGANIZATIONAL CHALLENGES & TRENDS

1:55 Chairperson’s Remarks
Chris Dwan, Senior Technologist and Independent Life Sciences Consultant

2:00 PANEL DISCUSSION: High Performance Consultancies
Moderator: Chris Dwan, Senior Technologist and Independent Life Sciences Consultant
Panelists: Tanya Cashorali, CEO, Founder, TCB Analytics
Aaron Gardner, Director of Technology, BioTeam, Inc. Eleanor Howe, PhD, Founder and CEO, Diamond Age Data Science

An organization must learn and understand the value of why, when and how to use a consultancy. Highly trained and skilled professional experts gather to discuss their role in leading and managing projects for organizations to help them achieve goals. They will discuss a variety of themes including the best kinds of projects to hire a consultancy for, the timeline of when an organization should hire a consultant vs. full time staff, and big challenges on the horizon. The session will feature short podium presentations, followed by a moderated Q&A panel with attendees. The topic of hiring a consulting company came up in the data science plenary keynote at Bio-IT 2018. We want to spend time at Bio-IT 2019 exploring this topic in finer detail.

3:20 KEYNOTE PRESENTATION: Trends from the Trenches 2019
Chris Dagdigan, Co-Founder and Senior Director, Infrastructure, BioTeam, Inc.
The “Trends from the Trenches” in its original “state of the state address” returns to Bio-IT! Since 2010, the “Trends from the Trenches” presentation, given by Chris Dagdigan, has been one of the most popular annual traditions on the Bio-IT Program. The intent of the talk is to deliver a candid (and occasionally blunt) assessment of the best, the worthwhile, and the most overhyped information technologies (IT) for life sciences. The presentation has helped scientists, leadership, and IT professionals understand the basic topics related to computing, storage, data transfer, networks, and cloud that are involved in supporting data intensive science.

4:00 Conference Adjourns
**Data Transfer**

*Achieving Speed, Security, and Scalability*

Time and money spent transferring data are hampering the ability of data-intensive scientific researchers to share data and generate new knowledge. Whether migration to cloud or across campus, flexibility and reliability, as well as speed, security, and scalability, must be considered. Through case studies, the Data Transfer track presents both hardware and software enterprise data management solutions that facilitate high-speed data transfer to enable productivity and foster collaboration.

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**5:00 – 7:00 PM** | Welcome Reception in the Exhibit Hall with Poster Viewing and Meet the Experts: Plenary Keynote Speaker |

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**9:45 AM** | Coffee Break in the Exhibit Hall with Poster Viewing and Meet the Experts: Plenary Keynote Panelists |

**DATABASES, DATA SHARING, AND SCALABLE SOLUTIONS**

**10:50** | Chairperson's Remarks  
* Hongliang Tang, Senior Director and Chief Architect, Huawei American Storage Research Lab, Futurewei Technologies, Inc. |

**11:00** | **DB4Sci, Open Source Database as a Service (DBaaS) for On-Prem and Cloud**  
* John Dey, HPC Systems Engineer, Scientific Computing, Fred Hutchinson Cancer Research Center |

Cloud-based databases as a service (DBaaS) have extremely simplified database management. We can create database instances using best practice configuration including backup and DR plans with a single push of a button. However, databases are sensitive to latency and cloud-based databases cannot be used effectively from on-prem. Supporting Postgres, MongoDB, MariaDB/MySQL and Neo4J graph databases, DB4Sci is the ideal DBaaS solution for on-premise and multi-cloud deployments that supports high performance backup to cloud storage.

**11:30** | **Data Centralization for Any Lab, Any Equipment, Any Software**  
* Charles Fracchia, Founder and CEO, BioBright |

It's all too easy to end up with cloud infrastructures that mirror the shortcomings of local data management. In this talk, we will present how carefully designed software can make data available seamlessly, removing the need for scientists to dig through disparate systems to find what they need and analyze it. We will present a new model that allows data centralization and cloud-based data analysis while minimizing the burden on the scientist and improving workflows and products.

**12:00 PM** | **Architecting for Success with Machine Learning Data Platforms for Image Analysis and Precision Medicine**  
* William Beaudin, Director of Solutions Engineering, DDN Storage |

Aspects of precision medicine, including automated image analysis or mining patient data to better target therapies, leverage AI & deep learning. While early training data fits in-node, successful approaches attract more data. Forward thinking organizations adopt scalable architectures, the unprepared fall behind. We review key considerations for machine-learning platforms ensuring effortless scaling, deeper insights and a shorter path to value.

**12:15 PM** | Presentation to be Announced  
* [Sponsored by](https://example.com)  
* [WekaIO](https://example.com)  
* [Sponsored by](https://example.com)  
* [IBM](https://example.com) |

**12:30 PM** | **Session Break** |

**12:40 PM** | Luncheon Co-Presentation I: Accelerating Life Sciences Workflows Using Software Defined Storage  
* David Hiatt, Director, Product Marketing and Business Development, WekaIO |

In this presentation we will compare the results of Cryo-EM and genomic pipelines run on a traditional storage architecture to those run on a modern scale-out storage system. See how the modern scale-out system can meet the mixed workload challenges of life sciences and outperform the storage system for the largest supercomputer in the world.

**1:10 PM** | Luncheon Presentation II: Accelerate Precision Medicine with High Performance Data and AI  
* Frank Lee, PhD, Global Industry Leader for Healthcare and Life Sciences - IBM Systems |

Get your data and apps ready for precision medicine and research in the multicloud era, to derive faster insights with high performance data and AI architecture. Join Frank Lee, PhD, Global Industry Leader for Healthcare and Life Sciences, as he presents real-life use cases and best practices for high performance genomics and imaging with deep learning that will help you deliver new records for speed and scale, cost efficiencies, collaboration and ease of use.

**1:40 PM** | **Session Break**  
* [Sponsored by](https://example.com)  
* [IBM](https://example.com) |

**1:50 PM** | Chairperson's Remarks  
* Brigitte Raumann, Product Manager, Globus, University of Chicago |

**1:55 PM** | Achieving Compliant Collaboration: Securely Managing Protected Data to Accelerate Discovery  
* Brigitte Raumann, Product Manager, Globus, University of Chicago |

Researchers working with protected data face many challenges in managing this data and sharing it with colleagues. Meeting compliance requirements is complicated, and investigators must...
DATA TRANSFER CONTINUED

often either slow their process to address this burden or resort to using distilled, de-identified data instead. With higher assurance levels provided by Globus, the leading research data management service, users can optimize their protected data environments by integrating secure, scalable data management capabilities into existing workflows and applications.

2:25 Research, Privacy and Risk
Kris Torgerson, Chief Information and Privacy Officer, Oak Ridge National Laboratory
Research, Privacy, and Security... can they coexist? How to enable research, influence outcomes, and protect the mission responsibly. In a world where well-funded bad actors are actively working to own your data, what are strategies to minimize risk?

2:55 Solving Genomic Data Privacy in the Age of AI
Esteban Rubens, Global Principal, Enterprise Imaging Healthcare, Pure Storage
Health data protection is of paramount importance, with all stakeholders in the healthcare industry looking to adopt AI to improve patient care. We will provide examples of an API-driven Data Hub solution that enables life-science & healthcare organizations to leverage the advancements of AI to help improve diagnoses, find better treatments, and discover new drugs while protecting confidential patient information.

3:25 Refreshment Break in the Exhibit Hall with Poster Viewing and Meet the Experts: Bio-IT World Editorial Director Allison Proffitt

3:25 Book Signing with Joseph C. Kvedar, MD, Vice President, Connected Health, Partners Healthcare; Professor, Harvard Medical School; Author, The Internet of Healthy Things™ (Book will be available for purchase onsite)

COST SECURITY STRATEGIES

4:00 Building a Low-Cost Sample Tracking System with G Suite & Jira Cloud
Bruce Kozuma, MScS, PMP, CPIM, CSM, CPO, Principal Systems Analyst, Broad Information Technology Services, The Broad Institute of MIT and Harvard

Current off-the-shelf technology allows for development of a low-cost, serverless sample tracking solution using commonly used components (G Suite and Jira Cloud). Combined with Agile principles (e.g., minimum viable product, short cycle and iterative delivery) has resulted in a solution that is helping reduce cost of research at the Broad Institute of MIT and Harvard.

4:30 CASE STUDY: Successful Cloud Migration Strategies & Techniques
Lance Smith, Associate Director, IT, Celgene
Steve Sivak, HPC Engineer, IT, Celgene
The public cloud is going mainstream and most pharma/biotech have started moving select workloads. New workloads are easy to create in the cloud; the challenge has been what to do with the legacy software in our industry. We discuss various strategies to migrate HPC, database and other biotech applications, and some technologies to assist your organization during this phase. We'll also cover our lessons learned and overall recommendations.

5:00 Rapidly Aggregate and Share Large Data Sets Using IBM Aspera
Joseph Hansen, Aspera Technical Sales & Delivery Expert, IBM

The life sciences industry is generating massive data stores as a result of modern techniques. This rich data is stored in a variety of methods, lacking standardization. Capturing the aggregate value of the data is critical to new discoveries, yet such analysis required data consolidation. Learn how IBM Aspera accelerates big data analysis in life sciences, using any deployment environment.

5:30 Best of Show Awards Reception in the Exhibit Hall with Poster Viewing

THURSDAY, APRIL 18

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION & AWARDS PROGRAM
Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Meet the Experts: Plenary Keynote Speaker and Poster Competition Winners Announced @ 10:00

DATA SECURITY

10:30 Chairperson's Remarks
John Mattison, MD, CMIO, Kaiser Permanente

10:40 Fog Computing Concept Model
Larry Feldman, PhD, Senior Security Engineer, G2, Inc.

Cisco estimated that by 2020 there will be over 50 billion interconnected, heterogeneous, smart devices that will require an adequate infrastructure to support them. Fog computing is the next new technology that offers a distributed and federated compute model, which provides low-latency computational resources, elastic capabilities, data analytics, and management.

11:10 FEATURED PRESENTATION: Cloud Migration: Experiences from a Large Complex Integrated Delivery Network: Options, Trade-Offs, and Early Experiences from a Value-Based Delivery System
John Mattison, MD, CMIO, Kaiser Permanente

11:40 R&D Data, Cloud, and the Pursuit of Happiness
Brady Haggstrom, Product Manager, IDBS

12:10 pm Session Break

12:20 Luncheon Presentation I: Accelerating Product Pipeline with Nutanix
Dana Racine, Senior Systems Engineer, Sales Technology, Nutanix

Through machine learning, simplicity, and rapid scaling, Nutanix provides a solution to accelerate time to market for products in the pharma, medical device, and biotechnical industries. As a “cloud in a box” solution, Nutanix is more than just software or hardware: a complete platform for increasing operational efficiencies and reducing complexity is available to any organization in need of a competitive advantage. Session content will include a Nutanix overview, technical specifications, and a case study.

12:50 Luncheon Presentation II: Talk Title to be Announced
Chris Bellmare, Vice President of Northeast and Canadian Operations, Arista Networks

1:20 Dessert Refreshment Break in the Exhibit Hall with Poster Viewing

CONSULTANCIES AND COMPUTING: ASSESSMENTS, ORGANIZATIONAL CHALLENGES & TRENDS

1:55 Chairperson's Remarks
Chris Dwan, Senior Technologist and Independent Life Sciences Consultant
2:00 PANEL DISCUSSION: High Performance Consultancies
Moderator:
Chris Dwan, Senior Technologist and Independent Life Sciences Consultant
Panelists:
Tanya Cashorali, CEO, Founder, TCB Analytics
Aaron Gardner, Director of Technology, BioTeam, Inc.
Eleanor Howe, PhD, Founder and CEO, Diamond Age Data Science
An organization must learn and understand the value of why, when and how to use a consultancy. Highly trained and skilled professional experts gather to discuss their role in leading and managing projects for organizations to help them achieve goals. They will discuss a variety of themes including the best kinds of projects to hire a consultancy for, the timeline of when an organization should hire a consultant vs. full time staff, and big challenges on the horizon. The session will feature short podium presentations, followed by a moderated Q&A panel with attendees. The topic of hiring a consulting company came up in the data science plenary keynote at Bio-IT 2018. We want to spend time at Bio-IT 2019 exploring this topic in finer detail.

3:20 KEYNOTE PRESENTATION: Trends from the Trenches 2019
Chris Dagdigian, Co-Founder and Senior Director, Infrastructure, BioTeam, Inc.
The "Trends from the Trenches" in its original "state of the state address" returns to Bio-IT! Since 2010, the "Trends from the Trenches" presentation, given by Chris Dagdigian, has been one of the most popular annual traditions on the Bio-IT Program. The intent of the talk is to deliver a candid (and occasionally blunt) assessment of the best, the worthwhile, and the most overhyped information technologies (IT) for life sciences. The presentation has helped scientists, leadership, and IT professionals understand the basic topics related to computing, storage, data transfer, networks, and cloud that are involved in supporting data intensive science.

4:00 Conference Adjourns
Simply defined, edge can be considered where people and devices or things connect with the network. Compute-intensive edge applications, including Internet of Things (IoT), augmented reality (AR), and artificial intelligence (AI), interact with their environment based on ever-changing conditions. Where should this complex data be transferred, stored, and analyzed? During the Inaugural Edge track, data scientists share their real-world living-on-edge experiences of leveraging this shifting space to increasingly deliver on the promise of cloud and its growing complexity.

**TUESDAY, APRIL 16**

7:00 am Workshop Registration Open and Morning Coffee

8:00 – 11:30 Recommended Morning Pre-Conference Workshops*

8:00 **PLENARY KEYNOTE SESSION**

Co-Sponsored by Markley NetApp

5:00 – 7:00 Welcome Reception in the Exhibit Hall with Poster Viewing and Meet the Experts: Plenary Keynote Speaker

**WEDNESDAY, APRIL 17**

7:30 am Registration Open and Morning Coffee

8:00 **PLENARY KEYNOTE SESSION**

Sponsored by Arxium

9:45 Coffee Break in the Exhibit Hall with Poster Viewing and Meet the Experts: Plenary Keynote Panelists

**EDGE COMPUTE: NEW DATA – NEW CHALLENGES**

10:50 Chairperson’s Remarks

11:00 FEATURED PRESENTATION: Edge Intelligence: Edge Computing in the Intelligent Era

Wei Song Shi, PhD, Charles H. Gershenson Distinguished Faculty Fellow, IEEE Professor, Computer Science, Director, Mobile and Internet Systems Laboratory (MIST), Director, Wireless Health Initiative (WHI), Wayne State University

The proliferation of Internet of Everything and success of rich cloud services has pushed a new computing paradigm, edge computing, which calls for processing data at the network’s edge. It can potentially address concerns of response time requirement, battery life constraint, bandwidth cost saving, and data safety and privacy. We discuss its vision and challenges, and how it and artificial intelligence will interact in 5-10 years.

11:30 Intelligence at the Edge: How the Internet of Things and HPC Connect in the Computing Continuum

Rajesh Sankaran, PhD, Computer Scientist, Mathematics and Computer Science Division, Argonne National Laboratory

The number of network-connected devices now substantially exceeds the number of humans on this planet. This presentation will explore the computing continuum, and how computing and intelligence at the edge is now firmly connected to supercomputing.

12:00 pm Accelerating Intelligent IoT Edge Computing by Workload Consolidation with Supermicro

Mory Lin, Senior Director, IoT/Embedded Products, Architecture Department, Super Micro Computer, Inc.

We understand the urgency of seeking answers for compute-intensive internet of Things (IoT) edge applications by using artificial intelligence (AI). We’ll share our view on how we accelerated the transformation at the edge with high-performance computing in compact form factor.

12:30 Session Break

12:40 Luncheon Presentation I: Productionising AI – Moving Beyond “Fire and Forget” to Predictable, Predictive Algorithms

Tim Miller, Vice President, Life Sciences Platform Solutions, Elsevier

1:00 Luncheon Presentation II: Enabling Perpetual Digital Transformation in Research & Development

Robert Kane, Vice President & U.S. Head, Life Science Industries, Tata Consultancy Services

1:40 Session Break

**EDGE COMPUTE FOR MOBILE APPLICATIONS**

1:50 Chairperson’s Remarks

Sandeep Kulkarni, Director, Life Sciences, Tata Consultancy Services

1:55 Edge Computing for Augmented Reality in the Wild

Maria Gorlatova, PhD, Assistant Professor, Electrical and Computer Engineering, Duke University

Augmented reality, which places digital context in a physical environment surrounding a user, is one of the most demanding, arising mobile applications. This talk describes how we address the critical challenges of augmented reality with edge computing, focusing specifically on how we use edge to make augmented reality more adaptive and intelligent.

2:25 Personalized Digital Ecosystem: Surveillance Symptom Data from Wearables, Swallowables, Voice Applications, and the Internet of Medical Things (IoMT)

Amir Lahav, ScD, Rare Disease Research Unit, Pfizer

This new era of digital health ecosystem highlights the importance of integrating data coming from multiple sources, including mobile apps, wearable intelligence, smart drug delivery devices, disease surveillance technology, and real-time analytics. This multi-dimensional data has the potential to leverage opportunities for a more efficient care experience, leading to better diagnosis, treatment, and prevention. What does it take to develop a successful digital ecosystem and can big pharma do it alone?

2:55 The Internet of Healthy Things

Joseph C. Kvedar, MD, Vice President, Connected Health, Partners HealthCare; Professor, Harvard Medical School; Author, The Internet of Healthy Things™
Learn how connected health technologies – such as smartphones, wearables and sensors – are being integrated into our daily lives to promote wellness, better self-management of chronic conditions and to make healthier lifestyle choices. Connected health is making the health consumer experience more compelling and addictive, emerging technologies, including artificial intelligence (AI), voice recognition (VR) and virtual visits can personalize care and improve health and wellness.

3:25 Refreshment Break in the Exhibit Hall with Poster Viewing and Meet the Experts: Bio-IT World Editorial Director Allison Proffitt

3:25 Refreshment Break in the Exhibit Hall with Poster Viewing and Book Signing with Joseph C. Kvedar, MD, Vice President, Connected Health, Partners Healthcare; Professor, Harvard Medical School; Author, The Internet of Healthy Things™ (Book will be available for purchase onsite)

CASE STUDIES: SETTING UP A SMARTER LAB

4:00 How to Be “In the Flow”: Combining Business Process and Data Flows for End-to-End Automated Laboratory Workflows
Andreas Steinbacher, PhD, R&D Informatics and Machine Learning/Artificial Intelligence Leader for Lab Automation, Roche Innovation Center Munich

Currently the automation-level of end-to-end laboratory workflows in the life science research space is rather low. This results from a strong focus on automating single workflow steps with separated instruments/integrations, and on the other hand, from the need of flexible (re-)configuration of laboratory workflows in a research environment. Business process modelling and management tools are successfully applied in other industries and are also proposed as a solution for life science automation. However, typically they lack to track the corresponding data flow. This talk aims at identifying the essential requirements of an end-to-end laboratory workflow automation and how business process management tools can help to achieve this goal.

4:30 End-to-End Sample Tracking in the Laboratory Using a Custom Internet of Things Device
William Neil, Digital Capability Manager, Solution Engineering and Delivery, Bristol-Myers Squibb

We describe a custom Internet of Things (IoT) device used for tracking barcoded containers end to end in a high-throughput analysis and purification laboratory. Our IoT device fills an important gap that previously prevented us from fully tracking barcoded sample containers through manual steps in a multistep workflow.

The custom device reads container barcodes and sends a small amount of data to our back-end data systems. Once data have been received and processed, users are alerted to any system responses via aurral and visual feedback. We believe that the model for our device will facilitate simple and rapid deployment of IoT to the broader laboratory community.

5:00 Genomic Analyses on Google Cloud Platform
Andrew Moschetti, Solutions Architect, Healthcare & Life Sciences, Google Cloud

Using Google Cloud Platform and other open source tools such as GATK Best Practices and DeepVariant, learn how to perform end-to-end analysis of genomic data. Starting with raw files from a sequencer, progress through variant calling, importing to BigQuery, variant annotation, quality control, BigQuery analysis and visualization with phenotypic data. All the datasets will be publicly available and all the work done will be provided for participants to explore on their own.

5:30 Best of Show Awards Reception in the Exhibit Hall with Poster Viewing

THURSDAY, APRIL 18

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION & AWARDS PROGRAM
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9:45 Coffee Break in the Exhibit Hall with Meet the Experts: Plenary Keynote Speaker and Poster Competition Winners Announced @ 10:00

EDGE COMPUTE FOR HEALTHCARE

10:30 Chairperson’s Remarks

10:40 How Voice-Enabled Technology Could Change the Healthcare Industry
David Herzig, MSc, Senior Scientist, pRED Pharma Research and Early Development, F. Hoffmann-La Roche AG

Voice-enabled digital assistants already have a big impact: on our mobile phones, computers, smartwatches, cars, and even in our homes. This talk presents several use cases on how voice-enabled technology could improve and/or change several work areas within the healthcare industry.

11:10 IoT Buttons to Streamline Hospital Operations: Implementation Successes and Challenges
Peter R. Chai, MD, MMS, Assistant Professor, Harvard Medical School, Department of Emergency Medicine, Brigham and Women’s Hospital

IoT buttons can be configured to relay just-in-time information on key hospital operations. Additionally, because IoT buttons can have several command functions, they can be oriented to hospital staff or public visitors. We leveraged the IoT button to develop a restroom cleanliness notification system for our hospital. This session will discuss data security, early results and lessons learned in implementation challenges of IoT buttons in hospital systems.

12:10 pm Enjoy Lunch on Your Own

1:20 Dessert Refreshment Break in the Exhibit Hall with Poster Viewing

CONSULTANCIES AND COMPUTING: ASSESSMENTS, ORGANIZATIONAL CHALLENGES & TRENDS

1:55 Chairperson’s Remarks
Chris Dwan, Senior Technologist and Independent Life Sciences Consultant

2:00 PANEL DISCUSSION: High Performance Consultancies
Moderator: Chris Dwan, Senior Technologist and Independent Life Sciences Consultant
Panelists: Tanya Cashorali, CEO, Founder, TCB Analytics; Aaron Gardner, Director of Technology, BioTeam, Inc.; Eleanor Howe, PhD, Founder and CEO, Diamond Age Data Science

An organization must learn and understand the value of why, when and how to use a consultancy. Highly trained and skilled professional experts gather to discuss their role in leading and managing projects for organizations to help them achieve goals. They will discuss a variety of themes including the best kinds of projects to hire a consultancy for, the timeline of when an organization should hire a consultant vs. full time staff, and big challenges on the horizon. The session will feature short podium presentations, followed by a moderated Q&A panel with attendees.

The topic of hiring a consulting company came up in the data science plenary keynote at Bio-IT 2018. We want to spend time at Bio-IT 2019 exploring this topic in finer detail.

3:20 KEYNOTE PRESENTATION: Trends from the Trenches 2019
Chris Dagdigian, Co-Founder and Senior Director, Infrastructure,
The "Trends from the Trenches" in its original "state of the state address" returns to Bio-IT! Since 2010, the "Trends from the Trenches" presentation, given by Chris Dagdigian, has been one of the most popular annual traditions on the Bio-IT Program. The intent of the talk is to deliver a candid (and occasionally blunt) assessment of the best, the worthwhile, and the most overhyped information technologies (IT) for life sciences. The presentation has helped scientists, leadership, and IT professionals understand the basic topics related to computing, storage, data transfer, networks, and cloud that are involved in supporting data intensive science.

4:00 Conference Adjourns
AI for Pharma & Biotech
Disrupting the Drug Discovery Approach

One of the biggest bottlenecks in drug development is in the early research stage. This stage is time needed to go from identifying a potential disease target to testing a drug candidate's probability of hitting that target. This stage can take four to six years. Ambitious AI techniques are aiming to compress this process to one year. As of August 2018, over 25 pharmaceutical companies and over 95 startups are using artificial intelligence for drug discovery. Time to develop new life-saving drugs can be drastically reduced by using AI. The Inaugural AI for Pharma and Biotech track will discuss opportunities that biopharma organizations are using to harness the power of AI and machine learning technologies to maximize and accelerate drug discovery efforts from early stage to adoption to practical application. Presentations will also discuss challenges of these technologies being sophisticated enough to make sense of complex medical data.

TUESDAY, APRIL 16
7:00 am Workshop Registration Open and Morning Coffee
8:00 – 11:30 Recommended Morning Pre-Conference Workshops*
   W4. AI for Pharma
12:30 – 4:00 pm Recommended Afternoon Pre-Conference Workshops*
   W11. Digital Data Strategy for the Lab
* Separate registration required. Please click here for details.

2:00 – 6:30 Main Conference Registration Open

4:00 PLENARY KEYNOTE SESSION
Please click here for details.

5:00 – 7:00 Welcome Reception in the Exhibit Hall with Poster Viewing and Meet the Experts: Plenary Keynote Speaker

WEDNESDAY, APRIL 17
7:30 am Registration Open and Morning Coffee
8:00 PLENARY KEYNOTE SESSION
Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Poster Viewing and Meet the Experts: Plenary Keynote Panelists

ACCELERATING PRECISION MEDICINE WITH AI: CHALLENGES & OPPORTUNITIES

10:50 Chairperson’s Remarks
Richard Harrison, PhD, Products – Life Sciences, Senior Manager, Accenture

11:00 Next Generation Cognitive Supercomputing and Its Impact on Precision Medicine: Challenges, Trends and Opportunities
Edmon Begolli, PhD, Chief Data Architect, Oak Ridge National Laboratory
The impact of AI methods and big data technologies in pharma research and genomic medicine to advance precision medicine initiatives are taking on more importance. AI is becoming key player in the convergence of medical data and computer technologies. This talk gives a big picture viewpoint on the evolution of AI’s role, what the key drivers and challenges are, and trends to look for during the next 10-15 years.

11:30 From Hype to Reality: Data Science Enabling Personalized Medicine
Holger Fröhlich, PhD, Director and Head of Data Science Enablement, R&D Informatics, UCB BioSciences GmbH
Personalized medicine is deeply connected to and dependent on data science, specifically machine learning. While during recent years there has been a lot of enthusiasm about the potential of ‘big data’ and machine learning-based solutions, there exist only a few examples that impact current clinical practice. In my talk, I will review the potential of state-of-the-art data science approaches for personalized medicine, discuss open challenges, and highlight directions that may help to overcome them in the future.

12:00 pm Harness AI and Redefine Precision Medicine Infrastructure with Dell EMC
Sanjay Joshi, Industry CTO, Healthcare Dell EMC, Global CTO Office, Dell EMC
AI is making data your top asset; but unlocking its value isn’t a one-click action. Without AI, it’s difficult to generate value from data of lifestyle information from IoT devices, TBs of genomics data, and population studies. We’ll focus on key attributes of AI solutions that drive success in Life Sciences: enable faster diagnoses, affordable genomics, and improved patient outcomes.

12:30 Session Break

12:40 Luncheon Presentation I: Productionising AI – Moving Beyond “Fire and Forget” to Predictable, Predictive Algorithms
Tim Miller, Vice President, Life Sciences Platform Solutions, Elsevier
Everybody is “doing AI” in Life Sciences right now, but how do we know we are doing it right? Are we picking the best models for our problem? Are we getting the quality of data we need? And, are we able to translate successful AI experiments into productionised capabilities that integrate with our business goals?

1:10 Luncheon Presentation II: Enabling Perpetual Digital Transformation in Research & Development
Robert Kane, Vice President & U.S. Head, Life Science Industries, Tata Consultancy Services
Life Sciences companies today are inverting the paradigm by embedding enabling technologies in business platforms. “Enabling Perpetual Digital Transformation in R&D” explores how these digital platforms are re-constructed, and coupled with an “enterprise agile” R&D organization to yield exponential improvements in speed, capacity, cost, quality and improved outcomes in product research and clinical development; with real-life examples of just how the new paradigm is being embraced by leading Life Sciences companies.

1:40 Session Break

USING AI FOR DATA AND TEXT MINING

1:50 Chairperson’s Remarks
Edwin Addison, PhD, MBA, JD, CEO, Cloud Pharmaceuticals

1:55 Analysis of Off-Label Uses of Drugs for Rare Diseases
Matthew Clark, PhD, Director, Scientific Services, Life Sciences, Elsevier
Many rare diseases do not have approved treatments. It may be that drugs approved for other indications may be useful to treat these diseases, but it is difficult to gather information outside of formal publications. However, the FDA adverse event database, FAERS, captures prescribing indications for all drugs administered to a patient when any adverse event is reported. By mining this data one can see what individual physicians are using to treat diseases and compare to treatments that appear in formal trials. We will also compare the “real life” treatments to those that can be found using informatics.

2:25 Using AI to Identify and Navigate Relationships and Identify Context for Pharma Data
Peter Henstock, PhD, Machine Learning & AI Technical Lead, Business Technology, Pfizer, Inc.

As our pharma data sets increase in size, the ability to fully utilize them has become more challenging. A baseline approach is search capability provided in various forms from the databases-level queries through enterprise-level results. The limitations are being able to create the right queries to find all the relevant information without having to craft the perfect queries or sift through 1000s of entities. The approach draws upon text mining, information retrieval and network analysis all behind a common user interface and is currently being developed for multiple databases.

2:55 Accelerating Drug Discovery with Generative Design and Active Learning
Ton Van Daelen, Portfolio Lead, Scientific Informatics, Dassault Systemes

Enabling pharmaceutical and biotech businesses to produce safe, efficacious medicines is key to improving productivity and maintaining competitiveness. By integrating machine-learning approaches with generative molecular enumeration algorithms, we can transform the traditional Design, Make, Test, Analyze innovation cycle in drug research. LS organizations can achieve business transformation in molecular discovery by improving quality of lead molecules and shortening discovery timelines.

3:25 Refreshment Break in the Exhibit Hall with Poster Viewing and Meet the Experts: Bio-IT World Editorial Director Allison Proffitt

3:25 Book Signing with Joseph C. Kvedar, MD, Vice President, Connected Health, Partners Healthcare; Professor, Harvard Medical School; Author, The Internet of Healthy Things™ (Book will be available for purchase onsite)

BIOMARKER DETERMINATION IN A DIAGNOSTIC CONTEXT: ISSUES AND CHALLENGES WITH

IDENTIFICATION, VALIDATION, DEVELOPMENT, AND IMPLEMENTATION OF TOOLS FOR CANCER SCREENING, DIAGNOSIS, AND TREATMENT

4:00 PANEL DISCUSSION: The Difference between Biomarkers and Diagnostics: It’s Bigger Than You Think
Moderator:
Michael N. Liebman, PhD, IPQ Analytics, LLC and Strategic Medicine, Inc.
Panelists:
Michael Montgomery, MD, Global Executive Director, Incyte Corporation
Jonathan Morris, MD, Vice President, Provider Solutions, Chief Medical Informatics Officer, Real World Insights, IQVIA
Jun Zhu, PhD, Professor, Genetics and Genomic Sciences, Icahn School of Medicine at Mount Sinai

Biomarkers are used to evaluate cancer risk, detect and stage cancer and suggest optimal therapy for specific patients. Recent advances in -omics research continue to enable researchers to classify molecular fingerprints of specific cancers. Discovery and development of new cancer markers remains a major research focus to improve screening, diagnosis, and treatment but is hampered by the limited knowledge of the details of disease progression. This challenges the ability to identify markers that may be causal rather than correlative and impacts their use as true diagnostics. By example, literature analysis of 250,000 papers listing biomarkers in cancer yield less than 100 FDA approved diagnostics. Every experiment yields a biomarker, however, every experiment does not yield a diagnostic that can more accurately drive clinical action. How can we close this gap? It is critical to develop a better understanding of the disease process and how observations from genomics, proteomics, and metabolomics may impact that process in different ways. This interactive panel will explore experimental and analytic methods, issues and challenges impacting identification, validation, development and implementation in cancer, diagnosis and treatment.

5:30 Best of Show Awards Reception in the Exhibit Hall with Poster Viewing

THURSDAY, APRIL 18

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION & AWARDS PROGRAM
Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Meet the Experts: Plenary Keynote Speaker and Poster Competition Winners Announced @ 10:00

HARNESSING THE POWER OF AI FOR DRUG DISCOVERY RESEARCH: FROM SILOED DATA TO SHARED EXPERTISE

10:30 Chairperson’s Remarks
Daniel H. Robertson, PhD, Vice President, Digital Technology, Director, Center for Applied Data Sciences, Indiana Biosciences Research Institute

10:40 Making Real World Data Prepared to Apply Machine Learning and AI for Discovery Research
Daniel H. Robertson, PhD, Vice President, Digital Technology; Director, Center for Applied Data Sciences, Indiana Biosciences Research Institute

Although much of the major healthcare systems transition to electronic medical record (EHR) systems to digitally capture the patient data is complete, this data is not readily available or in the form to enable advanced analyses within discovery. Working with EHR data extracted from a large health information exchange, we have developed a robust and standardized data-cleaning pipeline to produce a clean, high-quality and normalized dataset ready for discovery research.

11:10 CO-PRESENTATION: Boosting Drug Discovery with Machine Learning
Rishi Gupta, PhD, Senior Research Scientist, AbbVie, Inc.
Abhik Seal, PhD, Senior Data Scientist, AbbVie, Inc.

11:40 Applying Structure to the Unstructured: Using AI to Distill Insights from Disparate Unstructured Data Sources
Robert L. Martin, PhD, Research Scientist and Technical Lead, IBM Watson Health, IBM

Unstructured data is a significant source of cross-disciplinary insight. However, it’s a significant hurdle to manually read, digest and extrapolate a holistic view. Learn how AI applies a common framework to the disparate data using NLP and predictive analytics to construct a network of known and inferred connections between biological concepts enabling researchers to make informed, cross-silo decisions.

12:10 pm Session Break

12:20 Luncheon Presentation: From Hype to Reality: AI is a Key Enabler in Accelerating Drug Discovery and Development
Kailash Swarna, PhD, MBA, Industry Principal Director, Global Life Sciences, Accenture

The recent acceleration of interest in the applications of AI and ML in drug discovery and development has created significant perturbation in life sciences R&D. Separating fact from fiction, and demonstrating tangible and differentiated value of the application of AI is critically important - now more than ever. The technology industry and Pharma R&D are at an inflection point - interests and outcomes can converge or diverge - depending on the value that AI can deliver.

12:50 Session Break

1:20 Dessert Refreshment Break in the Exhibit Hall with Poster Viewing

PROPELLING THE PIPELINE: AI IN DRUG DISCOVERY AND DEVELOPMENT

1:55 Chairperson’s Remarks
Bino John, PhD, Associate Director, AstraZeneca

2:00 FEATURED PRESENTATION: Application of Machine Learning and Artificial Intelligence as a Driver of Productivity in Drug Discovery & Development
Morten Sogaard, Vice President, Target Sciences & Technologies, External Sciences & Innovation, Worldwide R&D, Pfizer

This talk will provide an overview of the impact of AI on productivity on pharma with the focus on three areas – process engineering & automation, drug design and manufacturing, and target and biomarker discovery and validation, illustrated by specific examples.

2:30 Intersection of AI Techniques and Rare Disease Diagnosis
Margaret Bray, PhD, Senior Data Scientist, Alexion

A look into the latest AI techniques applied to the field of rare disease diagnostics as well as a look at the limitation of current methodologies and areas for future growth.

3:00 Automated Compliance and Quality Checks
Etzard Stolte, PhD, Global Head Knowledge Management PTD, F. Hoffmann-La Roche

Machine learning technologies, like natural language processing (NLP), have reached the maturity for automated quality controls of operational information, e.g. as compliance and quality supervision tools. Over the last years Pharma Technical Development at Roche has created a single front end for many business and validated systems that uses a mixture of curation and supervised learning tools to increase compliance and reduce operational costs. This talk will present our learnings, as well as the limitations and opportunities we see for the future.

3:30 AI for Improving Drug Safety to Accelerate Drug Development
Bino John, PhD, Associate Director, AstraZeneca

Drug candidates that result from millions of dollars in investment frequently fail during clinical or preclinical testing phases due to safety concerns. Such safety related failures continue to pose a challenge to the industry. This talk will highlight some of the efforts at AstraZeneca that seek to use AI/ML approaches to minimize such clinical/preclinical failures.

4:00 Conference Adjourns
AI for Genomics
Personalizing Treatments and Cures

The role of computer science in modeling cells, analyzing and mapping data networks, and incorporating clinical and pathological data to determine how diseases arise from mutations is becoming more important in genomic medicine. We need to understand where the disease starts and how artificial intelligence delivers genes and pathways for drug targets and diagnostics. The Inaugural AI for Genomics track explores case studies that apply deep learning, machine learning, artificial intelligence, and predictive analysis methods to genomic medicine. We will discuss data curation techniques, text mining approaches, and statistical analytics that utilize deep machine learning to support AI efforts. This will help to integrate omics approaches to discover disease or drug response pathways and identify personalized and focused treatments and cures.

TUESDAY, APRIL 16
7:00 am Workshop Registration Open and Morning Coffee
8:00 – 11:30 Recommended Morning Pre-Conference Workshops*
  W4. AI for Pharma
  W12. Data Science Driving Better Informed Decisions
* Separate registration required. Please click here for details.

2:00 – 6:30 Main Conference Registration Open

4:00 PLENARY KEYNOTE SESSION
Please click here for details.

5:00 – 7:00 Welcome Reception in the Exhibit Hall with Poster Viewing and Meet the Experts: Plenary Keynote Speaker

WEDNESDAY, APRIL 17
7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION
Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Poster Viewing and Meet the Experts: Plenary Keynote Panelists

ACCELERATING PRECISION MEDICINE WITH AI:
CHALLENGES & OPPORTUNITIES

10:50 Chairperson’s Remarks
Richard Harrison, PhD, Products – Life Sciences, Senior Manager, Accenture

11:00 Next Generation Cognitive Supercomputing and Its Impact on Precision Medicine: Challenges, Trends and Opportunities
Edmon Begoli, PhD, Chief Data Architect, Oak Ridge National Laboratory
The impact of AI methods and big data technologies in pharma research and genomic medicine to advance precision medicine initiatives are taking on more importance. AI is becoming key player in the convergence of medical data and computer technologies. This talk gives a big picture viewpoint on the evolution of AI’s role, what the key drivers and challenges are, and trends to look for during the next 10-15 years.

11:30 From Hype to Reality: Data Science Enabling Personalized Medicine
Holger Fröhlich, PhD, Director and Head of Data Science Enablement, R&D Informatics, UCB BioSciences GmbH
Personalized medicine is deeply connected to and dependent on data science, specifically machine learning. While during recent years there has been a lot of enthusiasm about the potential of ‘big data’ and machine learning-based solutions, there exist only few examples that impact current clinical practice. In my talk, I will review the potential of state-of-the-art data science approaches for personalized medicine, discuss open challenges, and highlight directions that may help to overcome them in the future.

12:30 Session Break

12:40 Luncheon Presentation I: Productionising AI – Moving Beyond “Fire and Forget” to Predictable, Predictive Algorithms
Tim Miller, Vice President, Life Sciences Platform Solutions, Elsevier
Everybody is “doing AI” in Life Sciences right now, but how do we know we are doing it right? Are we picking the best models for our problem? Are we getting the quality of data we need? And, are we able to translate successful AI experiments into productionised capabilities that integrate with our business goals?

1:10 Luncheon Presentation II: Enabling Perpetual Digital Transformation in Research & Development
Robert Kane, Vice President & U.S. Head, Life Science Industries, Tata Consultancy Services

1:40 Session Break

EMERGING TOPICS

1:50 Chairperson’s Remarks
Bino John, PhD, Associate Director, AstraZeneca

1:55 Reduction of scRNA-seq by Deep Learning
Shanrong Zhao, PhD, Director, Computational Biology and Bioinformatics, Pfizer

2:25 CRISPR On- and Off-target Prediction and Evaluation
Andrew Kernetsky, PhD, Director, Head of Genomics and Computational Biology, CRISPR Therapeutics
This talk will look at evaluating off-target (mostly) prediction methods with some real lab data and assess what existing ML can do vs. what's left to improve upon and how (layering epigenetics et al.).

2:55 Prototype ML Software for Analysis of RNAseq, and Development of RNAseq for ML-ready Applications Developed in NIH-Hackathons!

Ben Busby, PhD, Scientific Lead, NCBI Hackathons Group, National Center for Biotechnology Information (NCBI)

3:25 Refreshment Break in the Exhibit Hall with Poster Viewing and Meet the Experts: Bio-IT World Editorial Director Allison Proffitt

3:25 Book Signing with Joseph C. Kvedar, MD, Vice President, Connected Health, Partners Healthcare; Professor, Harvard Medical School; Author, The Internet of Healthy Things™ (Book will be available for purchase onsite)

4:00 Transformative Gene Therapies for Severe Genetic Diseases and T Cell-Based Immunotherapies

Hans Bitter, PhD, Vice President, Data Sciences, bluebird bio

4:30 Deep Learning for Data Precision Medicine: Emerging Technology, Trends and Potential

Gaurav Kaushik, Co-Founder, Cascade Bio, Inc.

Deep learning methods have transformed modern life; they shape how we engage online, the products we purchase, the news and information we gather, and more. The transformation of precision medicine is not far behind. AI-embedded health and technology products will reshape how we think about data analysis, evidence generation, and information synthesis. This talk will provide an overview of emerging deep learning methods, with deep dives into specific architectures and practical applications, trends to watch in the near future, and opportunities for individuals to leverage deep learning across various aspects of precision medicine, such as variant calling, clinical trial recruitment, information synthesis and recall, and more. This talk is for all audiences — newcomers to deep learning who wish to know more are encouraged to attend.

5:00 Sponsored Presentation (Opportunity Available)

5:30 Best of Show Awards Reception in the Exhibit Hall with Poster Viewing

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE Session & AWARDS PROGRAM

Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Meet the Experts: Plenary Keynote Speaker and Poster Competition Winners Announced @ 10:00

METHODS AND MODELS TO BETTER UTILIZE DATA FOR RISK ASSESSMENT, DIAGNOSIS AND TREATMENT DECISIONS

10:30 Chairperson's Remarks

Chris Anderson, Editor in Chief, ClincaOMICs

10:40 Using DNA Tools to Predict Genetically Based Diseases

Stephen Hsu, PhD, Senior Vice President for Research and Innovation and Professor of Theoretical Physics, Michigan State University

Using methods from Machine Learning / AI, and data sets such as the UK BioBank 500k SNP genotypes, we construct genomic predictors for several complex traits. Our height predictor captures nearly all of the predicted SNP heritability for this trait — actual heights of most individuals in validation tests are within a few cm of predicted heights. I also discuss application of these methods to cognitive ability and polygenic disease risk and advances on human reproduction in the coming decade.

11:10 Precision Medicine in the Age of Data: The Evolution of Oncology, Genomics, and Real-World Evidence

Gaurav Singal, MD, Chief Data Officer, Foundation Medicine, Inc.

11:40 Tackling the Clinical Data Challenges When Analyzing a Million Genomes

Kees van Bochve, CEO, The Hyve

Population genetics and genomics is an emerging topic for the application of machine learning methods in healthcare and biomedical sciences. Currently, several large genomics initiatives, such as Genomics England, UK Biobank, the All of Us Project, and Europe's 1 Million Genomes Initiative are all in the process of making both clinical and genomics data available from large numbers of patients to benefit biomedical research. However, a key challenge in these initiatives is the standardization of the clinical and outcomes data in such a way that machine learning methods can be effectively trained to discover useful medical and scientific insights. In this talk, we will look at what data is available at scale, and review some of examples of the application of common data and evidence models such as OMOP, FHIR, GA4GH, RADAR-BASE and OpenTargets in order to achieve this, based on projects which The Hyve has executed with some of these initiatives to harmonize their clinical, genomics, imaging and wearables data and make it FAIR.

12:10 pm Enjoy Lunch on Your Own

1:20 Dessert Refreshment Break in the Exhibit Hall with Poster Viewing

METHODS AND MODELS TO BETTER UTILIZE DATA FOR RISK ASSESSMENT, DIAGNOSIS AND TREATMENT DECISIONS (CONT.)

1:55 Chairperson's Remarks

Yuval Itan, PhD, Assistant Professor, Department of Genetics and Genomic Sciences; Member, Charles Bronfman Institute for Personalized Medicine, Icahn School of Medicine at Mount Sinai

Since its publication in 2017, the Transcript-inferred Pathogenicity (TraP) model has become a major resource for genetic diagnostics, identifying pathogenic non-coding variants, and helping to change the common conception that pathogenic genetic variation is caused solely by coding mutations. TraP has been incorporated in diagnostic pipelines in tens of research institutes worldwide. TraP is also available as a website for single queries (www.trap-score.org), providing successful diagnosis of genetic disorders and affecting treatment decisions.

2:30 AI Assisted Rapid Clinical Whole Genome Sequencing for Critical Care

Ray Veeraraghavan, PhD, Director of IT & Informatics, Rady Children’s Institute for Genomic Medicine

3:00 Pinpointing Transcript-Damaging Disease-Causing Variants as a Major Step towards RNA Therapeutics

Sahar Gelfman, PhD, Associate Research Scientist, Columbia University Medical Center

3:30 Deciphering the Complex Heterogeneity of Cancer

Patrice M. Milos, PhD, Co-Founder/President and CEO, Medley Genomics, Inc.

Medley Genomics provides a software platform that uses patent-pending algorithms and advanced data analytics to describe a patient’s diverse tumor cell mixture. This enables creation of unique molecular diagnostic fingerprints for improving patient diagnosis, monitoring and treatment of cancer, and helps to improve novel oncology therapies and therapeutic combinations including individual cancer vaccine development.

3:30 Estimating Genotypic Heterogeneity Underlying Human Disease

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Yuval Itan, PhD, Assistant Professor, Department of Genetics and Genomic Sciences; Member, Charles Bronfman Institute for Personalized Medicine, Icahn School of Medicine at Mount Sinai

Whole exome and whole genome sequencing provide hundreds of thousands of genetic variants per patient, of them only very few are pathogenic. Current computational methods are inefficient in differentiating pathogenic mutations from neutral genetic variants that are predicted to be damaging and cannot predict the functional outcome of mutations. We will present deep learning approaches and machine learning methods in the role of detecting pathogenic mutations. Visualization tools for better utilizing NGS data will be presented to understand human disease genomics.

4:00 Conference Adjourns
Artificial intelligence in the healthcare industry is predicted to save $150 billion annually for the US. As such, AI is being rapidly deployed in many areas of the healthcare landscape. The Inaugural AI for Healthcare track will primarily focus on the providers, attracting CIOs, CTOs, VPs of IT and Informatics along with senior physicians and clinicians from the leading US hospitals who will share their experiences of using AI in clinical care and hospital operations.

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PRACTICAL APPLICATION OF AI IN CLINICAL CARE

10:50 Chairperson's Remarks
Stanley Huff, MD, Chief Medical Informatics Officer, Intermountain Healthcare and Professor of Biomedical Informatics, University of Utah

1:50 Chairperson's Remarks

1:55 Broad Data Sciences Platform: Personalized Medicine and Digital Health
Anthony Philippakis, MD, PhD, Chief Data Officer, Broad Institute and Cardiologist, Brigham and Women's Hospital
This talk will overview the activities of the Broad Data Sciences Platform with regard to patient-facing software, software to enable data generators and researcher-facing software.
phase of market saturation for HIT commercial systems. Competition in this space will lead to innovation and a proliferation of new technologies with difficult-to-predict effects on providers, patients, and health systems. A systematic approach to the evaluation of technology in healthcare is needed if we are interested in reliably discriminate between useful innovation and clever marketing.

FEEDBACK FROM INVESTORS

4:30 PANEL DISCUSSION: AI and Advanced Algorithms in Healthcare from the Investor’s Perspective
Viet Nguyen, MD, Founder, Strata Metrics and Clinical Informaticist
Internist, Paediatrician & Health IT Champion (Moderator)
AG Breitenstein, Partner, Optum Ventures
Vitaly Herasevich, MD, PhD, Associate Professor of Anesthesiology and Medicine, Department of Anesthesiology and Perioperative Medicine, Mayo Clinic
Lincoln Smith, M.D., Director, Analytic Enablement, Highmark

• Investing in and evaluating healthcare start-ups
• Real-world applications of AI in the healthcare industry
• The use of advanced analytics and AI to improve both patient care and provider operations
• How are emerging analytics and AI to improve both patient care and provider operations
• Unique opportunities and challenges faced in the healthcare industry
• Impact of AI on future jobs in the healthcare industry
• What can healthcare learn from other industries?

10:40 System Engineering in Healthcare: The Role of a Command Center
Jim Scheulen, Chief Administrative Officer, Emergency Medicine and Capacity Management, Johns Hopkins Hospital

Hospitals are complex organizations and must now operate at high levels of efficiency. In order to meet financial, service, safety and quality goals, healthcare institutions are increasingly turning to sophisticated modeling and implementing control centers.

11:10 Developing and Commercializing Clinically Relevant Machine Learning Solutions
Neil Tenenholtz, PhD, Director of Machine Learning, MGH & BWH Center for Clinical Data Science

The healthcare industry provides a unique set of challenges for machine learning practitioners. From protected datasets to the complexity of the physician’s workflow, the required background knowledge is often siloed across multiple domain experts. Effective knowledge transfer between these parties is essential in developing a successful product. In this talk, we’ll discuss ways to break down these barriers and maximize the likelihood of a developing a clinically successful product.

11:40 HL7 Da Vinci Project: Leveraging FHIR to Transform Payer-Provider Interactions
Viet Nguyen, MD, Founder, Strata Metrics and Clinical Informaticist
Internist, Paediatrician & Health IT Champion

12:10 pm Enjoy Lunch on Your Own

INVALUABLE INSIGHT FROM PAYERS AND PATIENTS

1:55 Chairperson’s Remarks
Anthony Philippakis, MD, PhD, Chief Data Officer, Brigham and Women’s Hospital

2:00 How will AI Amplify the Benefits of Value Based Care in Integrated Delivery Networks?
John Mattison, MD, CMIO, Kaiser Permanente

Value based care is best realized through synergy with integrated delivery networks. Machine learning creates a natural synergy. Opportunities and early experience at Kaiser Permanente will be presented.

2:30 The Patient’s Perspective: Digitizing Human Health
Renee Deehan Kenney, PhD, Vice President, Biocomputing, PatientsLikeMe

In 2017, PatientsLikeMe launched DigitalMe, a program whereby individuals can donate longitudinally collected bio-samples for multi-omic analysis, together with phenotypic data. Since then, PatientsLikeMe has collected over 4,000 longitudinal blood samples from over 2,000 healthy controls and people living with neurological, immunological, mental health, pain and fatigue conditions. Here, they will share the development of an analysis platform to collect complex data, and compute on it to derive insights about human health.

3:00 Be Smarter, Faster, Earlier! How Can Artificial Intelligence Help Payers Serve a Market with Ever-Evolving Demands?
Jelani Akil McLean, Managing Director, Office of Clinical Affairs, BlueCross BlueShield Association

With information more readily available and innovations occurring at record pace, the demand on the payer industry is to make smarter decisions, at a faster pace, and in a ‘just-in-time’ manner. The use of AI is leading to innovative approaches, in the payer industry, to meet the challenging demands of a more and rapidly informed market.

FEEDBACK FROM INVESTORS

3:30 Examining the Role Data and Analytics Can Play in Creating Transparency, Predictability and Clarity in the Healthcare Industry
AG Breitenstein, Partner, Optum Ventures

4:00 Conference Adjourns

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Present a Poster & SAVE $50

6 Reasons Why You Should Present Your Research Poster at Bio-IT World Conference & Expo:

1. Available to 3,400+ global attendees
2. Will be seen by leaders from top pharmaceutical, biotech, academic, government institutes, and technology vendors
3. Automatically entered in the Poster Competition, where two winners will each receive an American Express Gift Card
4. Receive $50 off your registration fee
5. Displayed in the Exhibit Hall – the central meeting place of the event – for maximum exposure
6. Dedicated poster hours

Please visit Bio-ITWorldExpo.com for poster instructions and deadlines.
Making Data FAIR: Findable, Accessible, Interoperable and Reusable

Bio-IT World invites innovative data scientists and developers from across the industry to solve real-world data challenges using the principles of FAIR: Findable, Accessible, Interoperable and Reusable Data.

For the past two years, the Bio-IT World FAIR Data Hackathon has delivered a new level of collaboration to the annual Bio-IT World Conference & Expo in Boston. Facilitated in partnership with FAIR Data pioneers from the National Center for Biotechnology Information (NCBI), Dutch Techcentre for Life Sciences, and Ontoforce, the 2017 and 2018 Hackathons have resulted in numerous notable FAIR Data Projects.

The third annual Bio-IT FAIR Data Hackathon will continue in the tradition of uniting life science and IT teams to tackle actual genomic datasets with maximum impact potential.

TO GET INVOLVED, visit Bio-ITWorldExpo.com/fair-data-hackathon

Follow the Bio-IT FAIR Data Hackathon at #BioITDatathon
Experience Boston

As one of the most historic cities in the United States, Boston offers unforgettable adventure with exceptional food, sporting events, music venues, and beautiful parks. Beyond its deep history, Boston is home to numerous universities and colleges which continue to attract scholars, scientists, philosophers and writers who shape its evolving culture. Attend Bio-IT World Conference & Expo, located on Boston’s historic waterfront, to experience this modern, innovative city and its deep roots. With so many fascinating sights and points of interest, the toughest choice will be which one to experience first!

HOST HOTEL: Seaport Hotel
(Located directly across the street)
One Seaport Lane
Boston, MA 02210
Phone: 1-877-SEAPORT
(1-877-732-7678)

CONFERENCE VENUE:
Seaport World Trade Center
200 Seaport Boulevard
Boston, MA 02210

Reservations: Visit the travel page of Bio-ITWorldExpo.com
Discounted Room Rate: $294 s/d
Discounted Cut-off Date: March 8, 2019

Go to the travel page of Bio-ITWorldExpo.com for additional info