Health Informatics on FHIR: *Opportunities in the New Age of Interoperability*

A half day, pre-HIMSS Workshop on Saturday February 27th from 9:30 – 12:30
Westin Las Vegas Hotel, Casino & Spa

Organizers: Professors May Wang, PhD Professor (maywang@bme.gatech.edu) and Mark Braunstein, MD Professor of the Practice (mark.braunstein@cc.gatech.edu – Georgia Tech

Keynote: Charles Jaffe, MD, PhD, CEO of HL7: *Toward a Global Health Interoperability Standard* (30 minutes)

Panel 1: The FHIR Standard (90 minutes - Moderator: Mark Braunstein)

Grahame Grieve, HL7 FHIR Project Leader: *Toward Global Interoperability through the FHIR Standard*

Josh Mandel, MD Lead Architect for the SMART on FHIR project, Harvard Boston Childrens Hospital: *FHIR as a Universal App Platform*

Charles Jaffe: *The Argonaut Project*

Panel Discussion / Q&A

Break (15 minutes)

Panel 2: Healthcare in the Age of Interoperability (90 minutes - Moderator: May Wang)

Robert A Greenes, MD, PhD, Professor, Biomedical Informatics, Arizona State University (co-author Aziz Boxwala, MD, PhD, Meliorix Inc, and mWorksHealth, Inc, La Jolla, CA): *Enabling Patient-Centered Care by Liberating Data*.

Jimeng Sun, PhD, Associate Professor, School of Computational Science and Engineering, Georgia Tech: *FHIR-based Clinical Decision Support: An Epilepsy Case Study.*

Paula Braun, MS Data Science Entrepreneur, CDC: FHIR and Public Health: Death Reporting Case Study

Gil Alterovitz, PhD, Harvard/MIT Health Sciences and Technology Division Children's Hospital Informatics Program: *SMART on FHIR Genomics*

Panel Discussion / Q&A

There will be up to five poster presentations available to the audience.

Moderator and Panelists:

Dr. Mark L Braunstein is Professor of the Practice in the School of Interactive Computing at Georgia Tech where he teaches health informatics. He offered the first Mass Open Online Course (MOOC) in the field. He currently offers a free, public Coursera MOOC, *Health Informatics on FHIR*. He is involved in research and community outreach aimed at the wider and deeper adoption of health information technology for clinical decision support and healthcare process mining. His recent book, *Practitioner's Guide to Health Informatics*, is a contemporary, non-technical overview of the field.

Dr. May Dongmei Wang is Associate Professor, Kavli Fellow and Georgia Research Alliance Distinguished Cancer Scholar in the School of Biomedical Engineering at Georgia Tech. Her research interests are to advance and to accelerate the translation of biomedical discovery, development, and delivery through comprehensive biomedical and health informatics (a.k.a. biomedical big data analytics) for personalized and predictive health care.

Charles Jaffe MD PhD is the Chief Executive Officer of HL7 and serves as the organization's global ambassador, fostering relationships with key industry stakeholders. A 37-year veteran of the healthcare IT industry, Dr. Jaffe was previously the Senior Global Strategist for the Digital Health Group at Intel Corporation, Vice President of Life Sciences at SAIC, and the Director of Medical Informatics at AstraZeneca Pharmaceuticals. He completed his medical training at Johns Hopkins and Duke Universities, and was a post-doctoral fellow at the National Institutes of Health and at Georgetown University. Formerly, he was President of InforMed, an informatics consultancy for research informatics. Over the course of his career, he has been the principal investigator for more than 200 clinical trials, and has served in various leadership roles in the American Medical Informatics Association. He has been a board member on leading organizations for information technology standards, and served as the chair of a national institutional review board. Most recently, he held an appointment in the Department of Engineering at Penn State University. Dr. Jaffe has been the contributing editor for several journals and has published on a range of subjects, including clinical management, informatics deployment, and healthcare policy.

Grahame Grieve is Principal of Health Intersections, where he specialized in healthcare interoperability, balancing clinical, management and business perspectives with a deep technical knowledge and capability. A long-time member of HL7 with expertise in V2 and V3, Grahame is the principle author of HL7's FHIR® specification. 4 As a consultant and vendor, Grahame has created his own interface engine supporting both V2 and FHIR, regularly teaches HL7 concepts, is the Australian lead for implementing CDA, and maintains an active blog where he advises implementers on the nuances of implementing V2, V3, CDA® and FHIR®. He is also involved in a number of open source industry consortiums including Open Healthcare Framework, Open Health Tools, and the Indy Project.

Paula Braun was selected to participate in the Department of Health and Human Services' Entrepreneurs-in-Residence (EIR) Program and was located at the CDC in 2014. The program brings entrepreneurs from outside government to work on complex and important government challenges. During her tenure as an EIR, Paula Braun is embedded in CDC's National Center for Health Statistics and develops ways CDC can use advances in data science and health IT to modernize death reporting. Paula writes about her experiences as an EIR at HHS's Idea Lab Blog.

Paula began her career as a Presidential Management Fellow at CDC's National Center on Birth Defects and Developmental Disabilities in 2005. After that, she served as an analyst at the Government Accountability Office and later lived and worked at the US Embassies in Iraq and Afghanistan from 2009-2011. Prior to her role as an EIR, she worked as a data scientist for a predictive analytics firm called Elder Research. In addition to her role as an EIR, Paula teaches a course titled Informatics Solutions for Public Health Decision Making at Emory University's Rollins School of Public Health.

Dr. Jimeng Sun is an Associate Professor of School of Computational Science and Engineering at College of Computing in Georgia Institute of Technology. Prior to joining Georgia Tech, he was a research staff member at IBM TJ Watson Research Center. His research focuses on health analytics using electronic health records and data mining, especially in designing novel tensor analysis and similarity learning methods and developing large-scale predictive modeling systems.

Dr. Sun has worked on various healthcare applications such as computational phenotyping from electronic health records, heart failure onset prediction and hypertension control management. He has collaborated with many healthcare institutions including Vanderbilt university medical center, Children's healthcare of Atlanta, Center for Disease Control and Prevention (CDC), Geisinger Health System and Sutter Health.

He has published over 70 papers, filed over 20 patents (5 granted). He has received ICDM best research paper award in 2008, SDM best research paper award in 2007, and KDD Dissertation runner-up award in 2008. Dr. Sun received his B.S. and M.Phil. in Computer Science from Hong Kong University of Science and Technology in 2002 and 2003, and PhD in Computer Science from Carnegie Mellon University in 2007.

Josh Mandel, MD is a physician and software developer is lead architect for SMART Health IT (http://smarthealthit.org) where he is working to fuel an ecosystem of health apps with access to clinical data. After earning an S.B. in computer science and electrical engineering from the Massachusetts Institute of Technology and an M.D. from the Tufts University School of Medicine, he joined the Harvard Medical School Department of Biomedical Informatics. Josh is a member of the national Health IT Standards Committee. He also served as the community lead for the national Blue Button REST API. He has a special interest in tools and interfaces that support software developers who are new to the health domain.

Dr. Gil Alterovitz is Director of the Biomedical Cybernetics Laboratory and Assistant Professor at Harvard Medical School and the Computational Health Informatics Program at Boston Children's Hospital. His work on integrative informatics methods, including applications in drug discovery, has been published or presented in more than 30 peer-reviewed publications and three books. A large component of Dr. Alterovitz's work involves international collaborations that bring together researchers and work on heterogeneous clinico-genomic data. He is also affiliated with the Department of Electrical

Engineering and Computer Science at the Massachusetts Institute of Technology.

Robert A. Greenes, MD PhD is Professor of Biomedical Informatics (BMI) at Arizona State University (ASU) and Mayo Clinic. Ira A Fulton Chair in BMI at ASU and Director Health IT Innovation Co-Lab (HII-C). Joined ASU as founding chair of new Department of BMI in 2007, until 2014 sabbatical, and return as faculty and HII-C Director. MD and PhD (computer science) from Harvard, and board certified in Radiology. Before moving to Arizona, was founder and director of the Decision Systems Group, a Harvard-based BMI laboratory at Brigham and Women's Hospital, and Program Director of NLM-supported Boston Research Training Program in Biomedical Informatics. Distinguished Chair in Biomedical Informatics at Brigham and Women's Hospital, and Professor of Radiology, Health Sciences and Technology, and Health Policy and Management at Harvard. One of the original developers of MUMPS, contributed to GLIF, GELLO, Health e-Decisions, and other clinical decision support projects and standards development. Author/editor of Clinical Decision Support (2nd Edition): The Road to Broad Adoption, Elsevier, 2014. Member of the National Academy of Medicine, Fellow of the American College of Medical Informatics (ACMI), the American College of Radiology, and the Society of Imaging Informatics in Medicine. 2008 recipient of Morris F. Collen Award from ACMI.

Aziz Boxwala, MD, PhD, FACMI is Dr. Greenes' co-investigator and is not presenting. He has expertise in clinical decision support (CDS), clinical knowledge management, and related health IT standards. He has been a principal author of several HL7 standards for CDS including the Clinical Decision Support Knowledge Artifact Specification (also known as Health eDecisions), the Virtual Medical Record (VMR) family of specifications, the Decision-Support Services Implementation Guide, and the GELLO expression language. Dr. Boxwala has a blend of experience, having worked in the Health IT industry at startups and large enterprises, and in academia in Informatics programs at Harvard Medical School and at the University of California San Diego. He currently is the CEO of mWorks Health Inc., a company developing a platform for care management. Previously, as the Director of Medical Informatics at Eclipsys Corporation, he led the group developing and integrating CDS products into Eclipsys's electronic health records system. As the lead for the Knowledge Translation and Specifications team in the Clinical Decision Support Consortium, he architected novel knowledge representation schemes for CDS used within the consortium. At UCSD, he was the Director of Informatics for the Clinical and Translational Research Institute, leading the development and deployment of a clinical data warehouse, research registries, and clinical trials management system. As a faculty member, Dr. Boxwala has published over 80 peer-reviewed publications and abstracts, and has presented his research at national and international conferences. He was a contributing author to the book "Clinical Decision Support, Second Edition: The Road to Broad Adoption" edited by R. A. Greenes. He obtained his medical degree from the University of Bombay and his PhD in Biomedical Engineering from the University of North Carolina at Chapel Hill. He is an elected fellow of the American College of Medical Informatics.