Lightning Introductions

Cyber Social Learning Systems

August 29-30, 2016

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Tarek Abdelzaher / University of Illinois at Urbana Champaign

Social Sensing: Humans as "Sensors" in Cyber-physical Systems

ILLINOIS
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

http://web.engr.illinois.edu/~zaher/

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Rahul C. Basole / Georgia Institute of Technology

Visualization + Analytics
for Complex Enterprise System
Intelligence

Georgia Tech School of Interactive Computing
College of Computing

http://entsci.gatech.edu

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Elizabeth Churchill / Google

Google

Jennifer Clark / Georgia Tech

How do we equitably design, development, and deploy of an emerging class of cross-platform, service-integrated, technology products to enhance access and opportunity and/or create a platform for economic development in CITIES and COMMUNITIES.

Georgia Tech Center for Urban Innovation
Ivan Allen College of Liberal Arts

http://urbaninnovation.gatech.edu/people/person/3bb1699b-f85f-5617-b42a-cb42fe54005f

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Lori Clarke / University of Massachusetts Amherst

Modeling and analysis of complex human-intensive systems, such as healthcare processes, in order to reduce errors and provide on-line, context-aware guidance.

http://laser.cs.umass.edu/people/clarke.html

LASER
Laboratory for Advanced Software Engineering Research

UMASSCS
SCHOOL OF COMPUTER SCIENCE

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Mary Czerwinski / Microsoft Research

Affective computing, technology for behavior change

Microsoft Research/UW iSchool

http://www.microsoft.com/en-us/research/people/marycz/

Rob DeLine / Microsoft Research

How is data science emerging as a discipline of software engineering? How should it?

How can we support “end user programming” for ML-based systems?

Microsoft Research

research.microsoft.com/~rdeline

Nicola Dell / Cornell Tech

Designing, building, and evaluating new computing systems for underserved communities

CORNELL TECH

http://nixdell.com

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Ann Drobnis / CCC

How can we place CSLS research within national priorities?

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http://cra.org/ccc/about/ccc-council-members/ann-drobnis/

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Gerhard Fischer / University of Colorado, Boulder

CU — University of Colorado, Boulder

- **Lifelong learning, self-directed learning, interest driven learning**
- **Learning-on-demand**
- **Meta-design**
- **Cultures of participation**
- **Urban Planning**

http://l3d.cs.colorado.edu/wordpress/people/home-folders/gerhard-fischers-home-page/

Charles Friedman / University of Michigan

- Cyber-social Learning Systems (CSLS) as a goal to improve human society
- The extension of the CSLS concept to improve individual and population health: the *Learning Health System*
- The interdisciplinary science underlying achievement of high-functioning, stable and sustainable CSLS
- Establishing an academic department dedicated to this science
- Educating a new generation of “health infrastructuralists” who practice this interdisciplinary science

http://lhs.medicine.umich.edu/people/charles-p-friedman

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Lise Getoor / UC Santa Cruz

- Machine learning and probabilistic reasoning algorithms which capture both relational and probabilistics dependencies
- Special interest in applications to data integration and cyber-social domains

https://getoor.soe.ucsc.edu/

Ashok Goel / Georgia Tech

Georgia Tech

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Susan Graham / University of California, Berkeley

How can we detect and eliminate bias in learning systems?

Berkeley
UNIVERSITY OF CALIFORNIA

people.eecs.berkeley.edu/~graham/

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William Griswold / University of California, San Diego

Ubiquitous Computing, Software Engineering, and Educational Technology

UCSD

http://cseweb.ucsd.edu/~wgg/

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Peter Harsha / CRA

Understanding the intersection of CSLS and policy

http://cra.org/blog

CRA
Computing Research Association

CRA
Government Affairs
For America!

(Unofficial logo)

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Eric Horvitz / Microsoft Research

- How can we better characterize the power, limits, applicability of our models of large-scale social systems?
- What new tools, abstractions, representations could provide robust & scrutable methods for designing, injecting, and monitoring desired changes in complex cybersocial systems?
- When can we generalize about different instantiations of “similar” systems/subsystems, e.g. in different locations
- What problems are most amenable to modeling & control?

Marie Le Pichon / GA Tech

Georgia Tech College of Computing

Data Privacy and Security,
Governance, Compliance,
Requirements Engineering

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John Mattison / Kaiser Permanente

KAISER PERMANENTE®

Bill Maurer / UC Irvine

Payment infrastructures, public infrastructures, and incentives; accounting and accountability as sociotechnical problems

UCI School of Social Sciences

http://faculty.sites.uci.edu/wmmaurer/,
http://imtfi.uci.edu ,
https://moneyfutures.org

Beth Mynatt / CCC and Georgia Tech

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How can cities collect, curate and provide useful data to support positive emergent behavior and continuous improvement by a **loosely coordinated set of actors**?

IPAT.GaTech.edu

Georgia Tech Institute for People and Technology

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Lee Osterweil / University of Massachusetts

Definition and analysis of complex processes in critical domains such as healthcare to assure correctness, robustness, security

Focusing on process language design and implementation

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LASER
Laboratory for Advanced Software Engineering Research

laser.cs.umass.edu/people/ljo.html

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Sarun Paisarnsrisomsuk / University of Virginia

- Formal methods
- Machine Learning
- Software Synthesis
- Learning Health Systems

UNIVERSITY of VIRGINIA
SCHOOL OF ENGINEERING

http://www.cs.virginia.edu/~sp4et/

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Kara Pepe / Stevens Institute of Technology

What are key tradeoffs that the resolution of which will lead to tipping points to enable dramatic change in the healthcare enterprise?

STEVENS
INSTITUTE of TECHNOLOGY
School of Systems & Enterprises

CENTER FOR
COMPLEX SYSTEMS
& ENTERPRISES

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Adam Porter / UMD/Fraunhofer USA

How can we cost-effectively develop and validate complex systems that learn?

Fraunhofer USA
Center for Experimental Software Engineering

http://www.cs.umd.edu/~aporter

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Peter Pirolli / PARC

parc
A Xerox Company

How can we shape cyber-social systems to to get people into shape?

How do we study and engineer the human-AI social ecology?

www.peterpirolli.com

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Zoran Popovic / UW

UNIVERSITY of WASHINGTON

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Jenny Preece / University of Maryland

COLLEGE OF INFORMATION STUDIES

Biodiversity Citizen Science:
What HCI & AI can contribute
Motivating long-term participation
Reputation & reward systems
Collaboration of scientists & volunteers
Data quality

http://ischool.umd.edu/faculty-staff/jennifer-j-preece

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William Rouse / Stevens Institute of Technology

Research Interests:
Human decision making and problem solving
Strategy formation, evaluation & implementation
Analysis, design & evaluation of information systems
Fundamental change of organizational systems

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THE INNOVATION UNIVERSITY®

www.stevens.edu/ccse

www.BillRouse.com

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Josh Rubin / University of Michigan

How do we synergistically bring together diverse stakeholders and seemingly divergent disciplines to invent and grow a novel science of CSLS that will reshape our future as a foundation for innovatively and collaboratively addressing society's greatest challenges?

DEPARTMENT OF LEARNING HEALTH SCIENCES
UNIVERSITY OF MICHIGAN

http://lhs.medicine.umich.edu/people/joshua-c-rubin

William Scherlis / CMU

Carnegie Mellon

Software and systems assurance, including technical, economic, and policy dimensions.
Engineering practices and business incentives to build in safety, security, and reliability.

http://www.cs.cmu.edu/~wls [*stale*]

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John Seely Brown / USC/Deloitte

Deep Learning, institutional innovation, situated learning
radical innovation
Exponential times
Socio-technical-humanistic approach

Affiliation Logo

www.johnseelybrown.com

David Ayman Shamma / CWI

- Understanding community-driven human in the loop AI systems for CSLS.
- Preservation, viz, and retrieval of community lead data and interactions.

CWI

http://shamurai.com

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Ben Shneiderman / University of Maryland

Governance:

* resolve differences,
* motivate contributions,
* reward collaboration,
* encourage leaders,
* cope with malicious behavior

Univ of Maryland/HCIL

www.cs.umd.edu/~ben

Jonathan C. Silverstein / Kanter Health Foundation

Large scale collection of human phenotypic data across virtual organizations and its innovative use to improve human health

Kanter Health

ComputationDoc.com

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David Socha / UW

Wide-field ethnography:
How to enable contextually rich study of collaboration in complex naturalistic physical, social, economic, cyber systems (PSECs)?

UNIVERSITY of WASHINGTON | BOTHELL

https://faculty.washington.edu/socha/

Jim Spohrer/ IBM Corporation

Smart & Wise Service Systems (10x learning rates)
How can better rules (test beds) evolve as fast as tech?
Augmented Intelligence/Cognitive Systems
Artificial Intelligence/Augmented Reality
Service Science Management and Engineering +
Design Arts and Public Policy

IBM®

Kevin Sullivan / University of Virginia

UNIVERSITY of VIRGINIA

- How might we drive emergence of advanced computing for ultra-large-scale societal systems?
- How should we integrate computing with the human and social elements of complex systems?
- How can we foster, predict, analyze, and constrain emergent behavior in such systems?

KevinJSullivan.com

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Stephanie Teasley / University of Michigan

Learning Analytics: How can we personalize learning so that every student can be successful?

SCHOOL OF INFORMATION
UNIVERSITY OF MICHIGAN

https://www.si.umich.edu/node/9898

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Monifa Vaughn-Cooke / University of Maryland

What is the most effective way to personalize design in highly variable user populations?
How can we better harness behavioral data for use in design decision making?

UMD Mechanical Engineering

http://www.enme.umd.edu/faculty/vaughn-cooke

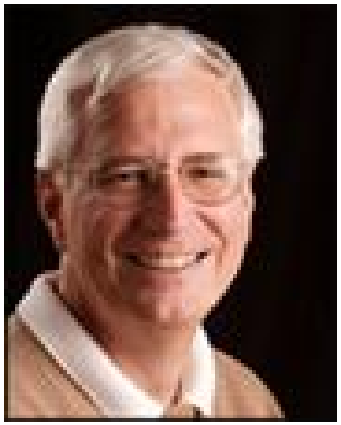
Howard Wactlar / Carnegie Mellon University

- Cyber-human systems for augmented cognition and cognitive prosthetics
- Will reliance on machine decision making ultimately diminish human problem-solving capability for the general population?

Carnegie Mellon University

Personal Url

Skip Walter / CoPresence Inc



Visual Analytics:
How does collaboration lead to learning and productivity in Physical Social Economic Cyber Systems (PSECs)?

CoPresence

https://skipwalter.net/

Laurie Williams / North Carolina State University

NC STATE UNIVERSITY

How can we protect us from ourselves?

The far majority of successful cyber attacks are caused by human error by IT staff and users.

http://collaboration.csc.ncsu.edu/laurie/

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Helen Wright / CCC

How can we expand and grow the community interested in CSLS research and development?

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http://cra.org/about/staff/#helen

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