

# Bengisu Cagiltay

PHD STUDENT · COMPUTER SCIENCES

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## Research Interests

Interdisciplinary research in Human-Computer Interaction(HCI), Human-Robot Interaction (HRI), Child-Robot Interaction. I am a qualitative researcher focusing on designing social companion robots *for children and families*.

## Education

### University of Wisconsin-Madison

PHD COMPUTER SCIENCES

- 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

## Professional Experience

- 2020–Cur. **Graduate Research Assistant**, Computer Sciences, University of Wisconsin-Madison
- 2022 **Qualitative UX Research Intern**, Meta (Formerly Facebook) Privacy Org
- 2019–2020 **Graduate Research Intern**, Dept. of Computer Sciences, University of Wisconsin-Madison
- 2018–2020 **Graduate Research Assistant**, Dept. of Cognitive Sciences, Middle East Technical University
- 2019 **Freelance Researcher**, Nielsen Data Analytics, Istanbul, Turkey
- Aug. 2016 **Software Engineering Intern**, Cybersoft Informatics Technologies Ltd., Ankara, Turkey

## Publications

\* equal contribution; + mentored graduate student

### PUBLISHED

- Cagiltay, B.**, Mutlu, B., & Kerr, M. (2023, In Press). Family Theories in Child-Robot Interactions: Understanding Families as a Whole for Child-Robot Interaction Design. *In Interaction Design and Children (IDC 23)*
- Cagiltay, B.**, Mutlu, B., & Michaelis, J. E. (2023, In Press). “My Unconditional Homework Buddy:” Exploring Children’s Preferences for a Homework Companion Robot. *In Interaction Design and Children (IDC 23)*
- 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*
- 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*
- 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. P.+, **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)*
- Lee, C.<sup>+</sup>, **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., 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)* (pp. 279-283). IEEE Computer Society.
- 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).

## IN PREP

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

## Awards, Fellowships, & Grants

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|-------------|--|----------|
| 2023        | <b>CHI 2023 Doctoral Consortium Award</b> , CHI Conference of Human Factors in Computing Systems (CHI) Papers and Pictorials | \$ 1,800 |
| 2022        | <b>Special Recognition for Outstanding Reviews</b> , Designing Interactive Systems (DIS) Papers and Pictorials               |          |
| Spring 2018 | <b>Computer Science High Honors List</b> , Bilkent University  |          |
| Spring 2014 | <b>Computer Science Honors List</b> , Bilkent University   |          |

## Mentoring

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| 2022–Cur. | <b>Amy Koike</b> , PhD Student, Computer Sciences, University of Wisconsin-Madison           |
| 2021–2022 | <b>Christine Lee</b> , PhD Student, Computer Sciences, University of Wisconsin-Madison       |
| 2021–2023 | <b>Batuhan Bayraktar</b> , Undergraduate, Computer Sciences, University of Wisconsin-Madison |
| 2023      | <b>Ellie Smith</b> , Undergraduate, Computer Sciences, University of Wisconsin-Madison       |
| 2022–2023 | <b>Jingyu Chen</b> , NSF REU, Computer Sciences, University of Wisconsin-Madison             |
| 2022      | <b>Lisette Lurker</b> , NSF REU, Computer Sciences, University of Wisconsin-Madison          |

## 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 the field of human-robot interaction and designing educational robots for children.

Laboratory Website: [peopleandrobots.wisc.edu](http://peopleandrobots.wisc.edu)

### Meta (Formerly Facebook) – Privacy Org

Menlo Park, CA

QUALITATIVE UX RESEARCHER

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](http://peicas.fi)

### Middle East Technical University – Dept. of Cognitive Science

Ankara, Turkey

ADVISOR: DR. CENGİZ ACARTURK

Feb. 2018 – Nov. 2020

- **Visual Cognition Research using Eye-Tracking Technologies**

Conducted research in the domain of visual cognition and human-computer interactions 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**

Conducted data collection and analysis of a multi-modal neuro-marketing study using eye tracking (Tobii Pro Glasses 2) and functional near-infrared spectroscopy, i.e. 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. Firat 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](http://elden.ua.edu)

- **Computer Science Department**

Advisor: Dr. Jeff Gray

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

## Outreach & Professional Development

### SERVICE AND OUTREACH

|            |   |              |
|------------|---|--------------|
| 2023       | <b>Frontiers Journal, Special Research Topic</b> , Topic Coordinator. Title: “From Child-Centered to Family-Centered Design for New Technology”   | Madison, WI  |
| 2023, Spr. | <b>People and Robots Lab</b> , Hiring Manager, Editor and Illustrator Positions   | Madison, WI  |
| 2023, Sum. | <b>Grandparents University</b> , Teaching Assistant   | Madison, WI  |
| 2023, Spr. | <b>Monona Grove Liberal Arts Charter School</b> , LEGO Fun Camp Mentor  | Madison, WI  |
| 2020, Fall | <b>4H Wisconsin</b> , Junkdrawer Robotics Mentor  | Oneida, WI   |
| 2017–Cur.  | <b>First Lego League Volunteer</b> , Referee and Robot Design Judge   | Turkey & USA |
| May 2019   | <b>World Robot Olympiad</b> , Referee   | Turkey       |
|            | <b>LEGO Robot Education Mentor</b> , Mentored in STEM summer camps to teach underprivileged middle school students robotics and science. (1) Turkish Education  |              |
| 2011       | Volunteers Foundation (TEGV) LEGO Robot Camp Mentor, <i>Ankara, Turkey</i> (2) Turkish National Science Foundation (TUBITAK) Science Camp Mentor, <i>Hatay, Turkey</i> (3) Atılım University Fun Science Camp Mentor, <i>Ankara, Turkey</i> | Turkey       |

## DEVELOPMENT

**Chaired Workshop**, IDC 2023 – “From Child-Centered to Family-Centered Interaction Design” Website: [bit.ly/idc23fcid](https://bit.ly/idc23fcid)

**Morgridge Entrepreneurship Bootcamp**, Accepted to Attend June 2023, University of Wisconsin-Madison

**Doctoral Consortium Attendee**, CHI 2023 – Attended the CHI Doctoral Consortium among 20 fellow doctoral students accepted out of 115 submissions.

## PEER REVIEW

ACM/SIG Conferences CHI, HRI, DIS, IDC

International Journal of Social Robotics

Interaction Studies

Frontiers in Robotics and AI

## GRANTS CONTRIBUTED TO

NSF Award # 1906854, 1651129, 2202803

## RESEARCH METHODS AND SKILLS

**Expertise in:** Lab studies, field studies, remote studies, semi-structured interviews, participatory design workshops, ethnography, surveys, usability testing, qualitative coding, thematic analysis, interaction logs analysis, eye-tracking studies, crowdsourcing (e.g., MTurk).

**Tools:** Qualtrics (Survey Design), NVivo (Qualitative Analysis), Tobii Pro Lab (Eye Tracking).

## COMPETITIONS AND AWARDS

**First place award** in Computer Science projects 2018

“University Students Project Competition in Priority Areas”

*Turkish National Science Foundation (Program: 2242)*

Project Title: “MEDIPO: Medical Image Processing Online”

**Second place award** in Computer Science projects 2012

“National High School Research Projects Contest”

*Turkish National Science Foundation (Program: 2204)*

Project Title: “Teaching Difficult History Lessons via Virtual Reality”

**Third place award** for designing a concept solution for sustainability problem for food waste 2012

*International Concept Project Competition (ICPC)*

Middle East Technical University, Northern Cyprus

**First place award** for “Best Robot Performance” 2010

*First Lego League robotics tournament*

Ankara, Turkey

## PROFESSIONAL MEMBERSHIPS

ACM