

Keenan R. May

kmay@gatech.edu
keenanmay.com
832-247-4415

Accomplishments

- *Expanded our understanding of multisensory integration in extended reality* by reviewing literature, developing research protocol and tools, and conducting data collection via empirical research studies.
- *Developed guidelines for the design of auditory extended-reality navigation systems* by managing teams, constructing prototypes, conducting studies, and involving stakeholders (produced one conference paper and one journal article).
- *Helped support safer behaviors in everyday dual-task scenarios such as cycling or driving* by planning, conducting and authoring six conference papers and two journal articles on distraction mitigation methods.
- *Improved student engagement and knowledge outcomes in the Georgia Tech HCI program* by developing content, mentoring students, and administrating Georgia Tech HCI research methods and design courses.

Education

Ph.D.	2018-2020	Georgia Institute of Technology	Engineering Psychology
M.S.	2014-2018	Georgia Institute of Technology	Engineering Psychology
M.S.	2012-2014	Georgia Institute of Technology	Human-Computer Interaction
B.A.	2008-2012	Rice University	Cognitive Sciences

Selected Work Experience

PhD Student, Sonification Lab

2014 – 2020

Georgia Institute of Technology, Atlanta, GA

Conducted original research with a focus on facilitating human performance in complex extended-reality environments.

Primary research areas:

Factors influencing multisensory integration in extended reality environments (Thesis).

Usability guidelines for multimodal extended reality navigation systems.

The effects of headphone audio variations on listener situation awareness (Psychology Masters Thesis).

Evaluation of multimodal gesture interfaces for driver safety (HCI Masters Thesis).

Teaching Assistant, Foundations of HCI

2014-2019

Georgia Institute of Technology, Atlanta GA

Developed course content, taught classes, coordinated TA teams, and oversaw user-centered design project teams.

Research Assistant

2015-2020

School of Psychology/Interactive Media Technology Center, Georgia Institute of Technology, Atlanta GA

Developed and executed research programs in areas including sensor evaluation, usability testing, and design research.

Lab Instructor, HCI Research Methods

2015-2016

Georgia Institute of Technology, Atlanta GA

Developed course content, taught classes, oversaw lab activities for HCI research methods such as interviews, surveys, statistics, experimental design, participatory design, and usability testing.

Usability Researcher, AT&T

June 2013-November 2013

AT&T Customer Insight, Usability, & Accessibility, Atlanta, GA

Improved customer experience with AT&T desktop and mobile sites, as reflected by Nielsen ratings, by conducting usability tests, heuristic reviews and contextual inquiries.

Publications

- May, K.R. (2020). The Impact of Action-Object Congruency on the Integration of Auditory and Visual Stimuli in Extended Reality (Doctoral Dissertation).
- May, K. R., Tomlinson, B.J., Ma, X., Roberts, P., & Walker, B.N. (2020-In Press). Spotlights and Soundscapes: On the Design of Mixed Reality Auditory Environments for Persons with Visual Impairment. *ACM Transactions on Accessible Computing (TACCESS)*.
- May, K. R., & Walker, B.N. (2020-In Press). Preserving Auditory Situation Awareness in Headphone-Distracted Persons. *International Journal of Human Factors and Ergonomics*.
- May, K. R., Sobel, B., Wilson, J., & Walker, B.N. (2019). Auditory Displays to Facilitate Object Targeting in 3D Space. *Proceedings of the International Conference on Auditory Display (ICAD 2019)*.
- Savery, R., Ayyagari, M., May, K.R., & Walker, B.N. (2019). Soccer Sonification: Enhancing Viewer Experience. *Proceedings of the International Conference on Auditory Display (ICAD 2019)*.
- May, K. R., Gable, T. M., & Walker, B.N. (2017). Designing an In-Vehicle Air Gesture Set Using Elicitation Methods. *AutomotiveUI 2017*, 74-83.
- May, K. R., & Walker, B. N. (2017). The effects of distractor sounds presented through bone conduction headphones on the localization of critical environmental sounds. *Applied Ergonomics*, 61, 144-158.
- May, K. R., Noah, B. E., & Walker, B. N. (2017). Multimodal Heads Up Displays to Augment Autonomous Vehicle Supervision. *AutomotiveUI 2017*, 246-246.
- May, K. R., Noah, B. E., & Walker, B. N. (2017, September). Driving acceptance: Applying structural equation modeling to in-vehicle automation acceptance. *AutomotiveUI 2017*, 190-194.
- Wu, S., Gable, T., May, K. R., Choi, Y. M., & Walker, B. N. (2016). Comparison of Surface Gestures and Air Gestures for In-Vehicle Menu Navigation. *Archives of Design Research*, 29(4), 65-80.
- May, K. R., Gable, T. M., Wu, X., Sardesai, R. R., & Walker, B. N. (2016). Choosing the Right Air Gesture: Impacts of Menu Length and Air Gesture Type on Driver Workload. *AutomotiveUI 2016*, 68-74.
- Gable, T. M., May, K. R., & Walker, B. N. (2014). Applying popular usability heuristics to gesture interaction in the vehicle. *AutomotiveUI 2014*, 1-7.
- May, K. R., Gable, T. M., & Walker, B. N. (2014). A multimodal air gesture interface for in vehicle menu navigation. *AutomotiveUI 2014*, 1-6.
- Swette, R., May, K. R., Gable, T. M., & Walker, B. N. (2013). Comparing three novel multimodal touch interfaces for infotainment menus. *AutomotiveUI 2013*, 100-107.
- May, K.R. (2012). A model of error in 2D pointing tasks. Undergraduate Honors Thesis, Rice University, Houston, TX.

Skills

Experimental Psychology Research Methods

Inc. Human Subjects Research, Project Management, Academic Writing & Public Speaking, Inferential Statistics, Literature Review

Engineering and Human Factors Psychology Research Methods

Inc. Task Analysis, Cognitive Task Analysis, Eye Tracking, Physiological Measurement, Assessment of Situation Awareness, Simulator Research, Multiple Resources Theory, Cognitive Workload Assessment, Cognitive Walkthrough, Cognitive Modeling

Domain Expertise

Engineering Psychology, HCI, Cognitive Psychology, Sensation and Perception

HCI Design

User-Centered Design Process, Universal Design and Accessibility, Rapid Contextual Design, Nontraditional Interface Design

HCI Research Methods

Inc. Usability Testing, Interviews, Contextual Inquiry, Focus Groups, Think-aloud, Qualitative Data Analysis, Notetaking, Ethnographic Observation, Heuristic Analyses, Card Sorting, Questionnaire Design, Participatory Design Research

Data Science

Data processing with Python, Visualization with D3/matplotlib, Structural Equation Modeling, Large datasets using AWS, SQL, Pig

Prototyping and Research Tool Development

XR Prototyping using Unity/C#, Design of virtual environments and scenarios, Interactive prototyping in Python, Sound Production, Adobe Creative Suite, Frontend Web Development