### ICHI 2013 - Program at a Glance

<table>
<thead>
<tr>
<th>Time</th>
<th>Sept 9 (Monday)</th>
<th>Sept 10 (Tuesday)</th>
<th>Sept 11 (Wednesday)</th>
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</thead>
<tbody>
<tr>
<td>8:45 – 9:00 am</td>
<td>Opening Ceremony</td>
<td>Keynote Speech III</td>
<td>Sessions D3-1 / Workshop - DMH</td>
</tr>
</tbody>
</table>
| 9:00 – 10:00 am | **Keynote Speech I**
*Improving Safety in Medical Devices and Systems* | **Keynote Speech III**
*Digitally Revealing the Dynamics of Your Superorganism Body* | Sessions D3-1 / Workshop - DMH               |
| 10:00 – 10:30 am| Coffee Break                           | Coffee Break                                | Coffee Break                                 |
| 10:30 am – 12:00 pm | Sessions D1-1                       | Sessions D2-1                               | Tutorial/ Workshops - WMCCH / DMH            |
| 12:00 – 1:00 pm | Lunch                                  | Lunch                                       | Lunch / ICHI steering committee meeting     |
| 1:00 – 2:30 pm  | **Keynote Speech II**
*Watson, Cognitive Computing and Healthcare* | Sessions D2-2                               | Doctoral Consortium / Workshops - HRPCRM / DMH |
| 2:30 – 3:00 pm  | Coffee Break                           | Coffee Break                                |                                               |
| 3:00 – 4:30 pm  | Sessions D1-2                          | Session Panel /D2-3                         | Doctoral Consortium / Workshops - HRPCRM / DMH |
| 4:30 – 5:00 pm  | Break                                  | Extended Abstract Posters & Posters II      |                                               |
| 5:00 – 7:00 pm  | Posters I & Reception                  | Banquet & Best Paper Award                  |                                               |
| 7:00 – 9:00 pm  |                                        |                                             |                                               |

**NOTE:**
DMH: International Workshop on Data Mining for Healthcare
WMCCH: The First Workshop on Mobile Cloud Computing in Healthcare
HRPCRM: Workshop on Hospital Readmission and Clinical Risk Management
DMH will start at 8:50 am on September 11 (Wednesday)

Please join us at:

- [LinkedIn Group](tinyurl.com/ICHI2013-LinkedInGroup)
- [Facebook](tinyurl.com/ICHI2013-facebook)
- [Twitter](tinyurl.com/ICHI2013-twitter) #ICHI2013
### Sept 9 (Monday)

<table>
<thead>
<tr>
<th>Time</th>
<th>Symphony</th>
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<tbody>
<tr>
<td>8:45 – 9:00 am</td>
<td>Opening Ceremony</td>
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<tr>
<td>9:00 – 10:00 am</td>
<td>Keynote Speech I</td>
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<td>10:30 am – 12:00 pm</td>
<td>D1-1A</td>
<td>D1-1B</td>
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<td>1:30 – 2:30 pm</td>
<td>Keynote Speech II</td>
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<td>3:00 – 4:30 pm</td>
<td>D1-2A</td>
<td>D1-2B</td>
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<tr>
<td>5:00 – 7:00 pm</td>
<td>Posters I &amp; Reception</td>
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### Sept 10 (Tuesday)

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<tr>
<th>Time</th>
<th>Symphony</th>
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<tbody>
<tr>
<td>9:00 – 10:00 am</td>
<td>Keynote Speech III</td>
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<tr>
<td>10:30 am – 12:00 pm</td>
<td>D2-1A</td>
<td>D2-1B</td>
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<td>1:00 – 2:30 pm</td>
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<td>3:00 – 4:30 pm</td>
<td>Panel</td>
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<td>4:30 – 5:30 pm</td>
<td>Extended Abstract Poster Session</td>
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<td>5:45 – 7:00 pm</td>
<td>Posters II</td>
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<td>7:00 – 9:00 pm</td>
<td>Banquet &amp; Best Paper Award</td>
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### Sept 11 (Wednesday)

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<tr>
<th>Time</th>
<th>Symphony</th>
<th>Concerto</th>
<th>Orchestra</th>
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<tbody>
<tr>
<td>9:00 am – 10:00 am</td>
<td>DMH</td>
<td>D3-1A</td>
<td>D3-1B</td>
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<tr>
<td>10:30 am – 12:00 pm</td>
<td>DMH</td>
<td>Tutorial</td>
<td>WMCCH</td>
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<tr>
<td>1:00 – 2:30 pm</td>
<td>DMH</td>
<td>Doctoral Consortium</td>
<td>HRPCRM</td>
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<tr>
<td>3:00 – 4:30 pm</td>
<td>DMH</td>
<td>Doctoral Consortium</td>
<td>HRPCRM</td>
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</table>
Keynote Speech I

Improving Safety in Medical Devices And Systems

Harold Thimbleby
Professor of Computer Science, Swansea University, UK

Abstract
We need to improve healthcare technologies — electronic patient records, medical devices — by reducing use error and, in particular, unnoticed errors, since unnoticed errors cannot be managed by clinicians to reduce patient harm. Every system we have examined has multiple opportunities for safer design, suggesting a safety scoring system. Making safety scores visible will enable all stakeholders (regulators, procurers, clinicians, incident investigators, journalists, and of course patients) to be better informed, and hence put pressure on manufacturers to improve design safety. In the longer run, safety scores will need to evolve, both to accommodate manufacturers improving device safety and to accommodate insights from further research in design-induced error.

Biography
Harold Thimbleby, HonFRSA, FIET, CEng, FRCPE is in Swansea University’s Department of Computer Science, Wales — one of the world’s most beautiful Universities. He is a well-known computer scientist (he has been a Royal Society Wolfson Research Merit award holder and a Royal Society Leverhulme Trust Senior Research Fellow), but he became concerned about healthcare when one of his students ended up in intensive care. He has since been working on human error and system design to make healthcare safer. His 2007 book on his work Press On (MIT Press) won two international prizes. Although a computer scientist, he was recently elected a Fellow of the Royal College of Physicians, Edinburgh.
Keynote Speech II

Watson, Cognitive Computing and Healthcare

Martin S. Kohn, MD, MS, FACEP, CPE, FACPE
Chief Medical Scientist for Care Delivery Systems in IBM Research

Abstract
We have solid ideas about the flawed state of healthcare, the critical need for change and the future we want. Improving health outcomes while controlling costs and personalizing healthcare are among the objectives. It is clear that enabling the transformation of healthcare will require making better decisions. At the same time we are dealing with huge and expanding volumes of data. We will need tools to help us gather and analyze data to bring relevant information to decision makers so that it easier to obtain evidence-supported choices. Unstructured, text-like content is a large fraction of the data we rely on for decisions. Up until recently we have had limited ability to use unstructured material effectively. IBM's Watson, with its ability to understand the nature of a question being addressed and to read and understand huge volumes of literature, makes such material more approachable. However, making medicine more precise mandates the use of other forms of data, and population observational techniques. Predictive analytics, to identify people that need specific attention, and comparative analytics to elicit evidence from populations that can be applied to individuals, are part of the process. IBM has developed robust resources that provide such information.

Biography
Dr. Kohn is Chief Medical Scientist for Care Delivery Systems in IBM Research. He is a leader in IBM’s effort in collaborative care for addressing the challenges to primary care and access to healthcare. He also supports the transformation of healthcare and development of accountable care organizations. His research work includes healthcare population analytics and the role of expert systems in the clinical decision process, including the use of the Watson supercomputer in healthcare. He speaks frequently on the issues on healthcare transformation, the role of information technology, the Patient Centered Medical Home and clinical decision support. Dr. Kohn is a co-author of IBM’s white paper “Patient-Centered Medical Home – What, Why and How.” He is on the editorial board of the Journal of Emergency Medicine. Dr. Kohn was previously in IBM Healthcare Strategy and Change which helped healthcare systems and clinicians optimize process and make best use of health information technology. He has published multiple articles and book chapters on both clinical and management subjects. Dr. Kohn is an emergency physician with over 30 years of hospital-based practice and management experience. He is a Fellow of the American College of Emergency Physicians and the American College of Physician Executives.
Keynote Speech III

Digitally Revealing the Dynamics of Your Superorganism Body

Larry Smarr
Founding Director of the California Institute for Telecommunications and Information Technology (Calit2)
Harry E. Gruber Professor of Computer Science and Information Technologies, University of California, San Diego, USA

Abstract

For over a decade, Calit2 has had a driving vision that healthcare is being transformed into "digitally enabled genomic medicine." To put a more personal face on the “patient of the future,” I have been increasingly quantifying my own body. In addition to external markers I also currently track over 100 blood and stool biomarkers every few months. Calit2 uses advanced interactive visualization techniques to visually explore my organs. Using my saliva 23andme.com obtained 1 million single nucleotide polymorphisms (SNPs) in my human DNA. My gut microbiome has been metagenomically sequenced by the J. Craig Venter Institute, yielding 25 billion DNA bases. I will show how one can use this Big Data approach to decipher the complex dynamic interactions between the various components of my immune system and the human and microbial DNA present in my “superorganism” body. Doing so in my case led to the unexpected diagnosis of a chronic incurable disease. My hope is that by “living in the future” I can provide some early insights into the digital transformations of wellness and health care.

Biography

Larry Smarr is the founding Director of the California Institute for Telecommunications and Information Technology (Calit2) and the Harry E. Gruber professor in UCSD’s Department of Computer Science and Engineering (CSE). Before that he served as founding Director of the National Center for Supercomputing Applications (NCSA). He is a member of the National Academy of Engineering and a Fellow of the American Physical Society and the American Academy of Arts and Sciences. He serves on the NASA Advisory Council to the NASA Administrator, the DOE ESnet Policy Board, and chairs the NSF Advisory Committee on Cyberinfrastructure. For eight years he was a member of the NIH Advisory Committee to the NIH Director, serving 3 directors. His life-streaming portal is http://lsmarr.calit2.net/index
Detailed Program

Registration Desk Opening Hours
Sep 9: 8:00 pm – 6:30 pm
Sep 10: 8:00 am – 6:30 pm
Sep 11: 8:00 am – 12:00 pm

September 9, 2013

8:45 – 9:00 am
Opening Ceremony
Symphony

9:00 – 10:00 am
Keynote Speech I
Symphony

Session Chair: Yin-Leng Theng

Improving Safety in Medical Devices and Systems
Harold Thimbleby
Professor of Computer Science, Swansea University, UK

10:00 – 10:30 am
Coffee Break

10:30 am – 12:00 pm

D1-1A: Drug Management
Symphony

Session Chair: Giuseppe Pozzi

Dealing with data sparsity in Drug Named Entity Recognition
Dimitrios Piliouras, Ioannis Korkontzelos, Andrew Dowsey and Sophia Ananiadou
Harnessing Social Media for Drug-Drug Interactions Detection
Haodong Yang and Christopher Yang
Toward Creating a Gold Standard of Drug Indications from FDA Drug Labels
Ritu Khare, Jiao Li and Zhiyong Lu
**D1-1B: Human Factors: Applications**

**Aria**

Session Chair: Larry Hodges

*MediFrame: A Tablet Application to Plan, Inform, Remind and Sustain Older Adults Medication Intake*
Lea Gulstav Dalgaard, Erik Grönvall and Nervo Verdezoto

*On-Demand Virtual Health Counselor for Delivering Behavior-Change Health Interventions*
Reza Amini, Christine Lisetti and Ugan Yasavur

*Using Medical Device Logs for Improving Medical Device Design*
Abigail Cauchi, Harold Thimbleby, Michael Harrison and Patrick Oladimeji

**12:00 – 1:00 pm**

**Lunch**
**Balcony**

**1:00 pm – 2:30 pm**

**Keynote Speech II**

**Symphony**

Session Chair: Carlo Combi

*Watson, Cognitive Computing and Healthcare*
Martin S. Kohn
Chief Medical Scientist for Care Delivery Systems in IBM Research

**2:30 – 3:00 pm**

**Coffee Break**

**3:00 – 4:30 pm**

**D1-2A: Health Text analytics I**

**Symphony**

Session Chair: Zoran Obradovic

*Supervised Extraction of Diagnosis Codes from EMRs: Role of Feature Selection, Data Selection, and Probabilistic Thresholding*
Anthony Rios and Ramakanth Kavuluru

*Using Co-occurrence Analysis to Expand Consumer Health Vocabularies from Social Media Data*
Ling Jiang and Christopher Yang

*Automatic Information Extraction in the Medical Domain by Cross-Lingual Projection*
Asma Ben Abacha, Pierre Zweigenbaum and Aurélien Max
D1-2B: Interactivity and Modality
Aria

Session Chair: Jun Zhang

Empirical Evaluation of Traditional vs. Hybrid Interaction Metaphors in a Multitask Healthcare Simulation
Lauren Cairco Dukes, Jeffrey Bertrand, Manan Gupta, Rowan Armstrong, Tracy Fasolino, Sabarish Babu and Larry F. Hodges

Olfactory Measurement System to quantify the ability to smell using pulse ejection
Aya Fukasawa, Risa Suzuki and Ken-Ichi Okada

Elderly Cardiac Patients Medication Management: Patient Day-To-Day Needs and Review of Medication Management Systems
Anandhi Dhukaram and Chris Baber

4:30 – 5:00 pm
Break

5:00 – 7:00 pm
Posters I: Systems and Human Factors
& Reception
Overture

PASTEL: A Semantic Platform for Assisted Clinical Trial Patient Recruitment
David Damen, Kim Luyckx, Geert Hellebaut and Tim Van Den Bulcke

Secure Access Control for Health Information Sharing Systems
Suhair Alshehri and Rajendra Raj

A study of DWT and SVD based Watermarking Algorithms for Patient Privacy in Medical Images
Sachin Mehta, Rajarathnam Nallusamy, Ranjeet Marawar and Balakrishnan Prabhakaran

Privacy-centric Access Control for Distributed Heterogeneous Medical Information Systems
Atif Khan and Ian McKillop

Evaluation and Enhancement of an Intraoperative Insulin Infusion Protocol via In-Silico Simulation
Benjamin Kohl, Sanjian Chen, Margaret Mullen- Fortino and Insup Lee.

A Method Using Candidate Exploration and Ranking for Abbreviation Resolution in Clinical Documents
Jong-Beom Kim, Heung-Seon Oh, Sang-Soo Nam and Sung-Hyon Myaeng.

Decision Support System for Constantly Monitoring Patients in a Comorbid Condition
Di Lin, Fabrice Labeau and Subhra Mohapatra.

Monitoring Public Health Concerns Using Twitter Sentiment Classifications
Xiang Ji, Soon Ae Chun and James Geller.

An Agile Framework to Support Distributed Medical Imaging Scenarios
Luís António Bastião Silva, Carlos Costa and José Luís Oliveira. 
*Querying Complex Clinical Data Using Ontological Mapping and Subsumption Reasoning*

Licong Cui, Remo Mueller, Satya Sahoo and Guo-Qiang Zhang. 
*New Horizons for Patient Safety: LIGRA (Life Guard For Robotic Surgery Assistance), An Interactive Platform Centralizing Information and Control in Robotic Surgery Operating Rooms*

Jean Vaucher, Elettra Oleari, Monica Verga, Angelica Morandi, Alberto Sanna and Hannes Bleuler 
*Content Analysis on User-Focused Support Features of Online Support Sites for Geriatric Depression*

Jinhui Li, Yin-Leng Theng, Schubert Foo and Owen Noel Newton Fernando 
*On Time-Use Surveys for Ubiquitous Computing Solutions in a Pharmacy Environment*

Minh Hyunh, Kevin Lo and Emmanuel Agu 
*RFID-Based Public Space Navigation System for the Visually Impaired*

Punit Dharani, Benjamin Lipson, Devin Thomas and Emmanuel Agu
September 10, 2013

9:00 – 10:00 am
Keynote Speech III
Symphony

Session Chair: Zhiyong Lu

*Digitally Revealing the Dynamics of Your Superorganism Body*
Larry Smarr
Founding Director of the California Institute for Telecommunications and Information Technology (Calit2)

10:00 – 10:30 am
Coffee Break

10:30 am – 12:00 pm
D2-1A: Health organization and epidemiology
Symphony

Session Chair: Akhil Kumar

*Jeev: A Low-Cost Cell Phone Application for Tracking the Vaccination Coverage of Children in Rural Communities*
Anas Katib, Deepthi Rao, Praveen Rao and Karen Williams

*Evaluating Strategies for Pandemic Response in Delhi Using Realistic Social Networks*
Huadong Xia, Kalyani Nagaraj, Jiangzhuo Chen and Madhav Marathe

*Face Matching for Post-Disaster Family Reunification*
Eugene Borovikov, Szilard Vajda and Sameer Antani

D2-1B: Human Factors: Effects and Outcomes I
Aria

Session Chair: Denise Anthony

*Do Health Care Users Think Electronic Health Records Are Important for Themselves and Their Providers?*
Denise Anthony and Celeste Campos-Castillo

*Dispelling Myths and Misinformation Using Social Media: A Three-Countries Comparison Using the Case of Tuberculosis*
Yin Leng Theng, Lynette Goh, May Lwin and Schubert Foo

*Put a Face to a Name (Part A): Preliminary Results Attest the Need for an App to Display Pictures and Names of The Care-Team Members to Hospitalized Patients, for Better Patient-Clinician Communication*
Lora Appel and Robert Wu
12:00 – 1:00 pm
Lunch
Balcony

1:00 – 2:30 pm

**D2-2A: Health Risk Prediction I**
Symphony

Session Chair: Julio Facelli

*Any Language Early Detection of Epidemic Diseases from Web News Streams*
Romain Brixtel, Gaël Lejeune, Antoine Doucet and Nadine Lucas

*Fall Detection based on Sequential Modeling of Radar Signal Time-Frequency Features*
Meng Wu, Xiaoxiao Dai, Yimin Zhang, Bradley Davidson, Moeness Amin and Jun Zhang

*Risk Prediction of a Multiple Sclerosis Diagnosis*
Joyce Ho, Joydeep Ghosh and K.P Unnikrishnan

**D2-2B: Home-assistance and individual Care**
Aria

Session Chair: Jose M Juarez

*Estimating Daily Energy Expenditure from Video for Assistive Monitoring*
Alex Edgcomb and Frank Vahid

*A Publish/Subscribe Middleware for Body and Ambient Sensor Networks that Mediates between Sensors and Applications*
Christian Seeger, Kristof Van Laerhoven, Jens Sauer and Alejandro Buchmann

*Automated In-Home Assistive Monitoring with Privacy-Enhanced Video*
Alex Edgcomb and Frank Vahid

2:30 – 3:00 pm
Coffee Break

3:00 – 4:30 pm

**Panel**
Symphony

*Social Media and Patient-centered Research*
Simon Lin, Marshfield Clinical Research Foundation
Rebecca Chiu, MedHelp
Akhil Kumar, Pennsylvania State University
Christopher C. Yang, Drexel University
D2-3B: Web-based architectures and User Interactions
Aria

Session Chair: Praveen Rao

The Effect of Interaction and Visual Fidelity on the Learning Outcomes of a Virtual Pediatric Patient Interview System
Toni Pence, Lauren Dukes, Larry Hodges, Nancy Meehan and Arlene Johnson

Social Support and Exchange Patterns in an Online Smoking Cessation Intervention Program
Mi Zhang, Christopher Yang and Xuemei Gong

Supporting N-Screen Medical Data Access in mHealth
Richard Lomotey and Ralph Deters

4:30 – 5:30 pm
Extended Abstract Posters
Overture

A Cooperative Localization Technique for Tracking in Hospitals and Nursing Homes
Denis Rodionov, George Kolev, Kirill Bushminkin

MPI parallelization of innovative DPD thermostats
N. Goga, H. Berendsen, S.A. Moga, G. Dragoi, A. Hadar, B. Paviloiu

StressFree – A Tool for Stress Determination and Treatment through Computer Music Generation
Alexandra Todiruta, Maria Goga, Lucian Pestritu, Nicolae Goga, Luminita Ciobanu

Questor: Medical Report Search Engine
Andrei Vasilateanu, Nicolae Goga, Florica Moldoveanu, Alin Moldoveanu, Cristian Taslitchi

Factors Related To Eating Habits Of First-Year University Students
Masashi Sugano, Aya Akasaka

Vim: Vital Signs in Music creatively Facilitating Effective Long-Term Wellbeing Self-Management
Yunqiu Li and Harold Thimbleby

Visualization of Privacy Filters for Sharing Sensor-based Health Data
Edward Klein and Jesse Heines

Visualizing Hidden Associations in Health Care Data using Correspondence Analysis
Peter Kokol

A Service Oriented Framework to Assess the Quality of Electronic Health Data for Clinical Research
Naresh Sundar Rajan, Ramkiran Gouripeddi and Julio Facelli

Improving Nursing Care Planning In Palliative Care
Krista Elvide

Using Social Network Analysis to Identify Key Players Within Clinical Teams for Improving Pain Management
Prasanna Desikan, Nilanjana Banerji, Stacey Ferguson and Heather Britt
Can NAO Robot Improve Eye-Gaze Attention of Children with High Functioning Autism?
Huanghao Feng, Anibal Gutierrez, Jun Zhang and Mohammad Mahoor

Improving Clinical Trial Online Search Efficiency Using Natural Language Processing and Biomedical Ontology Mapping Approach
Duo Wei and Tiara Campbell

Dynamic Disease Forecast Network Using Family Medical History
Rajeev Agrawal, Muhammad Suleiman, Cameron Seay and Clay Gloster

CHOP’s Analytics Roadmap and Perioperative Transfusion Analysis Case Study
Jorge A. Gálvez, Luis Ahumada, Allan F. Simpao, Elaine E. Lin, Christopher P. Bonafide, Dhruv Choudhry, William R. England, Abbas F. Jawad, David Friedman, Debora A. Sesok-Pizzini, Mohamed A. Rehman

5:45 – 7:00 pm
Posters II: Analytics and Human Factors
Overture

Image-based Fall Detection with Human Posture Sequence Modeling
Xiaoxiao Dai, Meng Wu, Bradley Davidson, Mohammad Mahoor and Jun Zhang

A Microscopic Image Classification Method using Shearlet Transform
Hadi Rezaeilouyeh, Mohammad Mahoor, Seyedmohammad Mavadati and Jun Zhang

Multiple Temporal Axes for Visualising the Behaviour of Elders Living Alone
Jose M. Juarez, Jose Ochotorena, Manuel Campos and Carlo Combi

Clinical Schedule Management using Similarity-based Mining Methods
Shusaku Tsumoto, Haruko Iwata and Shoji Hirano

Characterizing the Performance and Behaviors of Runners Using Twitter
Qian He, Emmanuel Agu, Peder Pederson, Diane Strong and Bengisu Tulu

Predicting Readmission Risk with Institution Specific Prediction Models
Shipeng Yu, Alexander van Esbroeck, Faisal Farooq, Glenn Fung, Vikram Anand and Balaji Krishnapuram

Estimating Distortion Parameters in Simulated Prosthetic Vision
Parvathi Chundi, Mahadevan Subramaniam, Eyal Margalit and Abhilash Muthuraj

Faulty and Missing Body Sensor Data Analysis
Duk-Jin Kim and Balakrishnan Prabhakaran

Exploiting External Data for Training a Cancer-Revealing Clause Classifier
Sangsoo Nam and Sung-Hyon Myaeng

Tell Me What I Don’t Know - Making the most of Social Health Forums
Jerry Rolia, Wen Yao, Sujoy Basu, Wei-Nchih Lee, Sharad Singhal, Akhil Kumar and Sharat Sabbella.

Modeling Meaningful Use as Utility in Emergency Medical Services
Steven Haynes, Thomas Winkler and Frank Ritter

Using Nomograms to Reduce Harm From Clinical Calculations
Harold Thimbleby and David Williams
7:00 – 9:00 pm
Banquet & Best Paper Award Ceremony
Symphony
September 11, 2013

9:00 – 10:00 am

International Workshop on Data Mining for Healthcare Session I
Symphony

D3-1A: Health Risk Prediction II
Concerto

Session Chair: Shipeng Yu

*Heart Failure Risk models and their readiness for clinical practice*
Gert-Jan de Vries, Gijs Geleijnse, Aleksandra Tesanovic and Ramon van de Ven

*Automated Trauma Incident Cubes Analysis*
Ankit Srivastava, Lisa Ferrigno, Stephen Kaminski, Xifeng Yan and Jianwen Su

D3-1B: Health Text analytics II
Orchestra

Session Chair: Shusaku Tsumoto

*Mining Association Rules for Neurobehavioral and Motor Disorders in Children Diagnosed with Cerebral Palsy*
Chihwen Cheng, Thomas Burns and May Dongmei Wang

*Figure Classification for Biomedical Article Retrieval*
Zhiyun Xue, Sameer Antani, Rodney Long, Dina Demner-Fushman and George Thoma

10:00 – 10:30 am
Coffee Break

10:30 am – 12:00 pm

International Workshop on Data Mining for Healthcare
Symphony

Tutorial
Concerto

*Big Data Analytics for Healthcare*
Jimeng Sun and Chandan K. Reddy

The First Workshop on Mobile Cloud Computing in Healthcare
Orchestra
12:00 – 1:00 pm
Lunch
Balcony

1:00 – 2:30 pm

**International Workshop on Data Mining for Healthcare**
Symphony

**Doctoral Consortium**
Concerto

**Workshop on Hospital Readmission Prediction and Clinical Risk Management**
Orchestra

2:30 – 3:00 pm
Coffee Break

3:00 – 4:30 pm

**International Workshop on Data Mining for Healthcare**
Symphony

**Doctoral Consortium**
Concerto

**Workshop on Hospital Readmission Prediction and Clinical Risk Management**
Orchestra
Doctoral Consortium Program

1:00 - 4:30pm
Poster Exhibition

A Federated Architecture for Biomedical Data Integration
Luís A. Bastião Silva, University of Aveiro, Portugal

An Ongoing Research Project on Dynamic Prediction of Length of Stay
Ali Azari, Department of Information Systems, UMBC, Baltimore, MD

Approach for Capturing Movement Data and Monitoring Compliance during Stroke Rehabilitation
Eric L. Luster, Arizona State University, Tempe, Arizona, USA

Developing a Service Oriented Framework to Assess the Quality of Electronic Health Data for Clinical Research
Naresh Sundar Rajan, Department of Biomedical Informatics and Center for High Performance Computing, Salt Lake City, Utah

Home-based Healthcare Technology
Nervo Xavier Verdezoto, Department of Computer Science, Aarhus University, Denmark

Mobile Application Concept Development for Remote Patient Monitoring
Ljilja Kascak, Georgia Institute of Technology

Semantic Interoperability with Decision Support for Infectious Disease
Murugavel Pandiyan, Kalasalingam University, Krishnan Koil, India

Social Analytics for Public Health Intelligence and Monitoring
Xiang Ji, Computer Science Department of New Jersey Institute of Technology

Supporting Cardiac Patients Self-Care Decision Making Using Mobile Phones
Anandhi Vivekanandan Dhukaram, School of Electronics, Electrical and Computer Engineering, University of Birmingham, UK

Temporal Pattern Discovery and Risk Stratification for Patients with Cancer
Saeed Mehrabi, School of Informatics, Indiana University, Indianapolis

Toward Efficient Access Control for Healthcare Environments Using Attributes and Pseudoroles
Suhair Alshehri, Rochester Institute of Technology, Rochester, NY, USA

Towards Personalized and Accessible mHealth Applications
Daihua Xie Yu, Department of Health Information Management, University of Pittsburgh, PA
Visualization of Privacy Filters for Sharing Sensor-based Health Data
Edward L. Klein, University of Massachusetts, Lowell

1:00 - 2:00pm
Face-to-Face Mentorship
Every selected student will have a personal meeting with a senior mentor assigned by the DC chairs.

2:00 - 2:30pm
Oral Presentations

A Federated Architecture for Biomedical Data Integration
Luís A. Bastião Silva, University of Aveiro, Portugal

Approach for Capturing Movement Data and Monitoring Compliance during Stroke Rehabilitation
Eric L. Luster, Arizona State University, Tempe, Arizona, USA

Developing a Service Oriented Framework to Assess the Quality of Electronic Health Data for Clinical Research
Naresh Sundar Rajan, Department of Biomedical Informatics and Center for High Performance Computing, Salt Lake City, Utah

2:30 – 3:00 pm
Coffee Break

2:30pm - 3:30pm
Oral Presentations

Home-based Healthcare Technology
Nervo Xavier Verdezoto, Department of Computer Science, Aarhus University, Denmark

Towards Personalized and Accessible mHealth Applications
Daihua Xie Yu, Department of Health Information Management, University of Pittsburgh, PA

Visualization of Privacy Filters for Sharing Sensor-based Health Data
Edward L. Klein, University of Massachusetts, Lowell

3:30pm - 4:30pm
Open Discussion (panel):
Dissertation Proposal, Dissertation Execution, Job Search, And Grant Seeking
## Workshop Programs

### International Workshop on Data Mining for Healthcare (DMH 2013)

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<tr>
<td>8:50 AM - 9:00 AM</td>
<td><strong>Introduction</strong></td>
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<tr>
<td>9:00 AM to 9:20 AM</td>
<td><strong>Privacy and Fraud</strong></td>
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<tr>
<td></td>
<td><em>A Novel Approach to Uncover Health Care Frauds Through Spectral Analysis</em></td>
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<td>Song Chen and Aryya Gangopadhyay</td>
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<td>9:20 AM to 10:10 AM</td>
<td><strong>Invited Talk /Privacy and Fraud</strong></td>
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<td></td>
<td><em>Predictive Modeling of Large Healthcare Data under Privacy Constraints</em></td>
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<td>Speaker: Joydeep Ghosh, University of Texas at Austin</td>
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<td>Invited talk to include the following workshop paper presentation:</td>
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<tr>
<td></td>
<td><em>Perturbed Gibbs Samplers for Generating Large-Scale Privacy-Safe Synthetic Health Data.</em></td>
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<td></td>
<td>Yubin Park, Joydeep Ghosh, and Mallikarjun Shankar</td>
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<td>10:10 AM - 10:30 AM</td>
<td><strong>Coffee Break</strong></td>
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<tr>
<td>10:30 AM - 10:50 AM</td>
<td><strong>Screening and Diagnosis</strong></td>
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<td></td>
<td><em>Removing Confounding Factors via Constraint-Based Clustering: An Application to Finding Homogeneous Groups of MS Patients</em></td>
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<td>Jingjing Liu, Carla E. Brodley, Brian C. Healy, and Tanuja Chitnis</td>
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<td>10:50 AM - 11:10 AM</td>
<td><strong>Screening and Diagnosis</strong></td>
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<td><em>Automatic Patient Search Using Bernoulli Model</em></td>
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<td>Yingying Gu, Christopher Kallas, Jun Zhang, James Marx, and Judy Tjoe</td>
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<td>11:10 AM - 11:30 AM</td>
<td><strong>Screening and Diagnosis</strong></td>
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<td><em>Early Diagnosis and Its Benefits in Sepsis Blood Purification Treatment</em></td>
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<td>Mohamed Ghalwash, Vladan Radosavljevic, and Zoran Obradovic</td>
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<td>11:30 AM - 11:50 AM</td>
<td><strong>Data Properties and Management</strong></td>
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<td><em>Using Structured EHR Data and SVM to Support ICD-9-CM Coding</em></td>
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<td>José Ferrão, Mónica D. Oliveira, Filipe Janela, and Henrique M. G. Martins</td>
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<td>12:00 noon - 1:00 PM</td>
<td><strong>Lunch</strong></td>
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<td>1:00 PM - 1:20 PM</td>
<td><strong>Data Properties and Management</strong></td>
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<td><em>Impact of Density of Lab Data in EHR for Prediction of Potentially Preventable Events</em></td>
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<td></td>
<td>Chandrima Sarkar and Jaideep Srivastava</td>
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<td>1:20 PM: 1:40 PM</td>
<td><strong>Data Properties and Management</strong></td>
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<td><em>Towards the Discovery of Diseases Related by Genes Using Vertex Similarity Measures</em></td>
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<td>Hung-Hsuan Chen and C. Lee Giles</td>
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</table>
The First Workshop on Mobile Cloud Computing in Healthcare (WMCCH 2013)

10:30 – 10:45 pm
Opening Remarks

10:45 – 12:00 pm
Improving Computational Efficiency for Personalized Medical Applications in Mobile Cloud Computing Environment
George Mathew and Zoran Obradovic
Finding Needles in a Haystack: Reducing False Alarm Rate Using Telemedicine Mobile Cloud
Qiong Gui, Bingwei Liu, Xiaoliang Wang, Zhanpeng Jin and Yu Chen
Mobile Application Concept Development for Remote Patient Monitoring
Ljilja Kascak, Claudia Rebola, Richard Braunstein and Jon Sanford

Workshop on Hospital Readmission Prediction and Clinical Risk Management (HRPCRM 2013)

1:00 – 1:45 pm
Keynote Speech

Readmissions: Models and More
Scott Zasadil, the Chief Scientist for UPMC Health Plan
1:45 – 2:30 pm
Why Majority of Readmission Risk Assessment Tools Fail in Practice
Matthew Tanzer and Eric Heil
A Predictive Model to Identify Patients at Risk of Unplanned 30-Day Acute Care Hospital Readmission
Klaus Lemke
A Method to Identify Potentially Preventable Readmissions for Historical Data
Matthew Lovejoy, David Claudio, and Kallie Kujawa

2:30 – 3:00 pm
Coffee Break

3:00 – 4:00 pm
Predictors of readmission in heart failure patients vary by cause of readmission
Alex Bottle, Paul Aylin and Derek Bell
Temporal Evaluation of Risk Factors for Acute Myocardial Infarction Readmissions
Gregor Stiglic, Adam Davey, Zoran Obradovic
Predictive and Prescriptive Analytics for Optimal Decisioning: Hospital Readmission Risk Mitigation
Thomas Hill, Vladimir Rastunkov, and John Cromwell
Rethinking Automation for Care Transitions
Matthew Tanzer and Eric Heil

4:00 – 4:30 pm
Panel Discussion
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