# Bengisu Cagiltay

PhD Candidate · Computer Sciences

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## Research Interests

I *investigate design needs* of users and *develop design requirements* for social companion robots, situated in the context of children, families, and everyday life. 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 inter-disciplinary lens, in the intersection of computer science, cognitive science, social robotics, design, and human ecology.

## Education

**University of Wisconsin-Madison** — *Madison, Wisconsin*

PhD Computer Sciences, Minor: Human Development and Family Studies — *Fall 2020 – May 2025 (Expected)*

- 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,*

### Peer Reviewed Conference Proceedings

Xu, M. F., **Cagiltay, B.**, Michaelis, J., Sebo, S., & Mutlu, B. (2024). Robots in Family Routines: Development of and Initial Insights from the Family-Robot Routines Inventory. IEEE International Conference on Robot and Human Interactive Communication (RO-MAN 24)

Koike, A.*, **Cagiltay, B.*** & Mutlu, B. (2024). Tangible Scenography as a Holistic Design Method for Human-Robot Interaction. In *Designing Interactive Systems Conference (DIS 24)*. 25% acceptance rate.

**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., 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. 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 and Workshops

Cho, J., Song, I., Agha, Z., **Cagiltay, B.**, Calambur, V., Rheu, M. M., & Huh-Yoo, J. (2025). Mobile Technology and Teens: Understanding the Changing Needs of Sociocultural and Technical Landscape. **Workshop**

**Cagiltay, B.,** Ho, H. R., Sun, K., Su, Z., Wu, Y., Richards, O.K., Jin, Q., Yu, J., Fails, J.A., Yip, J. & Forlizzi, J. (2024, May). Methods for Family-Centered Design: Bridging the Gap Between Research and Practice. In *ACM CHI Conference on Human Factors in Computing Systems (CHI 24)* **Chaired Workshop**

**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**

Praveena, P.*, **Cagiltay, B.***, Gleicher, M., & Mutlu, B. (2023, April). Exploring the Use of Collaborative Robots in Cinematography. In *ACM CHI Conference on Human Factors in Computing Systems (CHI 23)*. **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 Journal Articles

Zhang, S., **Cagiltay, B.,**[†] Li, J., Kirkorian, H., Mutlu, B., and Fawaz, K. (Accepted, In Print, 2025) A Qualitative Exploration of Families' Uses and Gratifications with ChatGPT *Family Relations*.

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

**Cagiltay, B.**, Lee, C., Ernst, J., & Mutlu, B. (In Preperation) An Ethnography Study of Urban Delivery Robots on University Campus

## 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*** *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 high-school students in a summer programming class.

## Mentoring Experience

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| 2024-Curr | **Michael Xu**, 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

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| 2024 | **HRI 2024 Pioneers Workshop Travel Award**, HRI Conference of Human Robot Interaction | *$ 1,200* |
| 2024 | **CRA Grad Cohort for Women Workshop Travel Award**, Computing Research Association | |
| 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

July 11, 2024. *Chasing Opportunities: My journey to Human-Robot Interaction Research*. Invited talk: University of Michigan-Flint, NSF REU Seminar.

July 3, 2024. *Designing and Studying Social Robots For Families: Challenges and Opportunities*. Invited talk: MIRROR Lab Summer Speaker Series.

April 16, 2024. *Chasing Opportunities: My PhD Journey (Title translated from Turkish)*. Invited talk: METU Cognitive Science Society. https://youtu.be/m55ETZEXlKI

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"

**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

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| 2023, Oct | **ACM CSCW 2023**, Student Volunteer | *Minneapolis* |
| 2023, May | **People and Robots Lab**, Hiring Manager, Editor and Illustrator Positions | *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