Bengisu Cagiltay

PhD Candidate · Computer Sciences

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Research Interests

I take a family-centered approach to *develop design requirements* for social companion robots tailored to the needs and preferences of children and families. Through qualitative and design-based research, I *study user interactions* and explore how these technologies can be used to improve families' lives, facilitate routines, and support connections. I take an interdisciplinary lens, in the intersection of computer science, cognitive science, social robotics, design, and family studies.

Education

University of Wisconsin-Madison — *Madison, Wisconsin*

PhD Computer Sciences, Minor: Human Development and Family Studies — *Fall 2020 – present*

- Advisor: Dr. Bilge Mutlu

Middle East Technical University — *Ankara, Turkey*

MS Cognitive Science — *2018 – 2020*

- Advisor: Dr. Cengiz Acarturk
- *"An investigation of interactions with conversational violations: Insights from visual perception and Gricean Maxim violations"*

Bilkent University — *Ankara, Turkey*

BS Computer Science — *2014 – 2018*

Publications

** equal contribution; + mentored graduate student*

Cagiltay, B., Mutlu, B., (2024). "Toward Family-Robot Interactions: A Family-Centered Framework in HRI" *In Proceedings of the 2023 ACM/IEEE International Conference on Human-Robot Interaction (HRI 24)*.

Cagiltay, B., Mutlu, B., & Kerr, M. (2023). Family Theories in Child-Robot Interactions: Understanding Families as a Whole for Child-Robot Interaction Design. *In Interaction Design and Children (IDC 23)* ACM.

Cagiltay, B., Mutlu, B., & Michaelis, J. E. (2023). "My Unconditional Homework Buddy:" Exploring Children's Preferences for a Homework Companion Robot. *In Interaction Design and Children (IDC 23)* ACM.

Cagiltay, B. (2023, April). Designing for In-Home Long-Term Family-Robot Interactions: Family Preferences, Connection-Making, and Privacy. *In Extended Abstracts of the 2023 CHI Conference on Human Factors in Computing Systems* ACM.

Praveena, P.*, **Cagiltay, B.***, Gleicher, M., & Mutlu, B. (2023, April). Exploring the Use of Collaborative Robots in Cinematography. *In Extended Abstracts of the 2023 CHI Conference on Human Factors in Computing Systems* ACM.

Cagiltay, B.*, Michaelis, J. E.*, Ibtasar, R., & Mutlu, B. (2023, March). "Off Script:" Design Opportunities Emerging from Long-Term Social Robot Interactions In-the-Wild. *In Proceedings of the 2023 ACM/IEEE International Conference on HRI*.

Lee, C., **Cagiltay, B.**, Sullivan, D., & Mutlu, B. (2023, March). Demonstrating the Potential of Interactive Product Packaging for Enriching Human-Robot Interaction. *In Companion of the 2023 ACM/IEEE International Conference on HRI*

Cagiltay, B., Michaelis, J., Sebo, S., and Mutlu, B. 2022. Exploring Children's Preferences for Taking Care of a Social Robot. *In Interaction Design and Children (IDC 22).* ACM. **Best Short Paper Award**

Cagiltay, B., White, N., Ibtasar, R., Mutlu, B., & Michaelis, J. (2022, July) Understanding Factors that Shape Children's Long Term Engagement with an In-Home Learning Companion Robot. *In Interaction Design and Children (IDC 22)*ACM.

Lee, C.+, **Cagiltay, B.**, & Mutlu, B. (2022, May) The Unboxing Experience: Exploration and Design of Initial Interactions Between Children and Social Robots. In *CHI Conference on Human Factors in Computing Systems (CHI'22).* Article 151, 1–14. ACM. **Best Paper Honorable Mention Award**

Tang, B., Chandrasekaran, V., **Cagiltay, B.**, Sullivan, D., Fawaz, K., Mutlu, B. (HRI 2022) Confidant: A Privacy Controller for Social Robots. In *Proceedings of the 2022 ACM/IEEE International Conference on Human-Robot Interaction (HRI'22)*. IEEE

Suero Montero, C., **Cagiltay, B.**, Dindar, K., Kärnä, E., Kilpiä, A., Pihlainen, K., Kämäräinen, A. (2022) Analysing Inclusive Groups' Peer Interactions Using Mobile Eye Tracking in Educational Context, In *EDULEARN22 Proceedings*

Suero Montero, C., Kilpia, A., Kamarainen, A., **Cagiltay, B.**, Karna, E., Cagiltay, K., Pihlainen, K., & Karasu, N. (2022). Mobile Eye Tracking Research in Inclusive Classrooms: Children's Experiences. *In 2022 International Conference on Advanced Learning Technologies (ICALT)* IEEE

Cagiltay, B.*, White, N. T.*, Michaelis, J. E., & Mutlu, B. (2021, June). Designing Emotionally Expressive Social Commentary to Facilitate Child-Robot Interaction. In *Interaction Design and Children* (pp. 314-325). ACM.

Ho, H. R., **Cagiltay, B.**, White, N. T., Hubbard, E. M., & Mutlu, B. (2021, June). RoboMath: Designing a Learning Companion Robot to Support Children's Numerical Skills. In *Interaction Design and Children*. (pp. 283-293). ACM.

Zhao, F., White, N., **Cagiltay, B.**, Niedenthal, P., Michaelis, J. E., & Mutlu, B. (2021). Designing Emotional Expressions for a Reading Companion Robot. In *Society for Affective Science Conference (SAS 2021)*.

Cagiltay, B., Ho, H. R., Michaelis, J. E., & Mutlu, B. (2020, June). Investigating family perceptions and design preferences for an in-home robot. In *Proceedings of the interaction design and children conference* (pp. 229-242). ACM.

Cagiltay, B. (2020). An investigation of interactions with conversational violations: Insights from visual perception and Gricean Maxim violations *(Master's thesis, Middle East Technical University)*

Research Experience

Graduate Research Assistant – *People and Robots Laboratory* *Madison, WI*

Advisor: Dr. Bilge Mutlu *Jun. 2019 – Ongoing*

- *Designing Learning Companion Robots for Children*
  Conducting qualitative and quantitative research in human-robot interaction and designing educational robots for children.
  Laboratory Website: peopleandrobots.wisc.edu

Meta (Formerly Facebook) – *Privacy Org* *Menlo Park, CA*

Qualitative UX Researcher Intern *May. 2022 – Sep. 2022*

- Project: Privacy Education for Teens, Privacy Regulatory Readiness, UX Research Team

University of Eastern Finland – *Dept. of Special Education* *Joensuu, Finland*

Advisor: Dr. Eija Karna *Sep. 2019 – Sep. 2022*

- *PEICAS - Peer Interactions involving Children with Autism Spectrum disorder in inclusive classrooms*
  Collaborated on an interdisciplinary eye-tracking study to understand social participation patterns of children with autism.
  Project Website: peicas.fi

Middle East Technical University – *Dept. of Cognitive Science* *Ankara, Turkey*

Advisor: Dr. Cengiz Acarturk *Feb. 2018 – Nov. 2020*

- *Visual Cognition Research using Eye-Tracking Technologies*
  Conducted research in visual cognition and human-computer interaction using eye-tracking technologies.
  Proficiency in Tobii and SMI eye-tracking devices and software.

Nielsen Data Analytics *Istanbul, Turkey*

Freelance Researcher *2019*

- *Neuro-Marketing Research*
  Collected and analyzed data for a multi-modal neuro-marketing study using eye tracking and fNIRS.

University of Alabama – Dept. of Educational Neuroscience and Computer Sciences *Tuscaloosa, AL*

Advisors: Dr. Firat Soylu and Dr. Jeff Gray *Jul. 2017 – Sep. 2017*

- **Embodied Learning Design and Educational Neuroscience Lab** *Advisor: Dr. Fırat Soylu*
  Supported ongoing research in numerical cognition, number gestures, and finger counting in mathematical development, using neuroimaging techniques, i.e. EEG.
  Laboratory Website: elden.ua.edu
- **Computer Science Department** *Advisor: Dr. Jeff Gray*
  Mentored in a summer programming class for high-school students.

Mentoring Experience

2021–2022 **Christine Lee**, PhD Student, Computer Sciences, UW-Madison
2021–2023 **Batuhan Bayraktar**, Bachelors Honors Thesis, Computer Sciences, UW-Madison
2022 **Jingyu Chen, Lisette Lurker**, NSF REU, Computer Sciences, UW-Madison

Awards and Recognition

2023 **CHI 2023 Doctoral Consortium Award**, CHI Conference of Human Factors in Computing *$ 1,800*
Special Recognition for Outstanding Reviews, Four (4) in ACM CHI, One (1) in ACM DIS

Invited Talks

Jan 11, 2024. *Robots and Routines: Exploring the Future of Social Robots in Family Life*. Invited talk: Talking Robotics Webinar. youtu.be/m0yFQOXCDMY

Nov 17, 2023. *Robots and Routines: Exploring the Future of Social Robots in Family Life*. Invited talk: CS Colloquium - Rising Stars in HCI, Iowa City, Iowa. cs.uiowa.edu/event/130806/0

Professional Development

Workshop, *Chair*, CHI 2024, "Methods for Family-Centered Design" Website: bit.ly/fcd-chi2024

Workshop, *Chair*, IDC 2023, "From Child-Centered to Family-Centered Interaction Design" Website: bit.ly/idc23fcid

Special Research Topic, *Coordinator*, Frontiers in Robotics & AI 2023, Title: "From Child-Centered to Family-Centered Design for New Technology"

Doctoral Consortium, *Attendee*, CHI 2023, Acceptance rate 20/115 submissions.

Morgridge Entrepreneurial Bootcamp, *Attendee*, June 2023, University of Wisconsin-Madison

Workshop, *Demonstrator*, Cognitive Developmental Society 2022. "A Reading Companion Robot for Children"

Service and Outreach

2023, Oct **First Annual Midwest HRI Meetup**, Student Co-Organizer, University of Wisconsin-Madison, University of Chicago (Host), University of Illinois at Chicago *Chicago, IL*
2023, Oct **ACM CSCW 2023**, Student Volunteer *Minneapolis*
2023, May **People and Robots Lab**, Hiring Manager, Editor and Illustrator Positions *Madison, WI*
2023, Jul **Grandparents University**, Teaching Assistant *Madison, WI*
2023, Spr. **Monona Grove Liberal Arts Charter School**, LEGO Fun Camp Mentor *Madison, WI*
2020, Fall **4H Wisconsin**, Junkdrawer Robotics Mentor *Oneida, WI*
2017–Cur. **First Lego League Volunteer**, Referee and Robot Design Judge *Turkey & USA*
May 2019 **World Robot Olympiad**, Referee *Turkey*
2011 **LEGO Robot Education Mentor**, Mentored in several STEM summer camps to teach underprivileged middle school students robotics and science. *Turkey*

Peer Review

– ACM/SIG Conferences: CHI, HRI, DIS, IDC, HAI
– Journals: International Journal of Social Robotics, International Journal of Child Computer Interaction, Interaction Studies Journal, Frontiers in Robotics and AI

Grants Contributed to

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