Lightning Introductions

Cyber Social Learning Systems
Workshop 2
November 2-3, 2016
Mark Ackerman / University of Michigan

Computer-Supported Cooperative Work/Social Computing (HCl)

Expertise sharing, socio-technical design, crowd-sourcing, health

Can we create new forms of informal expertise and knowledge sharing?
Rahul C. Basole / Georgia Institute of Technology

Visualization + Analytics for Complex Enterprise System Intelligence

http://entsci.gatech.edu
Britte Cheng / SRI International

Modeling and analysis of socio-technical systems in education to support:

- aggregation of theory and research,
- stakeholder interaction, and
- policy making.

systemsineducation.org
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.
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
Affective computing, technology for behavior change

How do we design intelligent systems ethically, morally and empathically?
How can we expand and grow the community interested in CSLS?
Ann Drobnis / CCC

How can we place CSLS research within national priorities?

http://cra.org/ccc/about/ccc-council-members/ann-drobnis/
- 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
William Griswold / University of California, San Diego

Ubiquitous Computing, Software Engineering, and Educational Technology

http://cseweb.ucsd.edu/~wgg/
Peter Harsha / CRA

Understanding the intersection of CSLS and policy

http://cra.org/blog
Brad Hesse / NIH

Two Wicked Problems:
1. Connected Health: How do we use CSLS to create adaptive, supportive health systems to nudge healthy behaviors, close gaps, and prevent error?
2. Cancer Moonshot: How do we use CSLS to integrate knowledge and double our pace against a complex set of diseases?
Since the hope is that CSLS can be developed in a way that is “consistent with the values of our open, modern, democratic society”, it seems important to consider what capacities individuals need to be effective citizens. My question is how CSLS can be developed in a way that enhances rather than diminishes human capacities for democratic citizenship?
Beth Linas / AAAS Fellow @ NSF

1. Epidemiology/public health
2. Personalized, smart, connected, valid and scalable technologies for health
3. Health data science

What distinguishes individual human learning from social or systemic learning? How do technologies influence salient factors such as:

- **State** (e.g., genetic/epigenetic, social/cultural)
- **Acquisition** (e.g., rate, form)
- **Practice** (e.g., feedback quality and rate)
- **Retention** (e.g., knowledge management)
- **Transfer** (e.g., policy, technical)

[https://ils.unc.edu/~march/](https://ils.unc.edu/~march/)
John Mattison / Kaiser Permanente
How can cities collect, curate and provide useful data to support positive emergent behavior and continuous improvement by a loosely coordinated set of actors?
Definition and analysis of complex processes in critical domains such as healthcare to assure correctness, robustness, security

Focusing on process language design and implementation

laser.cs.umass.edu/people/ljo.html
Sarun Paisarnsrisomsuk / University of Virginia

- Software Testing and Verification
  - How to perform testing and verification on a system that is learning/evolving over time
- Human-Machine Teaming
  - Machine-Machine Teaming

http://www.cs.virginia.edu/~sp4et/
What are key tradeoffs that the resolution of which will lead to tipping points to enable dramatic change in the healthcare enterprise?
Have can principles of CSLS be leveraged as a resource for the large scale improvement of public education?
How can we use technology to model interaction processes to enable assessment and support leading to human impact across domains?
Research Interests:
- Human decision making and problem solving
- Strategy formation, evaluation & implementation
- Analysis, design & evaluation of information systems
- Fundamental change of organizational systems

www.stevens.edu/ccse
www.BillRouse.com
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?

http://lhs.medicine.umich.edu/people/joshua-c-rubin
How do intrinsic limits to predictability affect our ability to learn from and forecast sociobiological systems?

scarpino.github.io
Governance:
* resolve differences,
* motivate contributions,
* reward collaboration,
* encourage leaders,
* cope with malicious behavior

Univ of Maryland/HCIL

www.cs.umd.edu/~ben
What does it mean to be human in a digital age?
In terms of:
1. Work
2. Learning
3. Our knowledge systems
4. Equity and fairness in society

http://linkresearchlab.org/
http://interlab.me/
Large scale collection of human phenotypic data across virtual organizations and its innovative use to improve human health
Wide-field ethnography: How to enable contextually rich study of collaboration in complex naturalistic physical, social, economic, cyber systems (PSECs)?

https://faculty.washington.edu/socha/
John Stamper / CMU

How do collect CSLS data in ways that are useful for research and validation of methods?

http://dev.stamper.org
Aspirations:
- To understand the molecular basis of health & well-being and shift equilibrium toward repair & resilience
- To model the individual as a complex adaptive system and help them achieve their potential
- To understand why populations differ and improve health equity

CLCS Question:
- How do we achieve an 18 month doubling rate for health outcomes or health care quality?

https://medschool.vanderbilt.edu/dbmi/person/william-w-stead-md
Kevin Sullivan / 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?
Stephanie Teasley / University of Michigan

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

https://www.si.umich.edu/node/9898
Cyber-social infrastructure for building scalable learning systems incorporating data flows.

https://www.si.umich.edu/node/9972
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?
Visual Analytics:
How does collaboration lead to learning and productivity in Physical Social Economic Cyber Systems (PSECs)?

https://skipwalter.net/
Alyssa Wise / NYU

**Interest:** Creating and supporting the use of discourse and interaction analytics that improve individual and collective activity in social learning contexts

**Question:** How do we balance increasingly personalized online environments with opportunities for meaningful collective engagement?
Helen Wright / CCC

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