

# FETHİYE IRMAK DOĞAN

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OBJECTIVE	Deploying autonomous robots in human environments to facilitate people's lives
AREAS OF INTEREST	Human-Robot Interaction, Artificial Intelligence, Machine Learning, Deep Learning
EDUCATION	<p><i>Ph.D. in Computer Science, <a href="#">KTH Royal Institute of Technology</a></i>    01.2018-03.2023 – Thesis on <i>Robots That Understand Natural Language Instructions and Resolve Ambiguities</i></p> <p><i>M.Sc. in Computer Engineering, <a href="#">Middle East Technical University</a></i>    09.2015-01.2018 – Thesis on <i>Hierarchical Incremental Context Modeling on Robots</i> – Graduated with High Honor degree - CGPA: 3.93/4.00</p> <p><i>B.Sc. in Computer Engineering, <a href="#">Middle East Technical University</a></i>    09.2010-06.2015 – Graduated with Honor degree - CGPA: 3.40/4.00</p>
EMPLOYMENT, EXPERIENCE AND PROJECTS	<p>Postdoctoral researcher at <b>University of Cambridge, UK</b>    04.2024-04.2025 – Upcoming employment on human behavior analysis for socially appropriate and adaptive human-robot interaction with Prof. <a href="#">Hatice Gunes</a></p> <p>Postdoctoral researcher at <b>KTH Royal Institute of Technology</b>    03.2023-04.2024 – Continual learning for robots in human environments leveraging explainability to help people with their daily tasks, working with Prof. <a href="#">Iolanda Leite</a></p> <p>Doctoral researcher at <b>KTH Royal Institute of Technology</b>    01.2018-03.2023 – Follow-up clarification techniques (semantic or visual) for robots to resolve ambiguities in user instructions, supervised by Prof. <a href="#">Iolanda Leite</a></p> <p>Visiting scholar at <b>Georgia Institute of Technology, USA</b>    11.2021-04.2022 – Developing a semantically-driven disambiguation method to handle ambiguous user requests with clarifying questions, supervised by Prof. <a href="#">Sonia Chernova</a></p> <p>Participating in <b>Oxford Machine Learning Summer School</b>    07.2021-08.2021 – Selected to participate in the highly selective summer school (~ 15% acceptance rate) for best-in-class training on machine learning and deep learning</p> <p>Participating in <b>Amazon Alexa Prize, KTH Fantom Team</b>    02.2018-08.2018 – Selected as one of 8 teams among the applicants from leading 195 universities to create a social bot, supervised by Prof. <a href="#">Gabriel Skantze</a></p> <p>Researcher at <b>Middle East Technical University, Turkey</b>    09.2015-01.2018 – Incremental context modeling for robots to make them capable of adapting to challenging real-world environments, supervised by Prof. <a href="#">Sinan Kalkan</a></p> <p>Senior Design Project at <b>Middle East Technical University</b>    09.2014-06.2015 – 3D animation of fMRI data to visualize the cognitive processes in the brain, supervised by Prof. <a href="#">Fatos Tunay Yarman Vural</a></p> <p>Research intern at <b>University of Southern Denmark</b>    06.2014-09.2014 – A plugin providing a graphical user interface for automated calibration of UR robot arms, supervised by Prof. <a href="#">Norbert Krueger</a></p> <p>Research intern at <b>Middle East Technical University</b>    06.2013-09.2013 – Visualizing the 2D and 3D representations of the iCub robot's vision, supervised by Prof. <a href="#">Sinan Kalkan</a></p> <p>Part time software developer at <b>Özgür Yazılım Company</b>    02.2013-06.2013 – Taking a role in the development of the Tekir Accounting Program</p>
TEACHING	<p>Lecturer at <b>KTH Royal Institute of Technology</b>    10.2023-present – Master-level social robotics course</p> <p>Teaching Assistant at <b>KTH Royal Institute of Technology</b>    01.2019-03.2023 – Master-level machine learning course</p>

- Teaching Assistant at Middle East Technical University 02.2014-06.2014
- C programming language course
- MENTORING** KTH Royal Institute of Technology 01.2019-present
- *PhD Students*: Ermanno Bartoli, and Anna Deichler
  - *Master Students*: Shipra Jain, Jiaming Huang, Amrita Panesar, Georgios Hadjiantonis, Aiman Shenawa, Francesca Cipelli, Beatriz Nogueira and Alexander Leszczynski
  - *Research Engineers*: Shreya Kohli, Rasmus Rudling, and Alex Sleat
  - *High School Intern*: Erik Eriksson
- Georgia Institute of Technology 11.2021-04.2022
- *Master Student*: Aswin Gururaj Prakash
- SCIENTIFIC CONTRIBUTIONS** *Journal Articles*
- J1 F. I. Doğan*, W. Liu, I. Leite, and S. Chernova, ‘Semantically-Driven Disambiguation for Human-Robot Interaction,’ *ACM Transactions on Human-Robot Interaction (THRI)*. (in preparation)
- J2 E. Bartoli, F. I. Doğan*, and I. Leite ‘Streaming Network for Continual Learning of Object Relocations under Household Context Drifts’, *Robotics and Automation Letters (RA-L)*. (in preparation)
- J3 F. I. Doğan*, G. I. Melsión, and I. Leite, ‘Leveraging Explainability for Understanding Object Descriptions in Ambiguous 3D Environments,’ *Frontiers in Robotics and AI*, 2023.
- J4 F. I. Doğan*, S. Gillet, E. J. Carter, and I. Leite, ‘The Impact of Adding Perspective-Taking to Spatial Referencing during Human-Robot Interaction,’ *Robotics and Autonomous Systems (RAS)*, 2020.
- Refereed Conference Publications*
- C1 G. Hadjiantonis*, S. Gillet, M. Vázquez, I. Leite, and **F. I. Doğan**, ‘Let’s move on: Topic Change in Robot-Facilitated Group Discussions’, *RO-MAN*, 2024. (under review)
- C2 F. I. Doğan*, I. Torre, and I. Leite, ‘Asking Follow-Up Clarifications to Resolve Ambiguities in Human-Robot Conversation,’ *HRI*, 2022.
- C3 M. Iovino*, **F. I. Doğan**, I. Leite, and C. Smith, ‘Interactive Disambiguation for Behavior Tree Execution,’ *Humanoids*, 2022.
- C4 A Panesar*, **F. I. Doğan**, and I. Leite, ‘Improving Visual Question Answering by Leveraging Depth and Adapting Explainability’ *RO-MAN*, 2022.
- C5 F. I. Doğan*, S. Kalkan, and I. Leite, ‘Learning to Generate Unambiguous Spatial Referring Expressions for Real-World Environments,’ *IROS*, 2019.
- C6 P. Jonell*, P. Fallgren, **F. I. Doğan**, J. Lopes, U. Wennberg, and G. Skantze, ‘Crowdsourcing a self-evolving dialog graph,’ *International Conference on Conversational User Interfaces (CUI)*, 2019.
- C7 F. I. Doğan\**, İ. Bozcan\*, M. Celik, and S. Kalkan, ‘Cinet: A learning based approach to incremental context modeling in robots,’ *IROS*, 2018.
- C8 F. I. Doğan*, H. Çelikkanat, and S. Kalkan, ‘A Deep Incremental Boltzmann Machine for Modeling Context in Robots,’ *ICRA*, 2018.
- C9 F. I. Doğan*, H. Çelikkanat, and S. Kalkan, ‘Robotlarda Bağlamanın Derin Artırımlı Boltzmann Makineleri ile Modellenmesi,’ *Turkey Robotics Conference (ToRK)*, 2018. (written in Turkish)
- C10 F. I. Doğan*, S. Kalkan, ‘Bağlamanın Hiyerarşik Doğası,’ *Turkey Robotics Conference (ToRK)*, 2016. (written in Turkish)

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\* Equal Contribution

- C11 O. Yıldız, **F. I. Doğan**, İ. Öztekin, E. Mızrak, and F. T. Y. Vural, ‘A robust normalization method for fMRI data for brain decoding,’ *Signal Processing and Communication Application Conference (SIU)*, 2016.

#### Workshop Proposals

- P1 E. Yadollahi, M. Romeo, **F. I. Doğan**, W. Johal, M. D. Graaf, S. Levy-Tzedek and I. Leite, ‘Explainability for Human-Robot Collaboration,’ *HRI*, 2024.
- P2 M. Pattel\*, **F. I. Doğan\***, Z. Zeng, K. Baraka, and S. Chernova, ‘Semantic Scene Understanding for Human-Robot Interaction,’ *HRI*, 2023.
- P3 W. Johal, L. Phaijit, **F. I. Doğan**, A. Tabrez, and M. Graaf, ‘HRI for Explainable Robotics,’ *RO-MAN*, 2023.

#### Refereed Workshop Publications

- W1 E. Bartoli, **F. I. Doğan**, and I. Leite, ‘Contextualized Knowledge Graph Embeddings for Activity Prediction in Service Robotics,’ *Workshop on Semantic Scene Understanding for Human-Robot Interaction, HRI*, 2023.
- W2 **F. I. Doğan**, ‘Social Robots That Understand Natural Language Instructions and Resolve Ambiguities,’ *RSS Pioneers Workshop, RSS*, 2021.
- W3 I. Torre, **F. I. Doğan**, and D. Kontogiorgos, ‘Voice, Embodiment, and Autonomy as Identity Affordances,’ *Workshop on Robo-Identity: Exploring Artificial Identity and Multi-Embodiment, HRI*, 2021.
- W4 **F. I. Doğan**, and I. Leite, ‘Open Challenges on Generating Referring Expressions for Human-Robot Interaction,’ *Workshop on Natural Language Generation for Human-Robot Interaction, INLG*, 2020.
- W5 **F. I. Doğan**, H. Çelikkanat, I. Bozcan, and S. Kalkan, ‘Learning to Increment A Contextual Model,’ *Workshop on Continual Learning, NeurIPS*, 2018.

#### Technical Reports

- T1 P. Jonell, M. Bystedt, **F. I. Doğan**, P. Fallgren, J. Ivarsson, M. Slukova, U. Wennberg, J. Lopes, J. Boye, and G. Skantze, ‘Fantom: A crowdsourced social chatbot using an evolving dialog graph,’ *Proceedings of Alexa Prize*, 2018.
- T2 **F. I. Doğan**, and S. Kalkan, ‘Hierarchical Context Modeling Using Incremental Deep Boltzmann Machines,’ *Technical Report, Dept. of Computer Engineering, Middle East Technical University*, 2017.

#### TALKS, DEMOS AND POSTERS

##### Seminar Talks

- [Talking Robotics](#) (a series of seminars about Robotics and its interaction with other relevant fields, such as AI and HRI), 2021
- [Oxford Machine Learning Summer School](#), Unconference Track, 2021
- [The Robot Autonomy and Interactive Learning \(RAIL\)](#) Research Lab, School of Interactive Computing, Georgia Institute of Technology, 2021
- [Image Lab](#), Department of Computer Engineering, Middle East Technical University, 2021

##### System Demonstration

- Invited demo on SIGDIAL Conference 2019

##### Poster Presentations

- [AI-CARING Symposium](#) 2022
- [SpLU-RobNLP Workshop](#) at the Conference of the North American Chapter of the Association for Computational Linguistics (NAACL-HLT 2019)
- [SoRos Workshop](#) 2018 and 2019
- [Amazon Alexa Prize Summit](#) 2018
- Fellowship from the [Postdoc-NeT-AI in AI and Robotics](#) (2022) which brings together outstanding early-career researchers with leading German institutions
- [RSS Pioneer 2021](#), selected to participate in the Robotics: Science and Systems (RSS) Pioneers, which brings together the world’s top early-career researchers
- Student travel grant from [ICRA](#) 2018, [IROS](#) 2018, [NAACL-HLT](#) 2019

#### HONORS, AWARDS AND GRANTS

- Honourable mention award in CUI 2019
- High honor certificates from Middle East Technical University (Spring 2014-2015, Fall 2014-2015, Spring 2013-2014, Fall 2013-2014)
- Honor certificate from Middle East Technical University (Spring 2012-2013)

## SERVICES AND VOLUNTEERING

### *Organization Committee*

- Workshop on Explainability for Human-Robot Collaboration, International Conference on Human-Robot Interaction (HRI), 2024
- Workshop on Semantic Scene Understanding for Human-Robot Interaction, International Conference on Human-Robot Interaction (HRI), 2023
- Workshop on HRI for Explainable Robotics, International Conference on Robot & Human Interactive Communication (RO-MAN), 2023
- RSS Pioneers Workshop, Robotics: Science and Systems (RSS), 2022

### *Program Committee*

- International Conference on Multimodal Interaction (ICMI), 2024
- Affective Computing and Intelligent Interaction Conference (ACII), 2024
- Towards Autonomous Robotic Systems Conference (TAROS), 2021
- Workshop on Spatial Language Understanding and Grounded Communication for Robotics (SpLU-RoboNLP), 2021 and 2023

### *Journal Article Referee*

- Frontiers in Robotics and AI
- IEEE Robotics and Automation Letters (RA-L)
- Autonomous Robots (AURO)
- User Modeling and User-Adapted Interaction (UMUAI)

### *Conference Paper Referee*

- Robotics: Science and Systems (RSS)
- Conference on Robot Learning (CoRL)
- International Conference on Robotics and Automation (ICRA)
- ACM/IEEE Conference on Human-Robot Interaction (HRI)
- International Conference on Intelligent Robots and Systems (IROS)
- Signal Processing and Communication Application Conference (SIU)
- Turkey Robotics Conference (ToRK)

### *Student Volunteer*

- ACM/IEEE International Conference on Human-Robot Interaction (HRI), 2022
- International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2018

## SELECTED OUTREACH

### *Robotics demonstrations and presentations of current research*

- Swedish Foundation for Strategic Research (SSF), 2023
- KTH School of Electrical Engineering and Computer Science Lab Tours, 2023
- Atlanta Science Festival, Georgia Tech Science and Engineering Day, 2022
- Sveriges Television (SVT), 2020
- The Minister for Higher Education and Research (Matilda Ernkrans), 2019
- Robots Exhibition at the Swedish Tekniska Museum, 2019
- Giants event for female and non-binary high school students, 2018
- European Researchers' Night event for high school students, 2016

## EXTRA- CURRICULAR ACTIVITIES

- Theater (played in private theaters for 8 years and 5 plays)
- [Computer Engineers' Association](#) (a sub-unit of [Turkish Engineers' and Architects' Association](#)) board member, 2016-2018
- Student Delegate Committee member at Middle East Technical University, 2010-2011