iSchool Research Fair 2014

Thursday
November 20, 2014
6:30 - 8 p.m.

University of Washington
Husky Union Building
South Ballroom
The iSchool Research Fair is our annual opportunity to share and celebrate the exciting work being conducted by iSchool researchers with the wider University community, our alumni, friends, and valued partners. Thank you for joining us! We hope you will enjoy learning about and exploring the ways in which iSchool research is responding to significant, real-world challenges and is making a difference in the lives of individuals and communities. We thank our collaborators in academia, industry, service and government, with whom we are partnering to make critical contributions to knowledge and practice. Together, through our research efforts, we make information work.

Research Fair

Agenda
6 – 6:30 p.m. Dean’s Reception
6:30 – 8 p.m. Open poster session and interactive demonstrations

Research Areas
- Data, People, Decisions
- Digital Youth
- Indigenous Ways of Knowing
- Information Assurance & Cybersecurity
- Information Literacy
- Information Management
- Information Technology for Social Change
- Information, Values, Policy, Ethics
- Knowledge Organization
- Libraries and Librarianship
- Social Impact and Evaluation
- Social Media
- User Experience and Human Computer Interaction (UX/HCI)

Research Groups
- DataLab
- Digital Youth
- GAMER Group
- Indigenous Information Research Group (IIRG)
- Information & Society Center (ISC)
- Mobile + Accessible Design (MAD) Lab
- Project Information Literacy
- Social Media (SoMe) Lab
- Tech Policy Lab
- Technology & Social Change Group (TASCHA)
- Value Sensitive Design (VSD) Research Lab
1. Automatically Detecting the Quality of Collaboration on an Interactive Tabletop in a Classroom Setting
Abigail Evans, Jacob O. Wobbrock, and Katie Davis
Software that can adapt to the needs of learners is an oft-cited goal of researchers and designers of educational technology. Collaborative learning environments represent a particular challenge in personalization as they need to take into account multiple learners and the interactions between them. Tabletop computers bring additional challenges as much of the interaction between learners takes place face-to-face, away from the shared interface. We present an approach that enables the quality of a group’s collaborative processes to be automatically detected in real-time.

2. Women and Wikipedia: Who speaks for the women of Wikipedia?
Amanda Menking and Ingrid Erickson (Rutgers)
Based on a subset of interviews from an ongoing exploratory study, this poster explores women’s participation in the English language Wikipedia community through the lens of emotional labor. We posit that the gendered and emotional labor required of many women to participate in Wikipedia’s production reveals it to be less a storied space of democratic ideals and more a problematic sphere of conflicting values.

Batya Friedman, Lisa P. Nathan, Daisy Yoo, Nell C. Grey, Tadayoshi Kohno, Milli Lake, Trond Nilsen, Elizabeth J. Utter, and Robert F. Utter
Multi-lifespan information and computer systems have a critical role to play in the processes and outcomes of transitional justice systems, potentially making them more accessible and comprehensible to the people who confront injustice, now and well into the future. Yet how to design such systems and what design processes to employ remain open questions. In this research we take up these questions in the context of the Voices from the Rwanda Tribunal project. We describe our design approach, including a set of nine key guiding design principles, nine design challenges and our experience putting these guiding design principles into practice.

4. Rearchitecting impactsurvey.org
Becca Blakewood and Stacey Wedlake
In October 2013, impactsurvey.org became open to all US public libraries to self-deploy a survey of patrons about their use of library technology services. We received two types of requests from libraries that meant rearchitecting the site: grouping libraries together to administer the survey and running the survey multiple times per year. Our poster shows how we changed the underlying data structure to incorporate these new features, and what additional features the new architecture allowed us to provide.

5. Using Record/Replay to Understand Interface Changes in Web Applications
Brian Burg, Andrew J. Ko, Michael D. Ernst
The web is a hugely popular platform for interactive applications. However, most websites are plagued by visual bugs and glitches. Isolating, understanding, and fixing these problems is difficult with standard developer tools because of the disconnect between code execution, visual output, and how each changes over time. We present Scry, a tool that explains what caused an interface element’s appearance to change. Given a specific element and a time interval, Scry finds the JavaScript, CSS, and DOM operations that caused visual changes within that time.

6. “I Was Bullied Too”: Stories of Bullying and Coping in an Online Community
David P. Randall, Anthony Ambrose, Mania Grand, and Katie Davis
Bullying is a serious health risk for adolescents, and in today’s digital age it has taken on new forms. Strategies to reduce the prevalence of cyberbullying require knowledge of victims’ lived experiences, as well as the coping strategies they employ. This research presents findings from an in-depth study of a viral blog post concerning cyberbullying. The post received a wide variety of comments from people who shared personal stories of bullying and coping. The findings have relevance to researchers seeking to understand bullying from the perspective of victims, and to practitioners seeking to develop effective interventions to support victims.

7. Online Information Behaviors during Disaster Events: Roles, Routines, and Reactions
Harrison Reeder, Tyler H. McCormick, and Emma S. Spiro
Social media and Internet-based messaging systems are increasingly important platforms for risk communication. A global audience turns to these tools to seek, disseminate, and curate time-sensitive, event information during periods of crisis. Moreover, emergency responders report adopting these tools to augment their typical public information functions. Here, we use supervised machine learning methods and text analysis to explore online communications from a set of state and Federal emergency management-related organizations over a period of 15 months. We compare communication during routine, non-event periods with communication during significant disaster events in order to evaluate differences in the roles these organizations play. Findings indicate that communications from emergency management organizations align based on functional roles during routine situations, but during crisis events communication strategies converge on a mutual objective. These results have important practical consequences for organizational learning within this environment and could inform social media policies for emergency responders.

8. Informal Online Communication during Natural Hazard Events
Emma S. Spiro
Informal exchange of information occurs continually throughout daily life. These pre-existing communication patterns are vital during non-routine circumstances such as emergencies and disasters. In recent years, informal communication channels have been transformed by the widespread adoption of social media technologies and mobile devices. Although the potential to exploit this capacity for disaster response is increasingly recognized by practitioners, relatively little is known about the dynamics of informal online communication in response to exogenous hazard events. To address these gaps in knowledge, this research presents findings from an in-depth study of social media communication among volunteer emergency responders in two recent events: the Reverb music festival in Chicago and a mass gathering for the annual Burning Man festival. In both contexts, participants relayed information through social media technologies to disseminate event-related information, and our findings suggest a range of potential applications for future research.

9. A Taxonomy for Describing Video Game Visual Styles
Hyerim Cho and Jin Ha Lee
Since video games are by and large a visual medium, the ability to describe their visual ‘look’ coherently and consistently greatly contributes to their discovery through classification. Besides basic metadata information such as title, publisher, or release year, having a taxonomy for video game visual styles will help users search unknown/content-based video game information more efficiently. In this study we examine academic and user-generated content about video game visual styles to extract useful terms.

Posters and Demonstrations
Ian King, A. Czeskis, K. Koscher, T. Nilsen, Tadayoshi Kohno, and Batya Friedman

Transitional justice constitutes one response to conflict and post-conflict situations. In this work, we examine the challenges of designing digital information systems to support transitional justice through preservation of and appropriate access to trustworthy information. Specifically, we consider two cases: the Voices from the Rwanda Tribunal project involving international justice following the Rwandan genocide and the Violations Database from the Syrian Justice and Accountability Centre involving collection of evidence during the on-going civil war in Syria. Our analyses emphasize considerations of trust, access and safety, and various tensions among those respective values.

11. Understanding Appeal Factors of Video Games
Jin Ha Lee, Hyerin Cho, Rachel Ivy Clarke, and Travis Windleharth

Providing reader’s advisory is widely recognized as a mission-critical library service. But current RA practices and tools focus on books, excluding wide swaths of library materials in other formats. We are investigating the common appeal factors across multiple types of media, including video games, to support cross-media advisory services.

Ivette Bayo Urban, Marin Brouwer, Kathleen Campana, J. Elizabeth Mills, Eliza T. Dressang, Cheryl Metoyer, Allyson Carlyle, Janet Capps, Kathleen Burnett, Bowie Kotria

Project VIEW2S was conceived in response to public librarians and library directors across the state of Washington asking: how can we know whether the early literacy focus of our storytimes makes a difference in terms of helping children learn to read successfully? Our research has found that storytimes can provide many opportunities to help children develop early literacy skills.

13. Methodological Constructs in Subject Ontogeny Research
Joseph T. Tennis

Ontogenetic analysis is the process of following a subject through an indexing language. There are many open questions about the power of this method, but more and more people find it useful. Subject ontogeny is the life of the subject in an indexing language (e.g., classification scheme like the DDC). Examining how a subject is treated over time tells us about the anatomy of an indexing language. For example, gypsies, as a subject, has been handled differently in different editions of the DDC. Here I present various methodological approaches to subject ontogeny research.

14. Distributed Mentoring in Online Fan Fiction Communities
Julie Campbell, Katie Davis, Abigail Evans, Sarah Evans, David Randall, and Cecilia Aragon

The millions of fan fiction stories found on archives like FanFiction.net illustrate the popularity of fan fiction among today’s youth. On these websites informal learning is taking place in novel ways. To understand this learning, we conducted an in-depth ethnographic investigation of online fan fiction communities. Our observations led to the development of a theory we term distributed mentoring, which was inspired by Edwin Hutchins’ theory of distributed cognition. In distributed mentoring, individuals are mentored by the community at large, and small pieces of advice from numerous sources combine to form a complete mentoring experience that participants value.

15. Digital Badges at Pacific Science Center: Investigating High School Students’ Perceptions of a Badge System Prototype
Katie Davis, Eve Klein, Courtney Dutton, Diana Ha, Laura Tuck

Many students are developing skills in leadership, public speaking, and professionalism outside of traditional education settings. However, there are currently few effective ways to integrate this learning into formal education and career settings. We worked with youth and adult members of the Discovery Corps Program at Seattle’s Pacific Science Center to design a digital badge system that would reward students for their learning and give them a way to share their achievements with external audiences. We present the prototype of the digital badge system and share key themes that emerged from our user testing.

16. Q-Methodology for Research and Design in HCI
Katie O’Leary, Wanda Pratt, and Jacob O. Wobbrock

Designers of technologies often engage stakeholders as key informants and co-designers to reveal concrete ways in which technologies can provide benefits and minimize harms. However, it can be difficult for designers to prioritize and translate stakeholders’ conflicting and consensual perspectives into concrete design decisions, or even to understand the factors underlying stakeholders’ various opinions. We introduce Q-methodology as a research and design tool in HCI for understanding and prioritizing stakeholders’ opinions of how technologies should be designed and why.

17. Design for Social Accessibility
Kristen Shinohara and Jacob O. Wobbrock

We conceptualized and investigated Design for Social Acceptance (DSA) as a holistic design approach balancing socio-technical-identity with functional requirements: First, we investigated perceptions people with and without disabilities had of assistive technology use in social and public spaces, and found that form and function influenced social interactions by impacting self-efficacy and self-confidence. Then, we investigated how students in a design course study approached design through the lens of DSA and found they indeed produced designs judged to be socially accessible. Thus, we argue that DSA can serve as a possible counterweight to function-centered design stances traditionally dominating assistive technology design.

18. Smart Touch: Improving the Accessibility of Touch Screens for Users with Motor Impairments
Martez E. Mott, Radu-Daniel Vatava, Shaun K. Kane, and Jacob O. Wobbrock

We present Smart Touch, a technique that allows users with motor impairments to more accurately and more comfortably interact with touch enabled devices. Smart Touch models a user’s touch behavior and forms a template matcher that predicts the intended touch point of a user’s future touches, enabling users to touch naturally with whatever part of their hand they prefer.

19. Technology & Social Change Group
Chris Coward, Rebecca Sears, Araba Sey, Maria Garrido, Melody Clark, Chris Rothschild, Lucas Koepke, Jessica Beyer, Michelle Fellows

The Technology & Social Change Group (TASCHA) at the University of Washington Information School explores the design, use, and effects of information and communication technologies in communities facing social and economic challenges. Each year TASCHA is engaged in numerous projects in many parts of the world touching on topics ranging from the future of libraries in low-income countries to the role information strategies play in societies in transition.
Throughout history, library catalogs have served various purposes, yet most formal statements of catalog objectives focus on inventory and holdings. As contemporary libraries face questions about the future catalog design and library advocacy, this poster presents a historical review of library catalogs with emphasis on their purposes, as well as a review of proposals for alternatives to these extant objectives in order to inform future catalog design and library advocacy.

23. I Love It, I Hate It, I'm Too Lazy to Switch: the Human Experience of Digital Music Services
Rachel Price and Jin Ha Lee
Most of the literature on music users' needs, habits, and interactions with music information retrieval (MIR) systems focus on investigating user groups of particular demographics or testing the usability of specific interfaces/systems. In order to improve our understanding of how users' personalities and characteristics affect their needs and interactions with MIR systems, we conducted a qualitative user study across multiple commercial music services. Based on the empirical data, we have developed seven personas that offer a deeper understanding of the different types of MIR system users and the relative importance of various design implications for each user type. Implications for system design include a re-negotiation of our understanding of desired user engagement, especially with the known habit of context-switching, designing systems for specialized uses, and addressing user concerns around privacy, transparency, and control.

24. Characterizing Online Rumoring Behavior: Multidimensional Signatures
Jim Maddock, Kate Starbird, Haneen Al-Hassani, Daniel Sandoval, Mania Orand, and Robert M. Mason
This study offers an in-depth analysis of four rumors that spread through Twitter after the 2013 Boston Marathon Bombings. Through qualitative and visual analysis, we describe each rumor's origins, changes over time, and relationships between different types of rumoring behavior. We identify several quantitative measures that constitute a multi-dimensional signature for each rumor, and provide evidence supporting the existence of different rumor types. In constructing these signatures, this research demonstrates and documents an emerging method for deeply and recursively integrating qualitative and quantitative methods for analysis of social media trace data.

25. Assessing Public Library Technology with Edge
Samantha Becker and Meg Beade
Edge, a voluntary, aspirational self-assessment tool, enables US public libraries to evaluate the quality of their public technology services. Edge's framework contains three facets: community value, community engagement, and organizational management. Edge coordinated a national, representative sample of public libraries and compared the results of the assessments across peer groups of different sizes of libraries. The sample revealed differences in overall scores between libraries serving different population sizes with the greatest variation between peer groups in the community value strategic area.

26. Native Systems of Knowledge
Dr. Cheryl Metoyer, Dr. Miranda Belarde-Lewis, Dr. Marisa E. Duarte, Juan Carlos Chavez, Sheryl A. Day, Sandra Littletree, Isaakskiichaa Ross Braine, Tess Wilder Cervantes, Ivette Bayo Urban
Established in 2009, the Indigenous Information Research Group (IIRG) is comprised of Native and Indigenous scholars and graduate students of the iSchool's PhD, MLIS, and MSIM programs. We study the institutions, community practices, philosophies, and policies around knowledge, information, and technology in support of Indigenous and tribal sovereignty. This poster presents IIRG's projects, core methodologies, and the global policy implications of our work.

27. Staying Smart: What Information Practices Are Recent College Graduates Using for Lifelong Learning?
Alison J. Head, Michael Eisenberg, Sarah A. Evans, Michelle Fellows, Kirsten Hostetler, Kristine Lu, Ann Roselle, Michele Van Hoeck
Even though information literacy standards underscore the importance of educating lifelong learners, few studies have systematically investigated how today's college graduates find, evaluate, and use information for lifelong learning once they leave campus. Project Information Literacy (PIL), in partnership with the University of Washington's Information School, is conducting an IMLS-funded study using telephone interviews and a large-scale online survey in 2013-2015. We are investigating how a sample of relatively recent graduates put information literacy competencies into practice as they meet their lifelong learning needs for staying competitive and employable in the workplace and engaging in civic affairs and personal development in life at large.

28. Data Science and Global Development
Joshua E. Blumenstock, Michael Callen (UCLA), Dave Donaldson (MIT), Nathan Eagle (MIT), Marcel Falchamps (Stanford), Greg Fischer (LSE), Emily Fox (UW), Tarek Ghani (UC Berkeley), Dean Karlan (Yale), Adnan Khan (LSE), Tyler McCormick (UW), Jacob Shapiro (Princeton), Ott Toomet (Tartu).
Students: A. Bartik, R. Chokkalingam, L. Fratamico, H. Gerard, S. Kandepudi, V. Gaikwad, I. Kelley, L. Koepeke, R. On
To what extent can new sources of "big data" transform international development research and policy? Researchers at the DataLab are involved in several ongoing projects that leverage recent innovations in machine learning and data science to tackle difficult problems affecting marginalized communities around the world. Examples include: using satellite data to identify and target pockets of extreme poverty; mining social media to detect disasters and improve real-time response and decision-making; using mobile phone records to track and stop the spread of diseases like cholera and malaria; analyzing open government data to monitor corruption and fraud by government officials; machine learning algorithms to help farmers optimize planting decisions based on predicted weather and prices.

20. Gidget: A Debugging Game for Computing Education
Michael K. Lee and Andrew J. Ko
Gidget is a game designed to teach computer programming concepts through debugging puzzles. Gidget the robot was damaged on its way to clean up a chemical spill and save the animals, so it is the players' job to fix Gidget's problematic code to complete all the missions. As the levels become more challenging, players can combine newly introduced concepts with previously used commands to succeed solving the puzzles and progress through the game. Prior to its public release, over 800 online participants played through various versions of the game, and over 60 teenagers played through the game and created their own levels during four summer camps in 2013 and 2014.

21. Information & Society Center
Ricardo Gomez, Chair
ISC is a collaborative and interdisciplinary group researching and developing practices on social and cultural aspects of information for social justice. Key research initiatives include Digital Youth; Gender and Information; Social Media and Society; and Information and Communication Technologies in the context of Development (ICTD).

22. Find, Identify, Select… Socialize?
Alternative Objectives of Library Catalogs
Rachel Ivy Clarke
Throughout history, library catalogs have served various purposes, yet most formal statements of catalog objectives focus on inventory and holdings. As contemporary libraries face questions about the continued relevance of the library catalog, these purposes inspire reexamination. This poster presents a historical review of library catalogs with emphasis on their purposes, as well as a review of proposals for alternatives to these extant objectives in order to inform future catalog design and library advocacy.

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29. Estimating an Individual's Wealth and Well-Being from Mobile Phone Transaction Records

Joshua E. Blumenstock

We provide evidence that mobile phone records can be used to predict the socioeconomic status and other welfare indicators of individual mobile phone subscribers. Combining several terabytes of anonymized transactional mobile phone records with data collected through 2,200 phone-based interviews, we test the extent to which it is possible to predict an individual's responses to survey questions based on phone records alone. We observe significant correlations between asset ownership and a rich set of measures derived from the phone data that capture phone use, social network structure, and mobility. Simple classification methods are able to predict, with varying degrees of accuracy, whether the respondent owns assets such as radios and televisions, as well as fixed household characteristics such as access to plumbing and electricity. More modest results are obtained when attempting to predict a broader set of development indicators such as an individual's response to the question, "Have you had to pay unexpected medical bills in the past 12 months?"

30. DataLab: Data Science and Analytics Laboratory

Joshua Blumenstock, Emma Spiro and Jevin West

The DataLab is the nexus for research on Data Science and Analytics at the UW iSchool. We study large-scale, heterogeneous human data in an effort to understand why individuals, consumers, and societies behave the way they do. As the focal point for industry partnerships related to "big data" and business analytics, the DataLab also provides infrastructure and support for student training and engagement in projects that involve the analysis of large datasets.

31. Using Visual Metaphor in Interactive Visualization to Improve Navigation of Complex Data Sets

Ray (Sungsoo) Hong, Yeasul Kim, Alexis Hiniker, Nan-Chen Chen, Cecilia R. Aragon, and Jevin West

Metaphor enables us to align novel concepts with ones we already understand, and is the primary means by which we assimilate new knowledge. Designers of visual interfaces have long been interested in using metaphorical presentations to provide users with such cognitive shortcuts, yet a systematic method for building effective metaphorical interfaces remains elusive, especially for very large and complex data sets. Here we lay the groundwork for a design process for leveraging metaphor in the design of complex, interactive interfaces and test the method in a pilot study.

32. Ranking and Mapping Scholarly Literature

Jevin West, Martin Rosvall, and Carl Bergstrom

For hundreds of years, scientists have been laying down trails of citations. These trails form a vast network, where papers are nodes and citations are links. This network can tell us a lot about the formation of new ideas, fields, and technology. We can identify salient papers and authors. We can construct maps that help us navigate this ever growing network. And we can better understand how information flows in social systems.

33. The UW Data Seminar

DataLab with the UW eScience Institute and Computer Science & Engineering

The iSchool DataLab, in cooperation with the eScience Institute and CSE Interactive Lab, is excited to announce the launch of the UW Data Science Seminar, a new university-wide effort that brings together thought-leading speakers and researchers across campus to discuss topics related to data analysis, visualization, and applications to domain sciences. Ask us about it!

34. Digital Youth Seattle Think Tank

Michael Eisenberg, Karen Fisher, Katie Davis, J. Elizabeth Milita, Jason Yip, Negin Dahya, and Eliza T. Dresang

In October 2014, experts from academia, industry, policy, and practice came together at the University of Washington for a two-day think tank to identify leading questions around digital youth, spark synergies, and build agendas. Focus areas included: Digital and Information Policy, Social and Mobile Media, Mind/Brain and Behavior, Games and Learning, Formal and Informal Learning, Information and Digital Literacies. Find out more at dystt.ischool.uw.edu.

35. Action! Co-designing Interactive Technology with Immigrant Teens

Karen E. Fisher, Ann Bishop, Lassana Magassa, and Philip Fawcett

In the minds and hands of young people lies the capacity to change the world. Our work, InfoMe, is about understanding (a) how immigrant and refugee youth help others in everyday life—elders, friends, complete strangers—through information and technology, and (b) how these behaviors can be supported through youths’ designs for interactive technologies and services. We reflect on our work developing the Teen Design Day methodology with youth from Africa and Asia, and consider our approach in relation to others for supporting interaction design with youth. Teen Design Days is a scalable, portable methodology used in situ that enables investigators to explore concepts, test ideas, and create designs with youth, while meeting their developmental needs in safe settings and in culturally and gender appropriate ways.

36. LearnTogether: Gamified, Socialized Professional Training

Bob Boiko, Sonali Mishra, Colin Green, Gail Dykstra, Brian Howe

LearnTogether is a cloud-based learning management system. It uses actual work product and natural mentoring relationships to train-up and unify the managers in a department. LearnTogether is based on over 10 years of research at the iSchool on next generation education. It uses patentable technologies in gamification, work-product training, and social learning.
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