

Matthew K. Hong

Postdoctoral Researcher

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Research Interests

My research interests lie at the intersection of Human-Computer Interaction, AI, and Health Informatics. I derive human-centered approaches to design intelligent systems that improve health care processes.

Education

- 2020 **PhD, Human-Centered Computing**, Georgia Institute of Technology.
Dissertation Thesis Designing Collaborative Mobile Health Experiences for Adolescent Patients (Advisor: Lauren Wilcox, Co-advisor: Rosa Arriaga)
- 2014 **MHCI, Human-Computer Interaction**, Carnegie Mellon University.
- 2012 **BSc, Cognitive Science**, University of California, San Diego.
Honors Thesis Multimodal Cues For Desktop Workspace Interaction (Advisor: James D. Hollan)

Experience

- Sep 2020 - Present **NLM Postdoctoral Researcher**, *Department of Biomedical Informatics and Medical Education*, University of Washington, Seattle, WA.
- My research is expected to explore the intersection of patient-clinician communication, clinical decision support, and NLP.
- Apr - Jul 2020 **Research Intern (PhD)**, *AI UX Team*, Microsoft Research AI, Redmond, WA.
- I designed and developed a system to help product teams accelerate the pace of AI prototyping and testing.
- 2014 - 2020 **Graduate Research Assistant**, *School of Interactive Computing*, Georgia Institute of Technology, Atlanta, GA.
- I designed and deployed two functional mobile health systems (Rapport and CO-OP) to support chronically ill patients' health management.
 - I applied quantitative and qualitative user research methods in various clinical and non-clinical settings.
 - I managed IRB documentation work across two university hospitals and Georgia Tech.
 - I published nine peer-reviewed papers in leading conference and journals.

- Jan - Aug 2014 **Research Lead**, *Boeing Sponsored Project*, Carnegie Mellon University, Pittsburgh, PA.
- I conducted research and designed new approaches to streamline communication on the 737 line at the Boeing Renton factory to improve efficiency and safety.
 - As research lead in a team of five students, I devised and implemented qualitative research methods such as concept elicitation through speed dating, diary study, focus groups, and experience prototyping studies with factory employees.
 - I led negotiations with Boeing IT management to gain access to factory floor.
 - This project culminated in a high-fidelity prototype, concept video, website, and two internal technical reports that describe our research and design process.
- Jun - Oct 2012 **Research Assistant**, *Department of Biomedical Informatics*, UCSD School of Medicine, La Jolla, CA.
- I conducted usability studies, and designed and evaluated a prototype user interface for Schema Builder—a web-based user interface that allows clinicians to define custom NLP schemas in order to extract important information from unstructured patient records.
 - I systematically investigated clinicians' workflow patterns via cognitive walkthroughs, which helped me structure concept elicitation tasks and contextual inquiries.
 - I defined use case scenarios for adverse drug events and pathology reports of colonoscopy exams.

Publications

Refereed Journal Publications **[j2]** 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)*.

[j1] 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 **[c9]** Common Information Spaces in Routine Care of Chronic Illnesses: Informing Collaboration with Patient-Generated Health Data. (*under review*).

[c8] **Matthew K. Hong**, Udaya Lakshmi, Kimberly Do, Prahalad Sampath, Thomas A. Olson, and Lauren Wilcox. Using Diaries to Probe the Illness Experiences of Adolescent Patients and Parental Caregivers. *Proceedings of the 38th Annual ACM Conference on Human Factors in Computing Systems (CHI 2020)*, Honolulu, HI, USA, 2020 (24.3% acceptance rate).

[c7] 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.

[c6] 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.

[c5] **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)

[c4] 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)

[c3] 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.

[c2] 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)

[c1] 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 Workshop
Proceedings

[w7] Marianne Sharko, Hannah Galvin, Susan J. Kressly, Joseph H Schneider, Fabienne Bourgeois Feliciano (Pele) Yu, **Matthew K. Hong**, Lauren Wilcox, Jessica S Ancker. National Working Group to Standardize the Identification of Sensitive Data Elements to Support Patient Privacy. *Proceedings of the 2019 AMIA Annual Symposium (AMIA 2019)*, Washington, DC, USA, 2019.

[w6] 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.

[w5] 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.

[w4] 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.

[w3] 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.

[w2] 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.

[w1] 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.

Doctoral Consortia

[d1] Matthew K. Hong. 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)

Industry/Technical Reports **[o2] 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.

[o1] 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

Spring 2020 **GVU Brown Bag Seminar**, *Georgia Tech*. "Personalizing Health Management Through Human-Centered Data Augmentation"

Summer 2018 **NSF REU Civic Data Science Seminar**, *Georgia Tech*. "Using Data-Driven Approaches to Design Interactive Patient-Centered Technologies"

Mentoring

Fall 2019 **Gurudutt Perichetla**, M.S. HCI (C), Georgia Tech.

Fall 2019 **Aarti Thapar**, B.S. CS (C), Georgia Tech.

2019 **Kimberly Do**, B.S. CS (C), Georgia Tech.

Fall 2018 **Xuejin Tan**, M.S. HCI (C), Georgia Tech.

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

2017-2018 **Chaitanya Bapat**, M.S. CS, Georgia Tech. Now SDE @ Amazon

Spring 2017 **Udaya Lakshmi**, M.S. HCI, Georgia Tech. Now HCC PhD @ GT

- 2016-2017 **Meeshu Agnihotri**, M.S. HCI, Georgia Tech. Now UX Designer @ Apervita
- 2016-2017 **Max Silverman**, M.S. HCI, Georgia Tech. Now UX Researcher @ Yahoo
- Fall 2016 **Alex Ryan**, M.S. HCI, Georgia Tech. Now UX Designer @ Roadie
- 2015-2016 **Clayton Feustel**, M.S. CS, Georgia Tech. Now CS PhD @ GT
- 2014-2015 **Daniel Machado**, M.S. HCI, Georgia Tech. Now UX Researcher @ Twitter
- Fall 2014 **Meghna Mehta**, M.S. HCI, Georgia Tech. Now UX Designer @ Striim

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)
- Working Group **Member**. American Academy of Pediatrics Council on Clinical Information Technology
- 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 **GVU Foley Scholars**. Georgia Institute of Technology (\$5000).
- 2019 **George Family Foundation Fellowship**. Georgia Institute of Technology (\$3500).
- 2018 **Editor's Choice**. Journal of American Informatics Association
- 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, Overflow, FramerJS
- Other Tools HTML, CSS, JavaScript, Python, Node.js, R Studio, Qualtrics, REDCap

References

Advisor **Lauren G. Wilcox**, Assistant Professor
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