#HPI_Health

2019

HPI - Mount Sinai Digital Health Forum

Hasso Plattner Institute
Mount Sinai Health System

Potsdam
21-22 · November · 2019

HPI Hasso Plattner Institut
Digital Engineering · Universität Potsdam

HPI·MS
Hasso Plattner Institute
for Digital Health at Mount Sinai

Mount Sinai

Greetings

Dear Digital Health Enthusiast,

Welcome to the HPI-Mount Sinai Digital Health Forum 2019. We are excited that you are joining us for the international science conference at the Hasso Plattner Institute in Potsdam.

Science has helped humanity to improve and extend life. Today, technological advances have given us possibilities never seen before to understand and analyze information at outstanding levels. We want to propel these possibilities by building an international academic collaboration between the Hasso Plattner Institute and the Mount Sinai Health System. This will allow us to combine data science, digital engineering and health care expertise to offer unprecedented opportunities for humankind. Our goal as the newly founded Hasso Plattner Institute for Digital Health at Mount Sinai (HPI•MS) is to turn the promise of digital health into a reality, being the driver of innovations that will revolutionize the way in which people think about their personal health and health systems, generating a real impact in people's lives.

During the next two days, we will discuss results, visions and strategies for driving the digital transformation of healthcare through our pioneering partnership. We hope you will enjoy engaging and networking with international experts, scientists, engineers, computer scientists, researchers and clinicians from HPI, Mount Sinai and leading German and European institutions who will present their ideas, successes, challenges and exciting trends in the fields of digital medicine, artificial intelligence, sensor technologies and precision medicine.

Yours sincerely,

Prof. Dr. Erwin Böttinger

Head of the HPI Digital Health Center

Director of Hasso Plattner Institute for Digital Health at Mount Sinai (HPI•MS)

Prof. Dr. Christoph Meinel

CEO, Hasso Plattner Institute

Dean, Digital Engineering Faculty

Dennis S. Charney, MD

Anne and Joel Ehrenkranz Dean, Icahn School of Medicine at Mount Sinai

President of Academic Affairs, Mount Sinai Health System

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Icahn School of Medicine at Mount Sinai

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Dennis S. Charney
Icahn School of Medicine at Mount Sinai

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Christoph Meinel
Hasso Plattner Institute for Digital Engineering

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Samuli Ripatti
Institute for Molecular Medicine Finland

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11.00 am

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Session Chair: Felix Naumann
Hasso Plattner Institute for Digital Engineering

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Hasso Plattner Institute for Digital Engineering

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Farhan Mahmood
Icahn School of Medicine at Mount Sinai

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Icahn School of Medicine at Mount Sinai

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D4L data4life

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Péter Adorján
D4L data4life

Open discussion

01.00 pm **Lunch**

Agenda

DAY 1
Thursday, November 21st

02.00 pm

Health Monitoring: Sensing and Analytics

Session Chair: Frank Mayer
University Potsdam

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Paul Lukowicz
German Research Center for Artificial Intelligence

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Bert Arnrich
Hasso Plattner Institute for Digital Engineering

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Oscar Mayora
Bruno Kessler Foundation

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Jörg F. Debatin
hih – health innovation hub of the Federal Ministry of Health

Open discussion

04.00 pm

Coffee Break

04.15 pm

Panel Discussion: Co-Innovation in Digital Health

Moderator: Erwin Böttinger
Hasso Plattner Institute for Digital Engineering
Icahn School of Medicine at Mount Sinai

Dennis S. Charney
Icahn School of Medicine at Mount Sinai

Katharina Hölzle
Hasso Plattner Institute for Digital Engineering

Heyo Kroemer
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Samuli Ripatti
Institute for Molecular Medicine Finland

Agenda

DAY 2
Friday, November 22nd

08.30 am

Special Lecture: A Sneak Peak of IBM Research From Computing to Touching Health

Heike Riel
IBM Research

09.00 am

Precision Medicine Use Cases

Session Chair: Jonathan Edelman
Hasso Plattner Institute for Digital Engineering

Keynote: Big Data in Precision Medicine – Curse or Cure?

Roland Eils
Berlin Institute of Health and Charité – Universitätsmedizin Berlin

Informing and Improving Imunotherapies with Analysis of High-Dimensional Immune Monitoring Assays

Sacha Gnjatic
Icahn School of Medicine at Mount Sinai

Opportunities for Innovation in Mental Health at HPI-Mount Sinai

Alexander Charney
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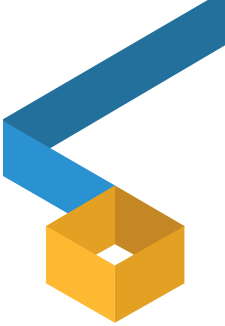
Real-time NGS Analysis for the Human Microbiome and Beyond

Bernhard Renard
Robert Koch Institute



Process Mining in Personalized Medicine

Mathias Weske

Hasso Plattner Institute for Digital Engineering

Digital Endpoints: Development and Validation of Emerging Capabilities to Measure Disease

Ieuan Clay

Novartis Institutes for BioMedical Research

Open discussion

11.00 am

Coffee and Networking Break

Agenda

DAY 2
Friday, November 22nd

11.30 am

Machine Learning and Artificial Intelligence in Human Health

Session Chair: Hanna Drimalla
Hasso Plattner Institute for Digital Engineering

Keynote: Augmenting clinical intelligence with machine intelligence

Suchi Saria
Johns Hopkins University School of Medicine

Applied AI: Better Together

Christoph Feest
Helmholtz AI Cooperation Unit Central hosted by Helmholtz Center Munich

From Classification to Computation: Artificial Intelligence Enabled Pathology

Carlos Cordon-Cardo
Icahn School of Medicine at Mount Sinai

Deep Patient: Predict the Medical Future of Patients with Machine Learning and EHRs

Riccardo Miotto
Icahn School of Medicine at Mount Sinai

Personalized Vaccines - How Algorithms Shape Modern Cancer Therapy

Benjamin Schubert
Helmholtz Center Munich

Machine Learning for Health Cohorts

Christoph Lippert
Hasso Plattner Institute for Digital Engineering

Open discussion

01.30 am

Concluding Remarks

Erwin Böttinger, Dennis Charney, Christoph Meinel

Host

Hasso Plattner Institute

The Hasso Plattner Institute (HPI) in Potsdam is Germany's university center of excellence for digital engineering, advancing research and education in IT systems engineering, data engineering, cyber security, entrepreneurship, and digital health. With its bachelor's and master's degree programs, the Faculty of Digital Engineering, established jointly by HPI and the University of Potsdam, offers innovative engineering- and application-oriented study programs. HPI consistently earns a top-notch place in the CHE University Ranking, and conducts research noted for its high standard of excellence in digital engineering, and concentrates on the research and development of user-oriented innovations for all areas of life. PhD candidates carry out research at the HPI Research School in Potsdam and its branches in Cape Town, Haifa, Nanjing and at the recently opened office in New York. The HPI School of Design Thinking is Europe's first innovation school for university students. With the groundbreaking, interdisciplinary HPI-Mount Sinai Digital Health Project, the Mount Sinai Health System and the HPI bring together leaders from healthcare, biomedical research, data sciences, artificial intelligence, and society, working together towards a shared goal to improve health and wellbeing.

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Host

HPI Digital Health Center

The HPI Digital Health Center (DHC) brings together individuals from health sciences, human sciences, data sciences, digital engineering and society with a shared goal to improve health and wellbeing. The Center assumes an open, inclusive network structure of researchers, projects and research institutions in order to empower patients and to transform healthcare with innovative digital health solutions. In March 2019, the Hasso Plattner Institute for Digital Health at Mount Sinai (HPIMS) was formed as the result of a cooperation agreement between the Mount Sinai Health System (MSHS) in New York City and the Hasso Plattner Institute (HPI). With HPIMS both institutions aim to develop digital health solutions that empower patients and healthcare providers and improve health and health outcomes. With world-class expertise and complementary resources in health care, data sciences and biomedical and digital engineering, the new HPIMS brings together experts with combined excellence in healthcare delivery, health sciences, biomedical and digital engineering, machine learning, and artificial intelligence to develop digital products with real-time predictive and preventive capabilities.

www.hpi.de/dhc
www.icahn.mssm.edu/research/hpims

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Host

Mount Sinai Health System

The Mount Sinai Health System is New York City's largest integrated delivery system, encompassing eight hospitals, a leading medical school, and a vast network of ambulatory practices throughout the greater New York region. Mount Sinai's vision is to produce the safest care, the highest quality, the highest satisfaction, the best access and the best value of any health system in the nation. The Health System includes approximately 7,480 primary and specialty care physicians; 11 joint-venture ambulatory surgery centers; more than 410 ambulatory practices throughout the five boroughs of New York City, Westchester, Long Island, and Florida; and 31 affiliated community health centers. The Icahn School of Medicine is one of three medical schools that have earned distinction by multiple indicators: ranked in the top 20 by U.S. News & World Report's "Best Medical Schools", aligned with a U.S. News & World Report's "Honor Roll" Hospital, No. 12 in the nation for National Institutes of Health funding, and among the top 10 most innovative research institutions as ranked by the journal Nature in its Nature Innovation Index. This reflects a special level of excellence in education, clinical practice, and research.

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www.youtube.com/mountsinainy

Host

Hasso Plattner Institute for Digital Health at Mount Sinai

The Hasso Plattner Institute for Digital Health at Mount Sinai Sinai (HPI•MS) is a research institute at the Icahn School of Medicine at Mount Sinai enabling collaboration and co-innovation across health care and digital engineering initiatives by the Hasso Plattner Institute (HPI), Germany, and the Mount Sinai Health System, United States. The Hasso Plattner Institute for Digital Health at Mount Sinai Sinai (HPI•MS) combines innovative, complementary research resources and talents in health care, health sciences, data sciences, biomedical and digital engineering, conducting patient-centered research to develop real-time predictive and preventive digital health solutions that empower citizens and health care providers in the United States, Europe, and elsewhere. HPI•MS is generously supported with a philanthropic gift of the Hasso Plattner Stiftung.

www.icahn.mssm.edu/research/hpims

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Speaker

Dr. Péter Adorján

D4L data4life

Péter received his PhD in computational neuroscience / machine learning in 2000 at the Technical University Berlin. After his education he lead the bioinformatics / biostatistics efforts at Epigenomics for biomarker and in vitro diagnostics development before he gained several years of industry leadership experience including McKinsey&Company, Centogene and SAP Healthcare Application Innovation. He joined data4life in summer 2019 as Chief Product Officer.

Speaker

Prof. Dr. Bert Arnrich

Hasso Plattner Institute for Digital Engineering

Prof. Dr.-Ing. Bert Arnrich is Professor for Digital Health – Connected Healthcare at the Hasso-Plattner-Institute at University of Potsdam.
His research on ubiquitous sensing and computing technologies is directed towards paving the way for transforming healthcare systems from purely managing illness to maintaining wellness everywhere, anytime and for anyone. He has been a PI in several European and national research projects. He has co-authored over 120 peer-reviewed publications.
He studied “Informatics in the Natural Sciences” and received the PhD degree Dr.-Ing. for the thesis “Data Mart Based Research in Heart Surgery”. He established and headed the research group Pervasive Healthcare in the Wearable Computing Laboratory at ETH Zurich. He received a Marie Curie Cofound Fellowship from the European Union and was appointed to tenure track professorship at the Computer Engineering Department at Bosporus University. He worked as a Science Manager for Emerging Technologies at Accenture Technology Solutions.

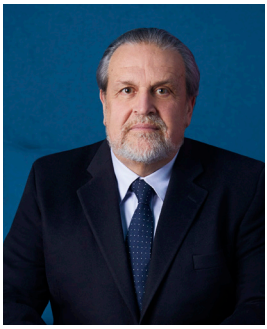
Speaker

Prof. Dr. Erwin Böttinger

Hasso Plattner Institute for Digital Engineering
Icahn School of Medicine at Mount Sinai

Erwin Böttinger is head of the Digital Health Center at the Hasso Plattner Institute (HPI) in Potsdam, Germany, and director of the newly formed Hasso Plattner Institute for Digital Health at Mount Sinai Health System in New York City, USA. He holds dual academic appointments as chaired Professor for Digital Health - Personalized Medicine at the joint Digital Engineering Faculty of the HPI and University Potsdam, and as Professor of Medicine and Systems Pharmacology and Therapeutics at the Icahn School of Medicine at Mount Sinai, New York City, USA. From November 2015 to July 2017 Erwin Böttinger was the CEO of the Berlin Institute of Health (BIH) where he played a key role in shaping its forward-looking strategy for 'Personalized Medicine - Advanced Therapies'. From 2007 to 2015, he was the founding director of the Charles Bronfman Institute for Personalized Medicine at the Icahn School of Medicine at Mount Sinai in New York City, USA, and the principal architect of the Institute's BioMe™ Biobank. Erwin Böttinger is a pioneer in groundbreaking implementations of personalized medicine and digital health in clinical practice.

Speaker



Prof. Dennis S. Charney, M.D.

Icahn School of Medicine at Mount Sinai

Dennis S. Charney, MD, is Anne and Joel Ehrenkranz Dean of the Icahn School of Medicine at Mount Sinai, and President for Academic Affairs for the Mount Sinai Health System. Charney is a world expert in the neurobiology and treatment of mood and anxiety disorders, making fundamental contributions to the understanding of the causes of human anxiety, fear, and depression, and the discovery of new treatment for mood and anxiety disorders. His research on depression has led to discovery of new and novel therapies for treatment-resistant depression including ketamine and the first digital treatment for depression (EFMT). He has been honored with the major awards in his field for his scientific research. He is considered one of the Most Highly Cited Life Science Researchers in the World. His discovery with his co-inventors of the use of intranasal ketamine for the treatment of treatment-resistant depression was named by Cleveland Clinic on its Top 10 list of 2017 Health Care Innovations. He holds 4 U.S. Patents, and 19 U.S. and Foreign Patent Applications, 10 of which are licensed to two companies. He has published over 800 articles and book chapters, and 17 books, including Resilience: The Science of Mastering Life's Greatest Challenges 2nd Edition, and Charney & Nestler's Neurobiology of Mental Illness 5th Edition. Charney was elected to the National Academy of Medicine in 2000, and the National Academy of Inventors in 2017.

Speaker

Alexander Charney, M.D.

Icahn School of Medicine at Mount Sinai

Alexander Charney, MD, PhD is an Assistant Professor at the Icahn School of Medicine with primary appointments in the Departments of Psychiatry and Genetics & Genomic Sciences, as well as secondary appointments in the Departments of Neuroscience and Neurosurgery. He received his MD and PhD under the mentorship of Pamela Sklar, MD, PhD, and Eric Schadt, PhD, two of the world's foremost experts on large-scale genomics and multiscale biology. He has been the lead data scientist on some of the largest genetic studies ever conducted on schizophrenia and bipolar disorder, including genome-wide association studies, copy number variant studies and rare sequencing variant studies. Currently, he leads several of the largest studies in the field of psychiatric genomics and has established a unique approach to human brain research as the founder and primary investigator of the Living Brain Project. As a physician-scientist specializing in the neurobiology of severe mental illness, his primary goal is to translate genomic discoveries to experimental therapeutics.

Speaker

Prof. Judy H. Cho, M.D.

Icahn School of Medicine at Mount Sinai

Judy H. Cho, MD, is the Director of the Charles Bronfman Institute for Personalized Medicine (CBIPM), and the Ward-Coleman Chair for Translational Genetics at the Icahn School of Medicine at Mount Sinai. Her research focuses on inflammatory bowel disease (IBD) genetics and disease mechanisms and her laboratory is applying single cell RNASeq and CITE-Seq toward developing novel therapeutic insights. Cell-cell communications within the intestinal wall likely underlie a substantial fraction of pathophysiologic heterogeneity. Additional heterogeneity is driven by uncommon risk alleles, notably NOD2 in Crohn's disease, found exclusively within European ancestry populations. Dr. Cho has served as Principal Investigator of the Data Coordinating Center of the NIH-funded NIDDK IBD Genetics Consortium since 2003. In this capacity, she has led efforts in the identification of over 200 genetic regions associated to IBD. Since 2015, Dr. Cho has led the CBIPM, which includes the School's major biobank, named BioMe. BioMe represents one of the most diverse biobanks in the world and sequencing results underscore the enormous potential of a genetics first strategy in clinical care. These initiatives reflect the School's major commitment to Personalized Medicine to improve the care of patients on an individualized basis.

Speaker

Ieuan Clay, Ph.D.

Novartis Institutes for BioMedical Research

Ieuan Clay brings together broad experience in applied data science, clinical practice and large-scale data handling, driving use of modern sensor technologies and analytics in clinical trial settings, focusing on collection and interpretation of new information on how patient lives are impacted by disease. He leads the “Innovative Digital Endpoint Analytics” (IDEA) group within NIBR Translational Medicine. Over the last years he has worked with partners across Novartis and beyond on tailored use of continuous monitoring (ambient sensors and wearables) to identify patients and monitor their response to new therapies. Research includes development and clinical validation of novel exploratory digital readouts, and leading efforts around health authority (EMA, FDA, DIA) and payer acceptance (OECD) of those novel readouts.

Speaker

Prof. Carlos Cordon-Cardo, M.D., Ph.D.

Icahn School of Medicine at Mount Sinai

Dr. Carlos Cordon-Cardo earned his medical degree from the Autonomous University of Barcelona (1980), and his PhD in Cell Biology and Genetics from Cornell University (1985). Dr. Cordon-Cardo is Professor and Chair System-Wide of the Department of Pathology, Molecular and Cell-Based Medicine at the Icahn School of Medicine at Mount Sinai Health System. He was previously Professor and Vice-Chair of Pathology at Columbia University; and from 1987 to 2006 a faculty member in the Department of Pathology at Memorial Sloan-Kettering Cancer Center, where he created the Division of Molecular Pathology and served as its first Director; scaling the academic ranks from Assistant to Professor of Pathology at Weill Cornell Medical College. A pioneer of the oncologic molecular pathology discipline, Dr. Cordon-Cardo has helped establish a deeper understanding of the mechanisms of human cancers and new targets for cancer therapeutics, enhancing the vision of personalized medicine. His analyses of multi-drug resistance and alterations of tumor suppressor genes in human cancer have led to extraordinary breakthroughs in the way scientists understand and investigate the progression of certain solid-tumor cancers. He is Principal Investigator on several National Cancer Institute grants, and has received uninterrupted NIH/NCI funding for the past 30 years.

Speaker

Prof. Dr. med. Jörg F. Debatin

hih – health innovation hub of the Federal Ministry of Health

Since March 2019 Jörg Debatin leads the health innovation hub (hih) in Berlin. Conceived by the Minister of Health, the hub is mandated to drive the process of Digitization Medicine in Germany.

From September 2014 to Dec. 2018 Jörg served as Vice President, Chief Technology and Medical Officer for GE Healthcare, a $19 billion division of General Electric. Before joining GE Healthcare, Jörg served as CEO for Amedes AG for three years and led the development of out-patient diagnostic services.

A highly regarded physician and winner of several academic honors and awards, Jörg's background includes medical diagnostics, leadership of major medical institutions, and extensive experience in the use of digital technologies in a healthcare environment.

Jörg began his career as a diagnostic Radiologist working at Duke, Stanford, and Zurich. He was appointed Professor of Diagnostic Radiology at the University of Essen, Germany in 1999. Jörg's previous experience also includes eight years as Medical Director & CEO of the University Medical Center, Hamburg-Eppendorf from 2003 to 2011.

Jörg holds a medical degree from the University of Heidelberg, Germany. He also attained an Executive M.B.A. from Hochschule St. Gallen, Switzerland.

Speaker

Dr. Hanna Drimalla

Hasso Plattner Institute for Digital Engineering

Dr. Hanna Drimalla is a postdoctoral researcher at the Digital Health Center of the Hasso-Plattner Institute at the University of Potsdam. Her current research focuses on using machine learning technologies to predict and prevent psychological and medical crisis. Hanna holds a master's degree in psychology from the Ruhr-University of Bochum and a master's degree in computational science from the University of Potsdam. In the context of her doctoral thesis work, she has investigated human social interactions using psychological, physiological, and computational methods at Humboldt University in Berlin. In addition to her academic career, she has worked as a freelance science journalist for various magazines.

Speaker

Dr. Jonathan Edelman

Hasso Plattner Institute for Digital Engineering

Dr. Jonathan Antonio Edelman is currently an Adjunct Professor at the Hasso Plattner Institute's Digital Health Center. His research and teaching at the HPI focuses on Human Centered Design in Digital Health, with a special interest in Human Centered Machine Learning, Digital Transformation and Design Team Dynamics. He also serves as a Visiting Professor in Design at Politecnico di Milano. Dr Edelman is also founder of the Center for Advanced Design Studies, the objective of which is to explore and communicate cutting edge innovation processes in a wide spectrum of creative and scientific domains.

Before his appointment at HPI, Dr Edelman was Head of Programme for Global Innovation Design at the Royal College of Art, London. Prior to that, Dr Edelman was the Director of Interdisciplinary Design at Stanford University's Product Realization Lab and Consulting Assistant Professor in Mechanical Engineering at Stanford University.

Speaker

Prof. Dr. Roland Eils

Berlin Institute of Health and Charité – Universitätsmedizin Berlin

Prof. Dr. Roland Eils is founding director of the Digital Health Center at Berlin Institute of Health (Charité, Berlin) and director of the Health Data Science unit at the Medical Faculty of Heidelberg University. Before, he was founding and managing director of Heidelberg University's Systems Biology center BioQuant and Head of Division "Theoretical Bioinformatics" (B080) at the DKFZ in Heidelberg. His group has delivered significant contributions to the field of cancer genomics and systems biology. Since 2017 Roland Eils is member of the Organizing Committee of the Human Cell Atlas initiative and Coordinator of the HiGH-Med Consortium. He has published over 370 publications cited over 32.000 times resulting in an h-index of 85 (source: google scholar).

Speaker

Prof. Bjoern Eskofier, Ph.D.

Friedrich-Alexander-Universität Erlangen-Nürnberg

Bjoern M. Eskofier is German Research Foundation (DFG) funded Heisenberg-Professor for "Digital Support Systems in Sports and Medical Engineering" and endowed professor of the Adidas AG. He heads the Machine Learning and Data Analytics (MaD) Lab and the Central Institute for Medical Engineering at the Friedrich-Alexander-University Erlangen-Nuernberg (FAU). Currently, his lab has 30 co-workers, who research in the fields of machine learning and signal analysis for wearable computing systems in sports and health care. The motivation of the lab's researchers is to increase human wellbeing.

Dr. Eskofier studied Electrical Engineering at the FAU and graduated in 2006. He then studied under the supervision of Prof. Dr. Benno Nigg at the University of Calgary (Canada). There, he received his PhD degree in Biomechanics in 2010 for his research on "Application of Pattern Recognition Methods in Biomechanics".

Bjoern Eskofier has defined his research and entrepreneurial agenda to revolve around contributions to a "Digital Health Ecosystem", where patients are connected to other stakeholders within the Healthcare system using digital support tools. His digital health research philosophy is that only multidisciplinary teams of engineers, medical experts, industry representatives and entrepreneurs will have the tools to actually implement changes in Healthcare.

Speaker

Prof. Zahi A. Fayad, M.D.

Icahn School of Medicine at Mount Sinai

Zahi A. Fayad, PhD serves as the Lucy G. Moses Professor of Medical Imaging and Bioengineering at the Icahn School of Medicine at Mount Sinai. He is Professor of Radiology (vice-chair for research) and Professor of Medicine (Cardiology). He is the founding Director of the BioMedical Engineering and Imaging Institute. Dr. Fayad's research has been dedicated to the detection and prevention of cardiovascular disease with many seminal contributions in the field of multimodality biomedical imaging (MR, CT, PET and PET/MR) and nanomedicine. Recent collaborative work has been in: 1) the study of psychosocial stress exposure in the brain, the cardiovascular system and the immune system; 2) the development of platform nanotechnology to produce nanobiologics for immunotherapy in multiple disease conditions; 3) the development of the Mount Sinai Imaging Research Warehouse (de-identified, pseudo-anonymized images and metadata) as a unique repository of radiological imaging big data for focused imaging and general healthcare research.

Dr. Fayad had his engineering trainings at Bradley University (BS, Electrical Engineering '89), the Johns Hopkins University (MS, Biomedical Engineering '91), and at the University of Pennsylvania (PhD Bioengineering '96). From 1996 to 1997 he was junior faculty in the Department of Radiology at the University of Pennsylvania. In 1997 he joined the faculty at the Mount Sinai School of Medicine as Assistant Professor in Radiology and Medicine (Cardiology).

Speaker

Dr. Christoph Feest

Helmholtz AI Cooperation Unit Central hosted by Helmholtz Center Munich

Chris joined Helmholtz AI as Head of Management in July 2019. This €12m/a research-driven hub for applied AI connects unique research questions, data sets and expertise with newly developed AI/ML-based tools and democratized access to them in an open and dynamic community. Before joining Helmholtz AI in Munich, Chris was Head of Management at the BIH Centre for Regenerative Therapies at the Charité in Berlin. Chris holds university degree in physics from Humboldt-University in Berlin, a PhD in immunology from University College London and worked at Imperial Innovations, London.

Speaker

Ben Glicksberg, Ph.D.

Icahn School of Medicine at Mount Sinai

Benjamin Glicksberg is an Assistant Professor in the Hasso-Plattner Institute for Digital Health within the Genetics and Genomic Sciences department at the Icahn School of Medicine at Mount Sinai. His work revolves around synthesizing multi-omic health data, such as genomics, Electronic Health Records, biomedical imaging, and sensor data, to forward the ideals of precision medicine. He focuses on overcoming systemic biases of such data to create high-fidelity phenotypes that can be used for more robust machine learning applications. He is a large proponent of reproducibility and has developed open-source tools and packages within the OMOP common data model format.

He completed a post-doc at the University of California, San Francisco in the Bakar Computational Health Sciences Institute and received his Ph.D. from the Icahn School of Medicine at Mount Sinai in 2017.

Speaker

Sacha Gnjatic, Ph.D.

Icahn School of Medicine at Mount Sinai

Dr. Sacha Gnjatic, Ph.D. is an Associate Professor and the Associate Director of the Human Immune Monitoring Center at the Icahn School of Medicine at Mount Sinai. Dr. Gnjatic's lab focuses on human immune responses to cancer in an antigen-specific manner, in the periphery and at the tumor site, to define new targets for the development of cancer immunotherapies, how they work and why they may fail. Dr. Gnjatic's work on tumor antigens has established the immunological basis for testing cancer vaccines in over 40 clinical trials, opening a new field of cancer immunology based on clinical discovery, with the goal to achieve protective integrated immune responses in the fight against cancer. Dr. Gnjatic's laboratory has pioneered novel high-dimensional techniques and served as reference for harmonized immunomonitoring of humoral, cellular, and tissue-based immune correlates, which has led to the adoption of new standards by other labs.

Speaker

Prof. Dr. Katharina Hölzle, MBA

Hasso Plattner Institute for Digital Engineering

Prof. Dr. Katharina Hölzle, MBA leads the research group IT-Entrepreneurship at the Hasso-Plattner-Institute University of Potsdam since November 2019. Prior to this, Katharina Hölzle held the chair for Innovation Management and Entrepreneurship at the Faculty of Economics and Social Sciences of the University of Potsdam from 2011 - 2019. She is Deputy Chair of the Commission of Experts for Research and Innovation (EFI) and member of the German government's High-Tech Forum. Katharina Hölzle is Visiting Professor at the University of International Business and Economics (UIBE) in Beijing, the UTS Business School and Macquarie Graduate School of Management (MGSM) in Sydney. She is editor-in-chief of the journal 'Creativity and Innovation Management' (Wiley). Her research focuses on digital entrepreneurship, platform economy, open and user innovation as well as the implementation of creativity and innovation in organisations.

Speaker

Prof. Dr. Heyo K. Kroemer

Charité – Universitätsmedizin Berlin

Heyo K. Kroemer, born 1960 in Leer, Germany, studied pharmacy at the Technical University of Braunschweig from 1978 to 1983. In 1992 he received his habilitation in Pharmacology and Toxicology at the Eberhard-Karls-University Tübingen. The same year he was awarded with the Paul-Martini-Preis.

In 1998 he moved to the chair of general pharmacology at the University of Greifswald. From 2000 to 2012 Heyo K. Kroemer was dean of the Medical Faculty Greifswald.

From 2012 to 2019 Heyo K. Kroemer was dean, board member for research and teaching and CEO of the University Medical Center Göttingen. In 2018 he was elected member of the National Academy of Science Leopoldina.

Since 2007 Heyo was a member of the German Medical Faculty Association and became its President from 2012 to 2019.

He is a member of numerous of committees of the science system, e.g. in the Scientific Advisory Board of the German Medical Association, where he was elected to the Board of Directors in 2017.

Since September 1st, 2019 Heyo K. Kroemer is Chief Executive Officer of Charité – Universitätsmedizin Berlin.

Speaker

Prof. Dr. Christoph Lippert

Hasso Plattner Institute for Digital Engineering

Christoph Lippert (Univ. Prof., Dr. rer. nat., *1980) is Chair of Digital Health & Machine Learning at the joint Digital-Engineering Faculty of Hasso Plattner Institute for Digital Engineering gGmbH (HPI) and the University of Potsdam.
Christoph Lippert is full professor (W3) for computer science at HPI and the University of Potsdam. He teaches courses In Digital Health, Mathematics, Machine Learning and Statistics in the HPI Master Degree programs and supervises nine PhD projects.
As an expert for digital health with an emphasis on machine learning, Lippert is working on machine learning and artificial intelligence algorithms, as well as novel applications in medicine. The focus is on advancing the capabilities to predict personal health risks and supporting the personalized prevention of health issues and diseases.
Lippert studied bioinformatics from 2001–2008 in Munich and went on to earn his doctorate at the Max Planck Institutes for Intelligent Systems and for Developmental Biology in Tübingen in the field of computational biology, with an emphasis on genome-associated studies. In 2012, he accepted a position in Los Angeles at Microsoft Research and subsequently carried out work at Human Longevity, Inc. In 2017, Lippert returned to Germany to head the research group “Statistical Genomics” at the Max Delbrück Center for Molecular Medicine in Berlin, before joining the HPI in 2018.

Speaker

Erik Lium, Ph.D.

Icahn School of Medicine at Mount Sinai

Dr. Lium is the Executive Vice President of Mount Sinai Innovation Partners (MSIP), the commercialization engine of the Mount Sinai Health System. Earlier in his career, Dr. Lium held positions at the University of California, San Francisco (UCSF), including Assistant Vice Chancellor of Innovation, Technology and Alliances; Principal Investigator for the Bay Area National Science Foundation I-Corps node; and Assistant Vice Chancellor of Research. He also served as Founder and President of LabVelocity Inc., an information services company focused on accelerating research and development in the life sciences. He routinely advises venture boards, and serves on the board of several startups launched from Mount Sinai technology.

Dr. Lium earned his PhD in Cellular, Molecular and Biophysical Studies at Columbia University and pursued post-doctoral training at UCSF.

Speaker

Prof. Dr. Paul Lukowicz

German Research Center for Artificial Intelligence

Paul Lukowicz is Professor at the German Research Center for AI (DFKI) and Kaiserslautern University (TUK) in Germany where he heads the Embedded Intelligence group. His research focuses on context-aware ubiquitous and wearable systems including sensing, pattern recognition, system architectures, models of large-scale self-organized systems, and applications in areas ranging from healthcare through industry 4.0 to smart cities.

Speaker

Farhan Mahmood

Icahn School of Medicine at Mount Sinai

Farhan Mahmood recently joined the Scientific Computing and Data Science Group at Icahn school of Medicine at Mount Sinai, in New York City, as a Research Data Warehouse Manager. Currently, he is leading a team of analysts and developers to manage and maintain the Clinical Research data warehouse, which acts to support the efforts of clinicians and researchers within the Mount Sinai Health System over a variety of scientific applications. Before coming to Mount Sinai, Farhan worked as a Sr. Manager of Data Architecture & Operations for Enterprise Data Warehouse team at Montefiore Medical Center and holds degrees in Computer Science.

Speaker

Prof. Dr. med. Frank Mayer

University Potsdam

Positions

Since 2018 Head of the Scientific Board, German Society of Sports Medicine and Prevention (DGSP)
Since 2018 Vice Dean, Faculty of Health Sciences, Federal State of Brandenburg
Since 2015 Chair, Health Siences, University of Potsdam
2007-2015 Dean and Vice Dean, Faculty of Human Sciences, University of Potsdam
Since 2007 Med. Dir., University Outpatient Clinic, Potsdam
Since 2006 Professorship in Sports Medicine & Sports Orthopedics, University of Potsdam

Basic and further Education

2009 Specialist in Orthopedics and Trauma Surgery
2002-06 Sports Medicine / Sports Orthopedics, University Clinic Freiburg
1999 Habilitation in Sports Medicine and Orthopedic Surgery
1997 Specialist in Orthopedic Surgery
1995/96 Trauma Surgery, Trauma Clinic Ludwigsburg
1992 Specialist in „Sports Medicine“ and „Chirotherapy“
1990 Ph.D. in Medicine (Dr. med.)
1989–2002 Med. Clinic and Policlinic, Dept. Sports Medicine and Clinic of Orthopedic Surgery,
University of Tübingen
1989 M.D., University of Tübingen

Speaker

Oscar Mayora, Ph.D.

Bruno Kessler Foundation

Oscar Mayora obtained his Ph. D. in Electronic Engineering and Informatics at DIBE, University of Genoa, Italy in 2000. In the same year, he joined the Advance Interactive Systems Laboratory at VTT Electronics in Oulu, Finland, as an ERCIM Visiting Research Fellow.

In August 2001 he was appointed Associate Professor in Computer Science at Tecnológico de Monterrey where he became head of the Graduate Program in Computer Science.

From 2004 – 2016 he was Head of the Ubihealth area at Create-Net. Dr. Mayora is senior member of the ACM and SIG-CHI and was former president of ACM SIG-CHI for Mexico. Dr. Mayora is founder and permanent member of the steering committee of Pervasive Health Conference. He has published over 100 papers in International Conferences and Journals, participated as Guest Editor of special issues of Journals such as IEEE Intelligent Systems, EURASIP Signal Processing, Springer MONET and IMIA Journal on Methods of Information in Medicine in the topic of Pervasive Healthcare.

Speaker

Prof. Dr. Christoph Meinel

Hasso Plattner Institute for Digital Engineering

Christoph Meinel (Univ. Prof., Dr. sc. nat., Dr. rer. nat., *1954) is CEO and Scientific Director of the Hasso Plattner Institute for Digital Engineering gGmbH (HPI) as well as Dean of the Digital-Engineering Faculty at the University of Potsdam.

Christoph Meinel is full professor (C4) for computer science at HPI and the University of Pots-dam, and he holds the chair of Internet Technologies and Systems. He teaches courses on IT Systems Engineering in the HPI Bachelor and Master Degree programs and in the MOOC plat-form developed by his team: openHPI. He supervises numerous PhD projects and is a teacher at the HPI School of Design Thinking. His research currently focuses on security engineering, knowledge engineering, and Web 3.0–Semantic, Social, Service Web. He is also scientifically active in research on the innovation method Design Thinking. Earlier scientific work concen-trated on efficient algorithms and complexity theory.
Christoph Meinel is author or co-author of more than 25 books, anthologies, as well as nu-merous conference proceedings. He has had more than 550 (peer-reviewed) papers pub-lished in scientific journals and at international conferences and holds a number of interna-tional patents. He is a member of the National Academy of Science and Engineering (acatech), director of the HPI-Stanford Design Thinking Research Program, honorary professor at the TU Beijing, visiting professor at Shanghai University, concurrent professor at the University of Nanjing, and member of numerous scientific committees and supervisory boards.

Speaker

Riccardo Miotto, Ph.D.

Icahn School of Medicine at Mount Sinai

Riccardo Miotto is an Assistant Professor in the Department of Genetics and Genomic Sciences at the Icahn School of Medicine at Mount Sinai in New York and Director of Data Science at the Hasso Plattner Institute for Digital Health in Mount Sinai and the Institute for Next Generation Healthcare. Riccardo's work encompasses the design of algorithms for information retrieval, machine learning and data mining applied to healthcare data for personalized medicine and medical search engines. His current research is focusing on secondary use of electronic health records (EHRs) and on the development and application of solutions to extract meaningful representations from the patient data that can be used for clinical prediction and medical analysis. Riccardo's research also investigates novel technologies for health care monitoring (e.g., smart mirror) and algorithms for creating synthetic EHRs that can be securely shared for research purposes. In previous experiences he also worked on: (1) clinical trial search engines through free-text eligibility criteria processing (based on NLP techniques) and patient EHR similarity; and (2) machine learning applied to music information retrieval, in the particular semantic discovery and recommendation, automatic tagging, and cover identification. Riccardo obtained his Ph.D. in Information Engineering from the University of Padova, Italy.

Speaker

Girish Nadkarni, M.D., MPH

Icahn School of Medicine at Mount Sinai

Dr. Girish N. Nadkarni is a Tenure track Assistant Professor in Medicine/Nephrology and the Clinical Director of the Charles Bronfman Institute of Personalized Medicine. He received training in Mathematics before completing his medical degree at one of the top ranked medical colleges in India. He then received a Master's in Public Health at the Johns Hopkins Bloomberg School of Public Health in Baltimore, MD, while being a Research Assistant at the Johns Hopkins Medical Institute. Dr. Nadkarni completed his residency in Internal Medicine and a clinical fellowship in Nephrology at the Icahn School of Medicine at Mount Sinai. He then completed a joint research fellowship in Nephrology and Personalized Medicine at the Charles Bronfman Institute of Personalized Medicine where he was mentored by Dr. Erwin Böttinger. Dr. Nadkarni has authored over 100 peer reviewed scientific publications including ones in the New England Journal of Medicine and Journal of American Medical Association. He has received many awards including the best outgoing clinician award, the Dr. Harold and Golden Lamport research award and the Deal of the Year award at Sinai Innovations. He is the principal or co-investigator for several NIH funded grants. Dr. Nadkarni is also the scientific co-founder of two investor-backed companies one of which, Renalytix AI is listed on the public exchange in London, UK.

Speaker

Prof. Dr. Tilmann Rabl

Hasso Plattner Institute for Digital Engineering

Tilmann Rabl holds the chair for Data Enineering Systems at the Hasso Plattner Institute and is Professor at the Digital Engineering Faculty of the University of Potsdam. He is also cofounder and scientific director of the startup bankmark. Tilmann Rabl received his PhD at the University of Passau in 2011. He spent 4 years at the University of Toronto as a postdoc in the Middleware Systems Research Group (MSRG). From 2015 to 2019, he was senior researcher and visiting professor at the Database Systems and Information Management (DIMA) group at Technische Universität Berlin and Vice Director of the Intelligent Analytics for Massive Data (IAM) Group at the German Research Center for Artificial Intelligence (DFKI).

Speaker

Prof. Dr. Bernhard Renard

Robert Koch Institute

Bernhard Renard is director and professor of bioinformatics at Robert Koch Institute, the German National institute for public health, where he also serves -in lieu of the institute's president - as head of the department for methology and research infrastructure. He further is professor at the department of mathematics and computer science at Freie Universitaet Berlin and the International Max Planck Research School on Biology and Computing. A statistician and computer scientist by training, he holds a PhD in interdisciplinary informatics from the University of Heidelberg. He was a long term visitor at the proteomics center at Children's Hospital Boston/Harvard Medical School and the seminar for statistics at ETH Zurich. After time in industry with Biontech pioneering indivualized cancer vaccines, he built up bioinformatics from scratch at RKI. Starting from 2020, he will join the faculty at Hasso-Plattner-Institute.

Speaker

Dr. Heike Riel

IBM Research

Dr. Heike Riel is a distinguished scientist known for advancing the frontiers of information technology through physical sciences. She's an IBM Fellow and Department Head of Science & Technology at IBM Research. She's responsible for leading the Science & Technology department research agenda, aiming to create scientific and technological breakthroughs in Quantum Computing and Technologies, Physics of Artificial Intelligence, Nanoscience and Nanotechnology including IoT and health applications.

In 2013, she was named IBM Fellow, the company's highest technical distinction and inducted into IBM's Academy of Technology. She was recognized for her seminal contributions fundamental achievements in the science and technology of nanoscale electronics, particularly the exploration and development of semiconducting nanowires for applications in future electronic devices, molecular electronics for future nanoscale switches and memory applications, and organic light-emitting diodes for display applications.

She earned a PhD in Physics from University of Bayreuth (Germany) in 2002 and an MBA from Henley Business College (UK) in 2010. Previously at IBM she had been leading the Materials Integration & Nanoscale Devices group, the Physical Sciences Dept. and the IoT Technology and AI Solutions Dept. at the T.J. Watson Research Center. Authoring more than 140 peer-reviewed publications and filing over 50 patents. She's received several major awards, e.g. the Applied Physics Award of the Swiss Physical Society, the TR100, she's elected Member of the Swiss Academy of Engineering Sciences and the Leopoldina, the German National Academy of Sciences, and received an honorary doctor by Lund University. In 2017 she was awarded the APS David Adler Lectureship Award in the Field of Materials Physics.

Speaker

Prof. Samuli Ripatti, Ph.D.

Institute for Molecular Medicine Finland

Samuli Ripatti, PhD, is a Vice Director at the Institute for Molecular Medicine Finland (FIMM), a professor of Biometry at the Faculty of Medicine (UH) and a Scholar at the Broad Institute of MIT and Harvard in Cambridge, MA, USA. He is chairing the Academy of Finland Centre of Excellence in Complex Disease Genetics. His research group studies genetic variation in the Finnish population and its effects on common complex disease risks and management. His research focuses in particular on cardiometabolic diseases as models to learn about disease mechanisms and genome-based strategies for diagnosis, prevention and stratified treatment. He has published over 250 articles that have been cited over 26,000 times. He is strongly involved in doctoral training and is currently chairing Doctoral Programmes in Biomedicine and Population Health.

Speaker

Dr. Suchi Saria

Johns Hopkins University School of Medicine

Dr. Suchi Saria is the John C. Malone assistant professor of computer science at the Whiting School of Engineering, health system informatics at the Johns Hopkins University School of Medicine, and of health policy and management at the Bloomberg School of Public Health. She is the Director of the Machine Learning, AI and Healthcare Lab and the founding Research Director of the Malone Center for Engineering in Healthcare at Hopkins. Her research has pioneered the development of next generation diagnostic and treatment planning tools that use statistical machine learning methods to individualize care. In sepsis, a life-threatening condition, her work first demonstrated the use of machine learning to integrate diverse signals to make early detection possible (Science Trans. Med. 2015). In Parkinson's, her work showed a first demonstration of using readily-available sensors to easily track and measure symptom severity at home, which can serve to optimize treatment management (JAMA Neurology 2018).

Speaker

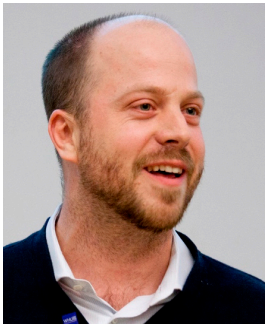
Dr. Benjamin Schubert

Helmholtz Center Munich

Benjamin Schubert is currently a Group Leader at the Institute of Computational Biology at the Helmholtz Center Munich. His group is developing and applying bioinformatics, machine learning, and optimization methods to aid in the design of novel immunotherapeutics and to gain a deeper understanding of the immune system's involvement in cancer, autoimmune disease, and infections.

Dr. Schubert studied Bioinformatics at the University of Tübingen from 2007 - 2013 where he also pursued his Ph.D. in Computational Cancerbiology developing approaches for personalized cancer vaccinations. In 2016, he joined the groups of Prof. Marks and Prof. Sander at Harvard Medical School and Dana-Farber Cancer Institue as a postdoctoral fellow focusing, where he focused on computational protein engineering. Dr. Schubert returned in 2018 to Germany to head the research group for Translational Immunoinformatics at the Helmholtz Center Munich.

Speaker



Christian-Cornelius Weiss

D4L data4life

Christian is CEO of the nonprofit organization D4L data4life gGmbH (formerly “Gesundheitscloud”). As a Founding Partner of the Venture Capital Funds Rocket Internet, Project A Ventures and Sunfish Partners and as a Business Angel he also supports young (digital health) companies such as Fosanis, Qunomedical, PlusDental or Kumi Health. He studied at WHU - Otto-Beisheim Graduate School of Management in Vallendar and is a guest lecturer at the Digital Health Center of the Hasso-Plattner-Institute.

Prof. Dr. Mathias Weske

Hasso Plattner Institute for Digital Engineering

Professor Dr. Mathias Weske is chair of the business process technology research group at Hasso Plattner Institute at the Digital Engineering Faculty, University of Potsdam, Germany. The research group aims at addressing real-world problems in business process management with formal approaches and engineering useful prototypes. His research focuses on the engineering of process oriented information systems, decision management, and event processing. Application domains include logistics and, more recently, health care. Dr. Weske is author of the first textbook on business process management and he held the first massive open online course on the topic in 2013. He is on the Editorial Board of Springer's Distributed and Parallel Databases journal, Springer's Computing journal, and he is a founding member of the steering committee of the BPM conference series and, since September 2017, chairperson of the steering committee.

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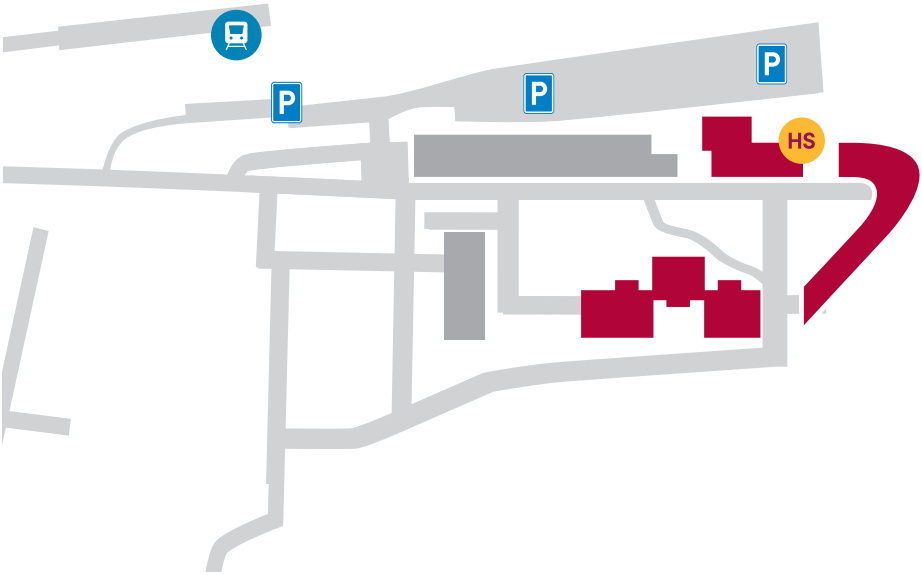
Campus Map



HS Building

Hörsaal 1

Train station

S-Bahn Griebnitzsee

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