

Matthew K. Hong

PhD Candidate

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Research Interests

My research interests lie at the intersection of Human-Computer Interaction and Health Informatics. I design collaborative mHealth systems to foster communication between the patient, family caregiver and clinician.

Education

- 2014 - Present **PhD, Human-Centered Computing**, Georgia Institute of Technology.
Advisor: Lauren Wilcox, Co-advisor: Rosa Arriaga
- 2014 **MHCI, Human-Computer Interaction**, Carnegie Mellon University.
- 2012 **BSc, Cognitive Science**, University of California, San Diego.
Undergraduate Thesis Advisor: James D. Hollan

Experience

- Aug 2014 - Present **Graduate Research Assistant**, *School of Interactive Computing*, Georgia Institute of Technology, Atlanta, GA.
I design collaborative mobile health systems to foster communication between the patient, family caregiver and clinician. With oncology, hematology, nephrology and rheumatology clinical collaborators at Children's Healthcare of Atlanta (CHOA), I am investigating how information systems can be designed to better engage chronically ill adolescent patient families in care through the use of visual narratives that can augment the patient's health data. I specifically look at two types of patient data in my research: one that is generated in the clinic (i.e., diagnostic radiology reports), and one that is generated by the patient and their parent (i.e., self-reported observations of the patient's illness experience).

- Jan 2014 - Aug 2014 **Research Lead**, *Boeing-CMU Capstone Project*, Carnegie Mellon University, Pittsburgh, PA. The Master's program in Human-Computer Interaction (MHCI) at CMU provided our capstone project team (I and four other student team members) an opportunity to work with technical fellow industry sponsors at The Boeing Company to implement an iterative research and design process to streamline communication on the 737 line at the Boeing Renton factory. I led research efforts in which I particularly devised and implemented qualitative research methods such as concept elicitation through speed dating, diary study, and experience prototyping studies with factory employees. In addition, I reviewed and synthesized literature pertinent to the topic of aerospace manufacturing process and production flow optimization as well as calculated the business value of our final deliverable. Final deliverables include a high-fidelity prototype, concept video, research findings report, design process report, and website. See <http://hciaresearch4.hcii.cs.cmu.edu/MHCI/2014/Boeing/>.
- Oct 2012 - Aug 2013 **User Experience Consultant**, *Private Consulting*, San Diego, CA.
I consulted company executives during product development stage for a dental patient record management application. See <http://www.tab32.com/>.
I consulted company executives during product development stage for a smart cooking appliance called Cinder. Some of the initial UX research efforts that I led influenced early design decisions of the product form factor and app user interface. See <https://cindercooks.com/>.
- Jun 2012 - Oct 2012 **Research Assistant**, *Department of Biomedical Informatics*, UCSD School of Medicine, La Jolla, CA.
I had the opportunity to work with Schema Builder while working as a research assistant under Dr. Wendy Chapman's supervision at UCSD's School of Medicine. I practiced user-centered design principles to systematically investigate the workflow patterns in the clinicians' line of work. Based on the knowledge I have gathered, I created a prototype user interface for the Schema Builder toolkit, which allows clinicians to define custom natural language processing (NLP) schemas in order to extract important information from unstructured free-text patient records. In a preliminary evaluation of this work, physicians and clinical researchers from the UCSD and Harvard Medical Center who have seen the application expressed their enthusiasm and wished to use Schema Builder in their practice.

Publications

Refereed Journal Publications Jessica S Ancker, Marianne Sharko, **Matthew K. Hong**, Hannah Mitchell, and Lauren Wilcox. Should Parents See Their Teen's Medical Record? Asking About The Effect on Adolescent-Doctor Communication Changes Attitudes. *Journal of American Informatics Association (JAMIA 2018)*.

Marianne Sharko, Lauren Wilcox, **Matthew K. Hong**, and Jessica S Ancker. Variability in Adolescent Portal Privacy Features: How the Unique Privacy Needs of the Adolescent Patient Create a Complex Decision-Making Process. *Journal of American Informatics Association (JAMIA 2018)*. (editor's choice)

Refereed Conference Proceedings **Matthew K. Hong** and Lauren Wilcox. Common Information Spaces in Routine Care of Chronic Illnesses: Informing Collaboration with Patient-Generated Health Data. (*under review*).

Lauren Wilcox, Marianne Sharko, **Matthew K. Hong**, Julie Hollberg, and Jessica S Ancker. The Need for Guidance and Consistency in Adolescent Privacy Policies: A Survey of CMIOs. *Proceedings of the 2018 AMIA Annual Symposium (AMIA 2018)*, San Francisco, CA, USA, 2018.

Udaya Lakshmi, **Matthew K. Hong**, and Lauren Wilcox. Integrating Patient-Generated Observations of Daily Living into Pediatric Cancer Care: A Formative User Interface Design Study. *Proceedings of the Sixth IEEE International Conference on Healthcare Informatics (ICHI 2018)*, New York City, NY, USA, 2018.

Matthew K. Hong, Udaya Lakshmi, Thomas A. Olson, and Lauren Wilcox. Visual ODLs: Co-Designing Patient-Generated Observations of Daily Living to Support Data-Driven Conversations in Pediatric Care. *Proceedings of the 36th Annual ACM Conference on Human Factors in Computing Systems (CHI 2018)*, Montreal, Canada, 2018. (25.7% acceptance rate)

Matthew K. Hong, Clayton Feustel, Meeshu Agnihotri, Max Silverman, Stephen F. Simoneaux, and Lauren Wilcox. Supporting Families in Reviewing and Communicating about Radiology Imaging Studies. *Proceedings of the 35th Annual ACM Conference on Human Factors in Computing Systems (CHI 2017)*, Denver, CO, USA, 2017. (25% acceptance rate)

Matthew K. Hong, Lauren Wilcox, Clayton Feustel, Karen Wasilewski-Masker, Thomas A. Olson, and Stephen F. Simoneaux. Adolescent and Caregiver use of a Tethered Personal Health Record System. *Proceedings of the 2016 AMIA Annual Symposium (AMIA 2016)*, Chicago, IL, USA, 2016.

Matthew K. Hong, Lauren Wilcox, Daniel Machado, Thomas A. Olson, and Stephen F. Simoneaux. Care Partnerships: Toward Technology to Support Teens' Participation in Their Health Care. *Proceedings of the 34th Annual ACM Conference on Human Factors in Computing Systems (CHI 2016)*, San Jose, CA, USA, 2016. (23.4% acceptance rate)

Matthew K. Hong, Anne Marie Piper, Nadir Weibel, Simon Olberding, and James D. Hollan. Microanalysis of Active Reading Behavior to Inform Design of Interactive Desktop Workspaces. *Proceedings of the 2012 ACM International Conference on Interactive Tabletops and Surfaces (ITS 2012)*, Boston, MA, USA, 2012. (29% acceptance rate)

Refereed
Poster/Workshop
Proceedings

Matthew K. Hong. Doctoral Consortium: Designing Visual Communication of Everyday Illness Experiences in Complex Pediatric Care. *Proceedings of the 37th Annual ACM Conference on Human Factors in Computing Systems (CHI 2019)*, Glasgow, UK, 2019. (16% acceptance rate)

Jessica S Ancker, Marianne Sharko, **Matthew K. Hong**, Hannah Mitchell, and Lauren Wilcox. Should parents see teen medical records? Attitudes change when people are prompted to think about risky adolescent behaviors. *Proceedings of the 2018 AMIA Annual Symposium (AMIA 2018)*, San Francisco, CA, USA, 2018.

Matthew K. Hong, Udaya Lakshmi, and Lauren Wilcox. Just-in-Time Design: In Situ Methods for Capturing and Articulating Adolescents' Illness Experiences. *Workshop on Interactive Systems in Health Care (WISH 2017)*, Washington, DC, USA, 2017.

Marianne Sharko, Lauren Wilcox, **Matthew K. Hong**, and Jessica S Ancker. The Variation in Patient Portal Access for Adolescents in the United States: How Different Medical Centers Manage their Adolescent Access. *Proceedings of the 2017 AMIA Annual Symposium (AMIA 2017)*, Washington, DC, USA, 2017.

Eunji Chong, Jaehoon Lee, **Matthew K. Hong**, and James Rehg. Scalable Image-based Search-and-Discovery. *Proceedings of the 35th Annual ACM Conference on Human Factors in Computing Systems (CHI 2017)*, Denver, CO, USA, 2017.

Matthew K. Hong and Lauren Wilcox. Care Partnerships: Toward Technology to Support Teens' Participation in Their Health Care (Research Highlight). *Workshop on Interactive Systems in Health Care (WISH 2016)*, San Jose, CA, USA, 2016.

Yang Liu, Melissa Tharp, **Matthew K. Hong**, Harry Hochheiser, and Wendy W. Chapman. Schema Builder: A Web-based User Interface for Authoring and Sharing Natural-Language Processing Schemas. *Proceedings of the 2013 AMIA Annual Symposium (AMIA 2013)*, Washington, DC, USA, 2013.

Industry/Technical Reports **Matthew K. Hong**, Fonda Chen, Scott Chiu, Emily Danchik, and Chris Wang. Contextualizing Communication at the Boeing Renton Factory. *Spring Research Report 2014 (Boeing-CMU Capstone Project)*, Pittsburgh, PA, USA, 2014.

Matthew K. Hong, Fonda Chen, Scott Chiu, Emily Danchik, and Chris Wang. Echo: Fostering Connection at the Boeing Renton Factory. *Summer Design Report 2014 (Boeing-CMU Capstone Project)*, Pittsburgh, PA, USA, 2014.

Teaching

Spring 2018 **Graduate Teaching Assistant**, *Georgia Institute of Technology*, College of Computing. User Interface Design (Lauren Wilcox).

Fall 2017 **Guest Lecturer**, *Georgia Institute of Technology*, College of Computing. Personal Health Informatics. "Designing Health Information Technologies to Engage Families in Data-Driven Medical Communication"(Lauren Wilcox).

Spring 2017 **Graduate Teaching Assistant**, *Georgia Institute of Technology*, College of Computing. Issues in Human-Centered Computing (Betsy DiSalvo).

Spring 2016 **Graduate Teaching Assistant**, *Georgia Institute of Technology*, College of Computing. User Interface Design (Lauren Wilcox).

Summer S1 2014 **Graduate Teaching Assistant**, *Carnegie Mellon University*, School of Computer Science. Human-Computer Interaction for Technology Executives (Brad Myers).

Spring 2014 **Graduate Teaching Assistant**, *Carnegie Mellon University*, School of Computer Science. Entrepreneurship and Innovation in Technology (Edward Engler).

Winter 2012 **Undergraduate Teaching Assistant**, *UC San Diego*, Department of Cognitive Science. Cognitive Design Studio (James D. Hollan).

Invited Talks

Summer 2018 **Georgia Tech**, NSF REU Civic Data Science Seminar.

Mentoring

Spring 2019 **Kimberly Do**, B.S. Computer Science (C), Georgia Tech.

Fall 2018 **Xuejin Tan**, M.S. Human-Computer Interaction (C), Georgia Tech.

Spring 2018 **Alan Lu**, B.S. Computer Science (C), Georgia Tech.

2017-2018 **Chaitanya Bapat**, M.S. Computer Science-Machine Learning, Georgia Tech. Now @ Amazon

Spring 2017 **Udaya Lakshmi**, M.S. Human-Computer Interaction, Georgia Tech. Now @ GT HCC PhD program

2016-2017 **Meeshu Agnihotri**, M.S. Human-Computer Interaction, Georgia Tech

2016-2017 **Max Silverman**, M.S. Human-Computer Interaction, Georgia Tech. Now @ Yahoo

Fall 2016 **Alex Ryan**, M.S. Human-Computer Interaction, Georgia Tech.

- 2015-2016 **Clayton Feustel**, M.S. Computer Science-Human-Computer Interaction, Georgia Tech.
Now @ GT CS PhD program
- 2014-2015 **Daniel Machado**, M.S. Human-Computer Interaction, Georgia Tech. Now @ Twitter
- Fall 2014 **Meghna Mehta**, M.S. Human-Computer Interaction, Georgia Tech

Service

- Peer-review **CHI**: 2014-
CSCW: 2015-
Pervasive Health: 2015-
IMWUT: 2019-
- Volunteering **Conference Student Volunteer**. Pervasive Health 2012, CHI 2015
Workshop Organizer: Workshop on Interactive Systems in Healthcare (WISH 2017)
- Georgia Tech **President**. College of Computing, Korean Student Association (KSA)
UCSD **Founding Member**. User Experience San Diego (UXSD)
Officer. Korean-American Scientists and Engineers Association (KSEA)

Awards

- 2019 **George Family Foundation Fellowship**. Georgia Institute of Technology
- 2018 **Editor's Choice**. Journal of American Informatics Association (JAMIA 2018)
- 2012 **Department Honors with Distinction**. University of California, San Diego
- 2010 - 2012 **Provost Honors List**. University of California, San Diego

Skills

- User Research Contextual Inquiry, Design Probe, Speed Dating, Ecological Momentary Assessment, Ethnography, Focus Groups, Heuristic Evaluation, Interview, Participatory Design, Survey, Usability Testing, Card Sorting, Thinkaloud Protocol
- Data Analysis Competitive Analysis, Content Analysis, Usage Log Analysis
- Prototyping Tools Sketch, Adobe Illustrator, FramerJS
- Other Tools Python, R Studio, R, REDCap, Sublime Text

References

- Advisor **Lauren G. Wilcox**, Assistant Professor
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Co-advisor **Rosa Arriaga**, Senior Research Scientist
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Mentors **James D. Hollan**, Professor
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