

# BIG DATA INSTITUTE

Li Ka Shing Centre for Health Information and Discovery

**East West Alliance Symposium**

**11th—14th September 2017**



Nuffield Department of  
**POPULATION HEALTH**



## Welcome Letter



Dear Symposium Attendees

It gives us great pleasure to welcome you to the 2017 Li Ka Shing Foundation East-West Alliance Global Symposium.

The East-West Alliance is a global network of universities and medical schools that are supported by the Li Ka Shing Foundation. The Alliance aims to foster knowledge exchange and collaboration among leading biological and biomedical institutions on high-impact research and educational projects. Each year the Li Ka Shing Foundation supports a symposium at one of the participating institutions. This year's symposium is being held at the recently opened Big Data Institute in the Li Ka Shing Centre for Health Information and Discovery at the University of Oxford.

The theme of this year's symposium is "Big Data in Health." Technological advances have exponentially increased the information we have about the causes and consequences of a wide variety of disease states. Some of this comes from health care records and some from analysing patient samples. The ability to interrogate these data efficiently plays an increasing role in efforts to understand disease and develop new treatments. Progress will depend on collaboration between experts across a wide variety of disciplines including molecular and cell biologists, epidemiologists, statisticians, computer scientists, bioinformaticians, engineers, and clinical scientists. In response, this year's event will cover sessions on electronic health records, imaging, genomics, mHealth, and population health.

We trust that you will find the symposium presentations stimulating and enjoyable.

A handwritten signature in black ink, appearing to read 'Aiden'.

Aiden Doherty  
Senior Research  
Fellow  
Big Data Institute

A handwritten signature in black ink, appearing to read 'Cecelia Lindgren'.

Cecelia Lindgren  
Senior Group Leader  
Big Data Institute

A handwritten signature in black ink, appearing to read 'Martin Landray'.

Martin Landray  
Deputy Director  
Big Data Institute

A handwritten signature in black ink, appearing to read 'Gil McVean'.

Gil McVean  
Director  
Big Data Institute

# Programme

## Monday 11 September

Drinks Reception (19.00) – Ashmolean Museum

## Tuesday 12 September:

### Opening (9.15 – 9.30) – John Bell (Oxford)

**Session 1 (9.30-11.00) - Electronic health records** (Chair: Naomi Allen, Oxford):

- **Neil Risch (UCSF)** - Genetic Epidemiology Research Based in Electronic Health Records.
- **Ronald Ma (Chinese University of Hong Kong)** - Diabetes and Diabetic complications: Insights from the Hong Kong Diabetes Registry and Hong Kong Diabetes Biobank
- **Lisa Lix (Manitoba)** – Combining electronic medical records and administrative health data for chronic disease research and surveillance: More than the sum of parts
- **Muhammad Mamdani (ICES, Toronto)** - The Li Ka Shing Centre for Healthcare Analytics Research and Training: Driving Impact Through Data

**Session 2 (11.30-13.00) - Genomics-1** (Chair: Augustine Kong, Oxford):

- **Rasmus Nielsen (UC Berkeley)** - Association mapping using low-coverage sequencing in very large cohorts
- **Jianzhen Xu (Shantou)** - Big Data, Big Opportunity: the Genomic Studies of Esophageal Squamous Cell Carcinoma at SUMC
- **Rudolf Fehrmann (Groningen)** – Harnessing transcriptomic tumour profiles from the public domain
- **David Marchant (Alberta)** – Transmission of Respiratory Syncytial Virus in Cells and the Community

**13.00-14.00 Lunch + showcase of research at Oxford Big Data Institute**

**Session 3 (14.00-15.30) - Imaging (Chair: Steve Smith, Oxford):**

- **Jennifer McNab (Stanford)** – Brain MRI Biomarkers from Neurons to Networks
- **Pek-Lan Khong (University of Hong Kong)** - Multiparametric Imaging in Nasopharyngeal Carcinoma, and opportunities for machine learning in medicine
- **Speaker TBC**
- **Itamar Kahn (Technion, Israel)** - Aberrant Oligodendrocyte Nf1 Regulation of Myelin Structure: A Multi-modal Approach to Dissecting Brain Disorders Using High-resolution Functional Imaging

**16.00 – 17.30 Social (Organised walking tour of Oxford)**

**19.00 – 22.00 Evening college dinner (Trinity College)**

**Session 4 (9.30-11.00) - Genomics-2 (Chair: Cecilia Lindgren, Oxford):**

**Wednesday 13 September**

- **Daniel Rokhsar (Berkeley)** – The deep origins of human chromosomes
- **Peiyong Jiang (Chinese University of Hong Kong)** - Fragmentation pattern analysis of maternal and fetal cell-free DNA
- **Itzhak Kehat (Technion, Israel)** - Genome-wide Analysis of Cardiac and Cardiac Fibroblasts Regulatory Elements Reveals Combinatorial Control of Gene Expression.
- **S.Y. Leung (University of Hong Kong)** - Genomics of gastrointestinal tract cancer

**Session 5 (11.30-13.00) – Population health (Chair: Rory Collins, Oxford):**

- **Prabhat Jha (St. Michael's Hospital, Toronto)** - Avoidable adult mortality in India: Results from 2000-15 from the Million Death Study
- **Larry Svenson (Alberta)** – The Use of Big Data to Support Health Policy Development
- **Lydia Drumwright (Cambridge)** – *Title to be confirmed*
- **Marcelo Urquia (Manitoba)** – Leveraging population data repositories to address health inequalities. Potential and challenges

**13.00-14.00 Lunch + showcase of research at Oxford Big Data Institute**

**Session 6 (14.00-15.30) – mHealth** (Chair: Lionel Tarassenko, Oxford):

- **Jessilyn Dunn (Stanford)** – Integrative Personalized Omics Profiling and the Digital Physiome
- **Ronald Stolk (Groningen)** - *A Dutch perspective on re-use of data in future health research*
- **Michael Blum (UCSF)** - Hype and Hope in AI driven Healthcare Transformation
- **Prof. Shu Ye (Shantou)** - The Shantou University Medical College Big Data on Health Project

**16.00 – 17.00 Big data in health: next frontiers** (Chair: Gil McVean, Oxford):

- **Karla Miller (Oxford)** - Imaging in an era of multi-scale neuroscience: Where do we go from here
- **Speaker TBC**
- **1x speaker/chairs from previous sessions**
- **1x speaker/chairs from previous sessions**

**19.00 – 22.00 Evening dinner (Museum of Natural History)**

**Thursday 14 September: Board Meeting**

**Board meeting (09.30-11.30) – Balliol College**

09.30—11.00

# **Session 1**

**Electronic health records**

Chair: Naomi Allen, Oxford



**Session1:**

*Genetic Epidemiology Research Based in Electronic Health Records*

**Professor Neil Risch**

Neil Risch, Ph.D. is the Lamond Family Foundation Distinguished Professor in Human Genetics, Director of the Institute for Human Genetics, and Professor and previous co-chair of the Department of Epidemiology and Biostatistics at the University of California, San Francisco. He is currently also the interim co-director of the Genomic Medicine Program at UCSF. For the past 20 years, he has also been an adjunct investigator at the Kaiser Permanente Northern California Division of Research. Dr. Risch's research area is genetic epidemiology and statistical human genetics. He has developed novel methods for discovering and characterizing genetic variants underlying disease predisposition, and has applied those methods to the discovery and characterization of genetic and environmental factors underlying a variety of disorders. His research also focuses on population genetics, particularly how genetic variation is distributed in the human population. Most recently, he has collaborated with investigators at the Kaiser Division of Research and UCSF on the development of a very large cohort used to study molecular and environmental factors involved in age-related disease and healthy aging. Dr. Risch is a member of the National Academy of Medicine, a fellow of the California Academy of Sciences, a fellow of the American Association for the Advancement of Science, former director and past President of the American Society of Human Genetics, and recipient of the Curt Stern Award from the Ameri-



**Session 1:**

*Diabetes and Diabetic complications: Insights from the Hong Kong Diabetes Registry and Hong Kong Diabetes Biobank*

**Ronald C.W. Ma, MB BChir (Cantab), FRCP (Edin, Lond), FHKCP, FHKAM**

Dr Ronald Ma completed his medical training at the University of Cambridge and trained in Internal Medicine in London, followed by endocrinology fellowship training in Hong Kong. Through support from a Croucher Foundation Fellowship, he furthered his research interest in the area of diabetic complications at the Joslin Diabetes Center, Harvard Medical School, Boston, USA, under the mentorship of Dr George King. Dr Ma's research focuses on the epidemiology and genetics of diabetes and its complications, gestational diabetes and polycystic ovary syndrome. He is currently leading a multi-disciplinary project team to identify novel molecular markers for diabetic complications, and is Principal Investigator of the Hong Kong Diabetes Biobank. He has published over 220 research articles in international peer-reviewed journals, and has received several awards, including the Young Investigator Award from the International Diabetes Epidemiology Group (IDEG), Ten Outstanding Young Persons Award, Hong Kong (2009), the Albert Renold Fellowship from the European Association for the Study of Diabetes (2010), and the Outstanding Fellowship of Faculty of Medicine from the Chinese University of Hong Kong (2014). He is a Past President of the International Diabetes Epidemiology Group (IDEG), the Hong Kong Society of Endocrinology, Metabolism and Reproduction (HKSEMR) and Diabetes Hongkong, and is currently a member of the Executive Board, the Asian Association for the Study of Diabetes (AASD) and Council Member of the International Society for Developmental Origins of Health and Disease (DOHaD). He has served on the World Health Organization Working Group on Science and Evidence to End Childhood Obesity (ECHO), and as co-chair of the International Federation of Gynaecology and Obstetrics (FIGO) Working Group on Adolescent, Preconception and Maternal Nutrition. Dr Ma serves on the editorial boards for PLoS Medicine, Obesity Reviews, Diabetic Medicine and the Journal of Diabetes Investigation.



**Session 1:**

*Combining electronic medical records and administrative health data for chronic disease research and surveillance: More than the sum of parts.*

**Lisa M. Lix, PhD P.Stat**

Dr. Lisa Lix is a Professor of Biostatistics and Manitoba Research Chair in the Rady Faculty of Health Sciences at the University of Manitoba, Canada. She is also Director of the Data Science Platform within the George and Fay Yee Centre for Healthcare Innovation, where she leads a team with expertise in biostatistics, bioinformatics, and information technology to build methodological capacity for patient-oriented research. Dr. Lix's areas of expertise include health services research methods, statistical methods for evaluating the quality of population-based electronic health databases, the analysis of repeated measures and longitudinal data, and robust statistical methods for patient-reported outcomes. She collaborates widely on projects about population health and the association between chronic disease and quality of life. Her research is funded by the Canadian Institutes of Health Research and the Natural Sciences and Engineering Research Council of Canada. She is on the Board of Directors of the Statistical Society of Canada and co-chairs the Scientific Committee of the Canadian Chronic Disease Surveillance System for the Public Health Agency of Canada.



**Session 1:**

*The Li Ka Shing Centre for  
Healthcare Analytics Research  
and Training: Driving Impact  
Through Data*

**Muhammad Mamdani, PharmD,  
MA, MPH**

Dr. Mamdani is the Director of the Li Ka Shing Centre for Healthcare Analytics Research and Training (CHART) of the Li Ka Shing Knowledge Institute of St. Michael's Hospital in Toronto. He is also Professor in the Leslie Dan Faculty of Pharmacy, the Department of Medicine of the Faculty of Medicine, and the Institute of Health Policy, Management and Evaluation of the Dalla Lana Faculty of Public Health. He is also adjunct Senior Scientist at the Institute for Clinical Evaluative Sciences (ICES). Dr. Mamdani also is a member of the Human Drug Advisory Panel of the Patented Medicine Prices Review Board (PMPRB) and is a co-Principal Investigator of the Ontario Drug Policy Research Network. In 2010, Dr. Mamdani was named among Canada's Top 40 under 40. Prior to joining the Li Ka Shing Knowledge Institute and St. Michael's Hospital, Dr. Mamdani was a Director of Outcomes Research at Pfizer Global Pharmaceuticals in New York. Dr. Mamdani's research interests include pharmacoepidemiology, pharmacoconomics, and drug policy. He has published approximately 400 research studies in peer-reviewed medical journals, including leading journals such as the New England Journal of Medicine, the Lancet, the Journal of the American Medical Association, the British Medical Journal, and Annals of Internal Medicine.

Dr. Mamdani obtained a Doctor of Pharmacy degree (PharmD) from the University of Michigan (Ann Arbor) in 1995 and subsequently completed a fellowship in pharmacoconomics and outcomes research at the Detroit Medical Center in 1997. During his fellowship, Dr. Mamdani obtained a Master of Arts degree in Economics from Wayne State University in Detroit, Michigan. He then completed a Master of Public Health degree from Harvard University in 1998 with a concentration in quantitative methods, focusing on biostatistics and epidemiological principles

11.30—13.00

## **Session 2**

### **Genomics –1**

Chair: Augustine Kong, Oxford



**Session 2:**

*Statistical Analyses of Large Noninvasive Prenatal Test (NIPT) Samples.*

**Rasmus Nielson**

Dr. Nielsen received his PhD from UC Berkeley in 1998, did postdoctoral research at Harvard University 1998-2000, and has since held faculty positions at Cornell University, University of Copenhagen, and UC Berkeley. He is currently Professor of Integrative Biology and Professor of Statistics at UC Berkeley and holds the Raymond and Beverly Sackler Endowed Chair of Computational Biology. Dr. Nielsen's research is on statistical and population genetic analyses of genomic data, in particular methods for detecting natural selection, describing population genetic variation, inferring population history, and methods for association mapping. Much of his current research concerns statistical analysis of next-generation sequencing data, both in the context of medical genetics and population genetics. Many of the methods he has developed are heavily used by other researchers, including the phylogeny based methods for detecting positive selection implemented in PAML, the methods for inferring demographic histories implemented in the IM and IMA programs, the method for detecting selective sweeps implemented in SweepFinder, and the methods for analysing Next Generation Sequencing (NGS) data implemented in ANGSD.



**Session 2:**

*Big Data, Big Opportunity: The Genomic Studies of Esophageal Squamous Cell Carcinoma at SUMC*

**Jianzhen Xu, Ph.D., Professor**

Professor Xu received his PhD degree from Guangzhou Institute of Biomedicine and Health, Chinese Academy of Sciences, China. Currently, he leads the Computational Systems Biology Lab at Department of Bioinformatics, Shantou University Medical College.

His research has been focused onto topics in cancer genomics or systems biology. Specifically, he investigates novel non-coding RNAs in programmed cell death interaction network with both computational analysis and molecular and cellular methods.

Professor Xu a member of Chinese society for cell biology, Chinese society for bioinformatics, American association for cancer research. He has published more than 30 peer-reviewed scientific papers in international journals. Professor Xu's researches are supported by National Natural Science Foundation of China, Top-tier University Development Scheme, Department of Education, Guangdong Government and the Li KaShing Foundation. He is academic editor for PLOS ONE and reviewer for over 25 International peer reviewed journals

**Session 2:**

*Harnessing transcriptomic tumour profiles from the public domain*

**Rudolf Fehrmann**

**Session 2:**

*Transmission of Respiratory Syncytial Virus in Cells and the Community*

**David Marchant**

14:00—15:30

## **Session 3**

### **Imaging**

Chair: Steve Smith, Oxford



**Session 3: Brain MRI Biomarkers from Neurons to Networks**

**Jennifer A McNab, Ph.D.**

Dr. McNab is an Assistant Professor in Radiology at Stanford University. Her research is centered on the development of magnetic resonance imaging (MRI) acquisition strategies that yield new and/or improved images of the human brain. Dr. McNab's primary contributions are related to the use of diffusion MRI to interrogate brain tissue microstructure and structural connectivity. She has extensive experience with the most cutting-edge MRI technology, including the world's strongest human-MRI gradients (300 mT/m), highly-parallelized phased-array RF coils (64-channels) and ultra-high-magnetic field (7T). Dr. McNab's lab also has a strong focus on direct comparisons of MRI and advanced histology, such as CLARITY, to better understand how specific biological components contribute to MRI contrast. Dr. McNab's training includes a Bachelor of Science in Physics from the University of British Columbia, a Master of Science in Medical Biophysics from the University of Western Ontario, a D.Phil. from Oxford in Clinical Neurology and a post-doctoral fellowship at Harvard Medical School/Massachusetts General Hospital.



**Session 3:**

*Prognostic Biomarkers of Nasopharyngeal Cancer; and opportunities for Machine Learning in Medical Imaging*

**Pek-Lan Khong, Professor and Head, Department of Diagnostic Radiology, The University of Hong Kong**

Professor Pek-Lan Khong is Clinical Professor of Radiology and serves as the Head of Department of Diagnostic Radiology, The University of Hong Kong, and Chief-of-Service, Department of Medical Imaging, The University of Hong Kong-Shenzhen Hospital.

Professor Khong received her paediatric radiology training in The Birmingham Children's Hospital, U.K. and Boston Children's Hospital, U.S.A. Subsequently, she obtained her research post-graduate Doctor of Medicine (MD) degree in The University of Hong Kong. Her research focus in paediatric neuroradiology includes clinical applications of diffusion-MR imaging and translational research in neurological diseases. In the recent years, Professor Khong's research interest has extended to include molecular imaging and hybrid-PET imaging in oncological diseases.

She is a member of the International Society for Strategic Studies in Radiology (ISSSR), Fellow of the International Society of Magnetic Resonance in Medicine (ISMRM), and Fellow of the International Cancer Imaging Society (ICIS). She sits on the editorial board of the journal Pediatric Radiology, and is a grant review board member of the Health and Medical Research Fund (HMRF), Research Council of the Food and Health Bureau, and member of the Radiological Protection advisory Group (RPAG), The government of the HKSAR.

Under her leadership, the Department operates research MRI units, PET/CT unit, Medical Cyclotron, and recently, a pre-clinical PET/MRI research lab. Published works include 200 original articles in international peer-review journals on topics of Paediatric Neuroradiology, hybrid-PET imaging in Oncology, and Radiological Protection in Medicine. She has delivered more than 80 invited lectures in regional and international conferences/symposia on the above topics.

Speaker to be confirmed



**Session 3:**

*Abberant Oligodendrocyte Nf1 Regulation of Myelin Structure: A Multi-modal Approach to Dissecting Brain Disorders Using High-resolution Functional Imaging*

**Itamar Kahn, Ph. D., Assistant Professor**

Itamar Kahn received a bachelor's degree from Ben-Gurion University of the Negev in Mathematics and Computer Science and a doctorate from Massachusetts Institute of Technology (MIT) in 2005 in Brain and Cognitive Sciences under the supervision of Anthony Wagner. Itamar was subsequently a post-doctoral fellow at Harvard University from 2006-2010 under the supervision of Randy Buckner and Chris Moore. Since 2010, Itamar is an assistant professor at the Technion Faculty of Medicine.

09.30-11.00

# **Session 4**

## **Genomics – 2**

Chair: Cecilia Lindgren, Oxford

**Session 4:**

*The deep origins of human chromosomes*

**Daniel Rokhsar**



**Session 4:**

*Fragmentation pattern analysis of maternal and fetal cell-free DNA*

**Peiyong Jiang, PhD(CUHK),**

Peiyong Jiang is currently an assistant professor and a bioinformatician at the Department of Chemical Pathology, The Chinese University of Hong Kong. He received his bachelor's degree in bioengineering from Huzhou Teachers College in 2006. During that time, he was trained in biology, biochemistry, genetics, biostatistics and programming languages. Afterwards, he received his master's degree of crop genetics and breeding from Huazhong Agricultural University in 2009. During the time of pursuing master's degree, he was mainly trained in advanced genetics, statistics and bioinformatics. His research work involved the plant microRNA prediction *in silico*, particularly using machine learning algorithm to explore Next Generation Sequencing (NGS) data. Thereafter, he received his Ph.D. in Chemical Pathology from The Chinese University of Hong Kong in 2012 and had postdoctoral training at the Department of Chemical Pathology, The Chinese University of Hong Kong from 2012 to 2015. Since he joined the department, he has been working on bioinformatics. With a multidisciplinary background of genomics, bioinformatics, computational biology and statistics, he has a long-standing research interest in NGS-based bioinformatics data analysis as well as its applications in clinical development and use, typically, regarding the cell-free DNA based noninvasive pre-prenatal diagnosis and cancer detection.



**Session 4:**

*Enhancer analysis of rat cardiac myocytes and fibroblasts reveals a collaborative control by transcription factor families*

**Izhak Kehat MD, PhD**

**Research focus**

Congestive heart failure (CHF) is a worldwide epidemic. It is estimated, for example, that in Europe around 10 million people are suffering from this disease. Despite some progress in medical treatment within the last 10 years, morbidity and mortality of CHF are still high: 70-80% of patients suffering from heart failure will die within the next 8 years.

Our lab studies the molecular mechanisms responsible for cardiac hypertrophy and remodeling during heart failure. Specifically, we focus on the molecular signals, genome organization and the epigenetic modifications that control gene expression in the heart and on the mechanisms that differentially control concentric and eccentric cardiac growth in order to suggest targets for treating heart failure. We are also interested in heart valve disease and valve calcifications and in ways to inhibit this devastating process. We use advanced molecular biology, physiology, genomics, cell culture techniques and gene modified mice to address these questions.



**Session 4:**

*Genomics of gastrointestinal tract cancer*

**Professor Suet Yi Leung**

Professor Suet-yi Leung is the Associate Dean (Research), Li Ka Shing Faculty of Medicine at The University of Hong Kong. She is also the YW Kan Endowed Professor in Natural Sciences and Chair in Gastrointestinal Cancer Genetics and Genomics in the Department of Pathology. Her research interests are focused on the molecular genetics, epigenetics and genomics of gastric and colorectal cancers, and their applications in molecular classification and genetic diagnosis to facilitate cancer prevention and treatment. Using genomic technologies, including next generation sequencing, her group has identified many novel gastric cancer driver genes, including *ARID1A*, *RHOA* and *RNF43*, and defined the genomic and epigenomic landscapes of various molecular subtypes of gastric cancer. Her team has also first described the heritable germline methylation of the *MSH2* gene promoter as a cause of Lynch Syndrome, and subsequently identified *EPCAM* deletion as the cause of *MSH2* methylation, the latter has become a standard genetic diagnosis test for Lynch Syndrome. Her team also uncovered the critical role of *BRAF* and *RNF43* in the serrated neoplasia pathway, provided critical molecular data to support the pathogenic role of *RNF43* germline mutation in Serrated Polyposis Syndrome families. The long term goal of her laboratory is to identify novel genes that are important for the causation of gastric and colorectal cancer, and to explore the use of some of these genes as markers for early detection, prognostication or drug targets.

11:30—13:00

# **Session 5**

## **Population Health**

Chair: Rory Collins, Oxford

**Session 5:**

*Avoidable adult mortality in India: Results from 2000-15 from Million Death Study*

**Prabhat Jha, OC, MD, DPhil, FCAHS**

Professor Prabhat Jha is an Endowed Professor in Global Health and Epidemiology at the University of Toronto and Canada Research Chair at the Dalla Lana School of Public Health, and the founding Director of the Centre for Global Health Research.

Professor Jha is a lead investigator of the Million Death Study in India, which quantifies the causes of premature mortality in over 2 million homes. His publications on tobacco control have enabled a global treaty now signed by over 180 countries. He founded the Statistical Alliance for Vital Events, which focuses on reliable measurement of premature mortality worldwide.

Earlier, Professor Jha served in senior roles at the World Health Organization and the World Bank. He was made an Officer of the Order of Canada in 2012. Professor Jha holds an M.D. from the University of Manitoba and a D.Phil. from Oxford University, where he studied as a Rhodes Scholar.



**Session 5:**

*The Use of Big Data for Policy Development: Lessons from Assessing Vaccine Effectiveness and Safety*

**Larry Svenson, PhD, FRSPH**

Larry Svenson is an Associate Professor with the Division of Preventive Medicine at the University of Alberta. He is also the Provincial Health Analytics Officer and Executive Director for Analytics and Performance Reporting at the Alberta Ministry of Health. As the Provincial Health Analytics Officer, he is responsible for working collaboratively with stakeholders to strengthen the analytic capacity of Alberta's health sector, and the promotion of a data driven culture. He brings over 25 years of experience in the use of administrative health data in policy development and evaluation, and is a strong advocate for open data initiatives.

Lydia Drumwright

14:00—15:30

# **Session 6**

**mHealth**

Chair: Lionel Tarrasenko, Oxford



***Session 6: Integrative Personalized Omics Profiling and the Digital Physiome***

**Jessilyn Dunn, PhD**

Dr. Jessilyn Dunn is a Mobilize Distinguished Postdoctoral Fellow at Stanford University in the US National Institutes of Health Big Data to Knowledge Center of Excellence, where she works jointly with Drs. Michael Snyder and Scott Delp in the Departments of Genetics and Bioengineering. Her research interests are in mobile health and biomedical data integration; her work includes multi-omics integration and digital biomarker discovery. Jessilyn completed her PhD at Georgia Tech and Emory University and her BS at Johns Hopkins University, both in Biomedical Engineering. Dr. Dunn has worked as a visiting scholar at the US Centers for Disease Control and Prevention and at the National Cardiovascular Research Institute in Madrid, Spain. Her work has been internationally recognized and covered by media outlets from the US National Institutes of Health Director's Blog and the American Heart Association Science News to Time, US News and World Report, and Gizmodo UK.



**Session 6:**

*A Dutch perspective on re-use of data in future health research*

**Ronald Stolk**  
**Director, Center for Information Technology**  
**/ CIO Professor of Clinical Epidemiology**

The Center for Information Technology (CIT) is a leading national and European institute in the field of information technology. We support and facilitate scientific research and university teaching with Data and IT solutions.

As professor in clinical epidemiology, I am an internationally recognized expert in biobank/cohort studies and related Big Data in Health. Biobank studies have moved from sample-based towards (big) data-based research.



**Session 6:**

*Hype and Hope in AI-driven Healthcare Transformation*

**Dr Michael Blum**

Dr. Michael Blum is the Associate Vice Chancellor for Informatics and a Professor of Medicine in Cardiology at the University of California, San Francisco. As an active clinician, Dr. Blum provides preventative and acute care for patients with a wide variety of cardiac disease. He is passionate about wellness and prevention of heart disease through a heart healthy lifestyle.

Prior to his medical career, Dr. Blum was trained as an engineer, and he applies his expertise in technology to health care as UCSF's Chief Digital Transformation Officer and the Director of the UCSF Center for Digital Health Innovation (CDHI). Since its founding in 2013, CDHI has become a global leader in the development, validation, and commercialization of novel, impactful, digital health apps, devices, sensors, and platforms. CDHI works with start-ups, academic partners, and established industry leaders to advance digital health and UCSF's goal of Precision Medicine. The center has collaborations with technology partners such as Cisco, GE Healthcare, Intel, Salesforce, and Samsung to develop and validate a variety of digital platforms, algorithms, and apps. Dr. Blum also serves as an advisor to numerous health technology companies.

Previously, as UCSF's Chief Medical Information officer, Dr. Blum led clinicians in the successful enterprise-wide deployment of Epic's electronic health record and enterprise data warehousing. He was instrumental in the creation of the cross-UC patient data warehouse that aggregates extensive, longitudinal clinical and financial data on over 14 million individuals – almost 1/3 of the population of California. He is now focusing on the implementation of next-generation patient-facing technologies that impact clinical quality, patient engagement, and cost as UCSF works to transform healthcare delivery.



**Session 6:**

*The Shantou University Medical College  
Big Data on Health Project*

Shu Ye

Shu Ye graduated in medicine in China and gained a PhD from University College London. He then worked as a British Heart Foundation Research Fellow at University of Oxford, Lecturer/Senior Lecturer at University of Southampton, and Reader/Professor at Queen Mary University of London. He is currently the Professor of Cardiovascular Molecular Medicine and Genetics at University of Leicester and a Visiting Professor at Shantou University Medical College. His research is focused on the genetic basis of cardiovascular disease, with a particular interest in the biological and pathological mechanisms underlying the influences of genetic variants.

16:00—17.00

**Big data in health: next frontiers**

Chair: Gil McVean, Oxford

Karla Miller

Speaker to be confirmed

1 x speaker/chairs from previous session

1 x speaker/chair from previous session