KIMBERLY A. XU

EDUCATION

PhD   Georgia Institute of Technology, Human-Centered Computing   May 2013
Dissertation: *Facilitating American Sign Language learning for hearing parents of deaf children via mobile devices*
Advisor: Thad Starner

MS   Iowa State University, Human Computer Interaction   August 2007
Thesis: *Design and evaluation of a perceptually adaptive rendering system for immersive virtual reality environments*
Advisor: Derrick Parkhurst

BS/BA Michigan State University, Computer Science/German   May 2005
Graduated with high honors

TEACHING EXPERIENCE

University of Alabama in Huntsville, Huntsville, AL   August 2025 to present
Clinical Assistant Professor, Computer Science
- Computer Science I – This course teaches fundamentals of programming with C++
  - Fall 2025 (1 section)

University of Alabama in Huntsville, Huntsville, AL   August 2021 to August 2025
Full-time lecturer, Mechanical and Aerospace Engineering
- Numerical Methods– This course teaches theory and applications of numerical methods through MATLAB
  - Lecture: Fall 2021 (1 section), Spring 2022 (2 sections), Fall 2022 (1 section), Spring 2023 (2 sections), Fall 2023 (1 section), Spring 2024 (2 sections), Fall 2024 (1 section), Spring 2025 (2 sections), Fall 2025 (1 section)
  - Lab Fall 2022 (1 section)
- Introduction to Computing for Engineers – This is a freshman-level course that teachers computing concepts through MATLAB, Excel and Python programming.
  - Fall 2021 (2 sections), Spring 2022 (1 section), Fall 2022 (1 section), Fall 2023 (2 sections), Fall 2024 (2 sections), Spring 2025 (1 section)

University of Alabama in Huntsville, Huntsville, AL   August 2017 to Spring 2021
Part-time lecturer, Mechanical and Aerospace Engineering
- Numerical Methods Lab– This course teaches theory and applications of numerical methods through MATLAB
  - Fall 2017 (1 section), Spring 2018 (2 sections), Fall 2018 (2 sections), Spring 2019 (2 sections), Fall 2019 (1 section), Spring 2020 (2 sections), Fall 2020 (1 section), Spring 2021 (2 sections)
- Introduction to Computing for Engineers – This is a freshman-level course that teachers computing concepts through MATLAB, Excel and Python programming.
  - Spring 2020 (1 section, honors), Fall 2020 (1 section), Spring 2021 (1 section)

Iowa State University, Ames, IA   Summer 2006 & 2007
Instructor, REU
- Taught formal classes in introduction to programming, introduction to computer graphics and philosophy of mind to interdisciplinary summer REU students

RESEARCH EXPERIENCE

Tin Man Labs, LLC, Brownsboro, AL/Austin, TX   5/2013 to 1/2016
Research Scientist and Research Engineer
- health applications, usability, development
- Research, development, and usability consultant for companies and universities around the country. Duties include writing code and performing usability reviews

Georgia Institute of Technology, Atlanta, GA   8/2009 to 5/2013
Graduate Research Assistant, Contextual Computing Group, Advisor Thad Starner
- mobile language learning, ASL, informal learning
- Research projects involve technologies for teaching sign language. Duties include writing code, performing user studies, and writing academic papers.

IBM Almaden Research Center, San Jose, CA   5/2010 to 8/2010
Corporate Research Intern, Advisors: Shumin Zhai & Jeff Pierce
- mobile development, task logging
- Evaluated interaction tradeoffs associated with varying the amount of preview available to users of a mobile email application. Developed software and designed and ran a user study.

University of Bremen, Bremen, Germany   4/2009 to 7/2009
International Research Intern
- wearable computing, ethnographic data collection
- Advised students on projects including evaluating warehouse picking, technology support for senior citizens. Duties included designing experiments, interpreting for English-speaking collaborators, and collecting ethnographic data.

Georgia Institute of Technology, Atlanta, GA   8/2008 to 5/2009
Graduate Research Assistant, Contextual Computing Group, Advisor Thad Starner
- ASL phrase book, wizard of oz
- Investigating technology to aid communication between the Deaf and hearing communities. Duties include writing code, performing user studies, and writing academic papers.

Georgia Institute of Technology, Atlanta, GA   8/2007 to 8/2008
Graduate Research Assistant, Learning by Design Lab, Advisor Janet Kolodner
- scientific explanation-making, learning by design
- Research on improving scientific reasoning and explanation-making in middle school students with hovercrafts. Duties included leading a team of 4 M.S. students, running weekly sessions with students, analyzing data and writing academic papers.

Iowa State University, Ames, IA   5/2005 to 8/2007
Graduate Research Assistant, Human Computer Vision Lab, Advisor Derrick Parkhurst
- perceptually adaptive rendering, immersive VR
- Research projects involved adapting the rendered environment in immersive virtual reality based on human perceptual limitations and teaching high school students about the chemical effects of methamphetamine abuse through a VR simulation. Duties included designing a system to allow non-programmers to edit VR environments, mentoring students, running user studies and writing academic papers.

Clearsighted, Inc., Ames, IA   1/2007 to 5/2007
Graduate Student Intern
- intelligent tutoring system, using OS hooks
- Worked as an intern at a company focused on creating an intelligent tutoring system. Duties included researching previous work and writing code.

Michigan State University, Ames, IA   8/2001 to 7/2003
Undergraduate Research Assistant, Circuits, Systems and Artificial Neural Networks Lab, Advisor Fathi Salem
- entropic contrast, speech detection
- Research projects involved developing a robust algorithm for detecting speech in noisy environments. Duties included writing code and writing academic papers.

PUBLICATIONS

Journal Publications
1. T. Westeyn, G. Abowd, T. Starner, J. Johnson, P. Presti, **K. Weaver**, "Monitoring children's developmental progress using augmented toys and activity recognition," Personal and Ubiquitous Computing 16 (2), pp. 169-191, 2012.

Conference Papers (Peer-Reviewed)
1. **K. A. Weaver** & T. Starner. "We Need to Communicate! Helping Hearing Parents of Deaf Children Learn American Sign Language," Proceedings of ASSETS 2011, Dundee, Scotland: ACM, 2011. [full paper with oral presentation, Acceptance Rate: 30%]
2. **K.A. Weaver**, H. Yang, S. Zhai, & J. Pierce. "Understanding Information Preview in Mobile Email Processing," Proceedings of MobileHCI 2011, Stockholm, Sweden: ACM, 2011, pp. 303-312. [full paper with oral presentation, Acceptance Rate: 23%]
3. **K.A. Weaver**, T. Starner, and H. Hamilton. "An Evaluation of Video Intelligibility for Novice American Sign Language Learners on a Mobile Device," ASSETS 2010 Orlando, FL, pp. 107-114. [Full paper with oral presenta1on, Acceptance Rate: 31%]
4. **K.A. Weaver**, H. Baumann, T. Starner, H. Iben, and M. Lawo, "An empirical task analysis of warehouse order picking using head-mounted displays," CHI 2010 Atlanta, Georgia: ACM, pp. 1695-1704. [Full Paper with oral presentation, Acceptance Rate: 22%]
5. **K. Weaver** and D. Parkhurst, "Perceptually Adaptive Rendering of Immersive Virtual Environments," Smart Graphics 2007 Kyoto, Japan: Springer-Verlag, 2007, pp. 224-229. [Short Paper with oral presentation and poster, Acceptance Rate: 31%]
6. **K. Weaver**, K. Waheed, and F. Salem, "An entropy based robust speech boundary detection algorithm for realistic noisy environments," IJCNN 2003, pp. 680-685 vol.1. [Short Paper with poster]

Posters (Peer-Reviewed)
1. **K.A. Weaver**, H. Hamilton, Z. Zafrulla, H. Brashear, T. Starner, P. Presti, and A. Bruckman, "Improving the Language Ability of Deaf Signing Children through an Interactive American Sign Language-Based Video Game," ICLS 2010, Chicago, IL, USA: 2010 pp 306-307. [Poster Paper with poster presentation]
2. V. Henderson-Summet, **K. Weaver**, T.L. Westeyn, and T.E. Starner, "American sign language vocabulary: computer aided instruction for non-signers," ASSETS 2008 Halifax, Nova Scotia, Canada: ACM, pp. 281-282. [Poster Paper with poster presentation]
3. **K. Weaver** and D. Parkhurst, "Perceptually adaptive rendering in immersive virtual reality," SIGGRAPH 2006, Boston, Massachusetts: ACM, p. 152. [Poster Paper with poster]

Workshop Papers (Light Peer-Review)
1. **K. Weaver** and T. Starner, "SMARTSign: A Different Flavor of Accessibility." Presented at the Frontiers in Accessibility of Pervasive Computing workshop at Pervasive 2012. Newcastle, UK, June 18-22, 2012. (Light Peer Review)
2. **K. Weaver** and T. Starner, "Mobile Sign Language Learning Outside the Classroom." Presented at the 3rd Annual Workshop on Educational Interfaces, Software, and Technology (EIST) at CHI '12. Austin, TX, May 5-10, 2012.

INVITED TALKS

- Kim Xu. *SMARTSign: Teaching hearing parents with deaf children ASL on mobile phones*. Chapter Meeting of the Tennessee Valley Human Factors and Ergonomics Society, Huntsville, AL, March 2014
- Kim Xu, *How I learned to stop worrying and love the wearable* in the *Big Challenges, Big Ideas: Radical Solutions to Intractable Problems* session IdeaFestival, Louisville, KY, September 2013.

PRESS

- Thad Starner. *Google Glass Lead: How Wearing Tech on Our Bodies Actually Helps It Get Out of Our Way*. Description of SMARTSign mobile and for Glass. wired.com, December, 17, 2013.
- *Navigating the Word with Google Glass*. Demonstration of SMARTSign for Google Glass. NBC Nightly News, November 13, 2013.
- Marco della Cava. *Beyond a gadget: Google Glass is a boon to disabled*. Description of SMARTSign. USA Today, October 23, 2013
- Meg Wagner. *Glass App Teaches Sign Language to Parents of Hearing Impaired Children*. SMARTSign Description. Mashable.com, September 12, 2013
- NSF. *Signing Made Easy*. Demonstration of SMARTSign. Science Nation, September 27, 2010.

PROFESSIONAL AFFILIATIONS

American Society for Engineering Education, Professional Member, since 2021
Association for Computing Machinery, Professional Member, since 2014
      Member, Computer Science Education Special Interest Group, since 2021
      Member, Computer Human Interaction Special Interest Group, since 2012

PROFESSIONAL SERVICE

Peer-Reviewed Conference Papers for: MobileHCI, CHI, ASSETS, ICLS, ICIC, IDETC
Reviewed course content for: EngageCSEdu

HONORS AND AWARDS

- Spring 2011 Georgia Tech Research and Innovation Conference - Best Poster Award
- 2010 - 2011 Academic Year PEO Scholar Award Recipient
- 2006 – 2007 Academic Year HCI Student of the Year, Iowa State University
- 2005 - 2006 Academic Year HCI Fellow, Iowa State University
- Spring 2005 Outstanding Senior in Computer Science, Michigan State University