

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

PHD COMPUTER SCIENCES, MINOR: HUMAN DEVELOPMENT AND FAMILY STUDIES

- Advisor: Dr. Bilge Mutlu

Madison, Wisconsin

Fall 2020 – present

Middle East Technical University

MS COGNITIVE SCIENCE

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

Ankara, Turkey

2018 – 2020

Bilkent University

BS COMPUTER SCIENCE

Ankara, Turkey

2014 – 2018

Publications

* equal contribution; + mentored graduate student

PEER REVIEWED CONFERENCE PROCEEDINGS

Cagiltay, B., Mutlu, B., (2024). “Toward Family-Robot Interactions: A Family-Centered Framework in HRI” In ACM/IEEE *Human-Robot Interaction (HRI 24)*. 24.7% acceptance rate.

Cagiltay, B., Mutlu, B., & Michaelis, J. E. (2023). “My Unconditional Homework Buddy:” Exploring Children’s Preferences for a Homework Companion Robot. In ACM *Interaction Design and Children (IDC 23)* 29% acceptance rate.

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 ACM/IEEE *Human-Robot Interaction (HRI 23)*. 25.2% acceptance rate.

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 ACM *Interaction Design and Children (IDC 22)* 35% acceptance rate.

Lee, C.+ , **Cagiltay, B.**, & Mutlu, B. (2022, May) The Unboxing Experience: Exploration and Design of Initial Interactions Between Children and Social Robots. In ACM *Human Factors in Computing Systems (CHI 22)*. **Best Paper Honorable Mention Award** 24.6% acceptance rate.

Tang, B., Chandrasekaran, V., **Cagiltay, B.**, Sullivan, D., Fawaz, K., Mutlu, B. (HRI 2022) Confidant: A Privacy Controller for Social Robots. In ACM/IEEE *Human-Robot Interaction (HRI 22)*. 24.36% acceptance rate.

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., Kilpiä, A., Kamarainen, A., **Cagiltay, B.**, Kärnä, 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*. 23.3% acceptance rate.

- Cagiltay, B.***, White, N. T.*, Michaelis, J. E., & Mutlu, B. (2021, June). Designing Emotionally Expressive Social Commentary to Facilitate Child-Robot Interaction. In *ACM Interaction Design and Children (IDC 21)* 36% acceptance rate.
- 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 *ACM Interaction Design and Children (IDC 21)*. 36% acceptance rate.
- Cagiltay, B.**, Ho, H. R., Michaelis, J. E., & Mutlu, B. (2020, June). Investigating family perceptions and design preferences for an in-home robot. In *ACM Interaction Design and Children (IDC 20)* 32% acceptance rate.

PEER REVIEWED SHORT PAPERS

- Cagiltay, B.**, & Mutlu, B. (2024, March). Supporting Long-Term HRI through Shared Family Routines. In *ACM/IEEE Human-Robot Interaction (HRI 24)* **Pioneers Workshop**
- Cagiltay, B.**, Mutlu, B., & Kerr, M. (2023). Family Theories in Child-Robot Interactions: Understanding Families as a Whole for Child-Robot Interaction Design. In *ACM Interaction Design and Children (IDC 23)* **Short Paper** 29% acceptance rate.
- Cagiltay, B.**, Ibtasar, R., Michaelis, J. E., Sebo, S., & Mutlu, B. (2023, June). From Child-Centered to Family-Centered Interaction Design. In *ACM Interaction Design and Children (IDC 23)* **Chaired Workshop**
- Cagiltay, B.** (2023, April). Designing for In-Home Long-Term Family-Robot Interactions: Family Preferences, Connection-Making, and Privacy. In *Proceedings of the CHI 2023 ACM Conference on Human Factors in Computing Systems*. **Doctoral Consortium** 26% acceptance rate.
- Praveena, P.*, **Cagiltay, B.***, Gleicher, M., & Mutlu, B. (2023, April). Exploring the Use of Collaborative Robots in Cinematography. In *Extended Abstracts of the 2023 ACM CHI Conference on Human Factors in Computing Systems*. **Poster**
- Lee, C., **Cagiltay, B.**, Sullivan, D., & Mutlu, B. (2023, March). Demonstrating the Potential of Interactive Product Packaging for Enriching Human-Robot Interaction. In *ACM/IEEE Human-Robot Interaction (HRI 23)*. **Demo**
- Cagiltay, B.**, Michaelis, J., Sebo, S., and Mutlu, B. 2022. Exploring Children's Preferences for Taking Care of a Social Robot. In *ACM Interaction Design and Children (IDC 22)* **Best Short Paper Award** 35% acceptance rate.
- 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)*. **Extended Abstract**

PEER REVIEWED JOURNALS

- Cagiltay, B.**, Senft, E., and Mutlu, B. (2024) What Can Robots Do For You?. *Front. Young Minds*. doi:10.3389/frym.2024.1267614

MASTERS THESIS

- 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

ADVISOR: DR. CENGİZ ACARTURK

- **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.

Ankara, Turkey

Feb. 2018 – Nov. 2020

Nielsen Data Analytics

FREELANCE RESEARCHER

- **Neuro-Marketing Research**

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

Istanbul, Turkey

2019

University of Alabama – Dept. of Educational Neuroscience and Computer Sciences

ADVISORS: DR. FIRAT SOYLU AND DR. JEFF GRAY

- **Embodied Learning Design and Educational Neuroscience Lab**

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**

Mentored in a summer programming class for high-school students.

Tuscaloosa, AL

Jul. 2017 – Sep. 2017

Advisor: Dr. Firat Soylu

Advisor: Dr. Jeff Gray

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

2024 **HRI 2024 Pioneers Workshop Travel Award**, HRI Conference of Human Robot Interaction \$ 1,200

2023 **CHI 2023 Doctoral Consortium Award**, CHI Conference of Human Factors in Computing \$ 1,800

2020-2024 **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/idc23fcd

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

First Annual Midwest HRI Meetup, Student Co-Organizer, 2023, University of Wisconsin-Madison, University of Chicago (Host), University of Illinois at Chicago

Grandparents University, Teaching Assistant, July 2023, University of Wisconsin-Madison

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	ACM CSCW 2023 , Student Volunteer	<i>Minneapolis</i>
2023, May	People and Robots Lab , Hiring Manager, Editor and Illustrator Positions	<i>Madison, WI</i>
2023, Spr.	Monona Grove Liberal Arts Charter School , LEGO Fun Camp Mentor	<i>Madison, WI</i>
2020, Fall	4H Wisconsin , Junkdrawer Robotics Mentor	<i>Oneida, WI</i>
2017–Cur.	First Lego League Volunteer , Referee and Robot Design Judge	<i>Turkey & USA</i>
May 2019	World Robot Olympiad , Referee	<i>Turkey</i>
2011	LEGO Robot Education Mentor , Mentored in several STEM summer camps to teach underprivileged middle school students robotics and science.	<i>Turkey</i>

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

NSF Award # 1906854, 2247381, 2202802