FETHİYE IRMAK DOĞAN

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OBJECTIVE Deploying autonomous robots to understand, interact, and collaborate with people

INTERESTS Human-Robot Interaction, Artificial Intelligence, Machine Learning, Deep Learning

EDUCATION

Ph.D. in Computer Science, KTH Royal Institute of Technology 01.2018-03.2023
- Thesis on *Robots That Understand Natural Lang. Inst. and Resolve Ambiguities*

M.Sc. in Computer Engineering, Middle East Technical University 09.2015-01.2018
- Thesis on *Hierarchical Incremental Context Modeling on Robots*
- Graduated with High Honor degree - CGPA: 3.93/4.00

B.Sc. in Computer Engineering, Middle East Technical University 09.2010-06.2015
- Graduated with Honor degree - CGPA: 3.40/4.00

EMPLOYMENT, EXPERIENCE AND PROJECTS

Postdoctoral researcher at ***University of Cambridge****, UK* 04.2024-present
- Generating socially appropriate and adaptive robot behavior leveraging LLMs and explainability, working in the AFAR Lab with Prof. Hatice Gunes

Postdoctoral researcher at ***KTH Royal Institute of Technology*** 03.2023-04.2024
- Continual learning for robots in human environments to help people with their daily tasks, working with Prof. Iolanda Leite's research group

Doctoral researcher at KTH Royal Institute of Technology 01.2018-03.2023
- Follow-up clarification techniques (semantic or visual) for robots to resolve ambiguities in user instructions, supervised by Prof. Iolanda Leite

Visiting scholar at ***Georgia Institute of Technology****, USA* 11.2021-04.2022
- Developing a semantically-driven disambiguation method to handle ambiguous user requests with clarifying questions, supervised by Prof. Sonia Chernova

Participating in Oxford Machine Learning Summer School 07.2021-08.2021
- Selected to participate in the highly selective summer school ($\sim$ 15% acceptance rate) for best-in-class training on machine learning and deep learning

Participating in Amazon Alexa Prize, KTH Fantom Team 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. Gabriel Skantze

Researcher at ***Middle East Technical University****, Turkey* 09.2015-01.2018
- Incremental context modeling for robots to make them capable of adapting to challenging real-world environments, supervised by Prof. Sinan Kalkan

Senior Design Project at Middle East Technical University 09.2014-06.2015
- 3D animation of fMRI data to visualize the cognitive processes in the brain, supervised by Prof. Fatos Tunay Yarman Vural

Research intern at ***University of Southern Denmark*** 06.2014-09.2014
- A plugin providing a graphical user interface for automated calibration of UR robot arms, supervised by Prof. Norbert Krueger

Research intern at Middle East Technical University 06.2013-09.2013
- Visualizing the 2D and 3D representations of the iCub robot's vision, supervised by Prof. Sinan Kalkan

Part time software developer at Özgür Yazılım Company 02.2013-06.2013
- Taking a role in the development of the Tekir Accounting Program

TEACHING

Guest Lecturer in the Affective Computing Course, University of Cambridge 11.2024

Teaching Assistant at Interaction Design, University of Cambridge 04.2024-06.2024

Lecturer at Master-level social robotics course, KTH 10.2023-01.2024

Teaching Assistant at Master-level machine learning course, KTH 01.2019-03.2023

Teaching Assistant at C programming language course, METU 02.2014-06.2014

MENTORING

University of Cambridge 04.2024-present
- *Master Thesis Supervision*: Rafal Karpiński (Utrecht University)
- *BS student*: Lara Horne, Yuval Weiss
- *Google DeepMind Intern*: Yifei Shi (King's College London)
- *Pembroke College Intern*: Rahma Elsheikh (Princeton University)
- *Visiting Students*: Umut Ozyurt, Gizem Çınar, Jesher Joshua

KTH Royal Institute of Technology 01.2019-present
- *Master Thesis Supervision*: Amrita Panesar, Georgios Hadjiantonis, Aiman Shenawa, and Alexander Leszczynski
- *PhD Students*: Ermanno Bartoli, and Anna Deichler
- *MS Students*: Shipra Jain, Jiaming Huang, Francesca Cipelli, and Beatriz Nogueira
- *Research Engineers*: Shreya Kohli, Rasmus Rudling, and Alex Sleat
- *High School Intern*: Erik Eriksson

Georgia Institute of Technology 11.2021-04.2022
- *MS Student*: Aswin Gururaj Prakash

HONORS AND AWARDS
- Research Associate Fellowship at Darwin College, University of Cambridge, 2024
- Special Recognition for Outstanding Reviews, HRI 2024
- Fellowship from Postdoc-NeT-AI (2022) which brings together outstanding early-career researchers in the field of artificial intelligence and robotics
- RSS Pioneer 2021, selected to participate in the Robotics: Science and Systems (RSS) Pioneers, which brings together the world's top early-career researchers
- Honourable mention award in CUI 2019
- High honor certificates (Spring 2014-2015, Fall 2014-2015, Spring 2013-2014, Fall 2013-2014), and honor certificate (Spring 2012-2013) from Middle East Technical University

GRANTS AND FUNDS
- Contributor to the Seed Fund Grant (≈ 10.000 £), University of Cambridge, 2024
- Travel grant from Annual Conference of NAACL-HLT 2019
- Travel grant from International Conf. on Robotics and Automation (ICRA) 2018
- Travel grant International Conf. on Intelligent Robots and Systems (IROS) 2018

INVITED TALKS
- Google DeepMind Internship Program, University of Cambridge, 2024
- Talking Robotics, a series of seminars about Robotics and AI, 2021
- Oxford Machine Learning Summer School, Unconference Track, 2021
- RAIL Research Lab, Georgia Institute of Technology, 2021
- Image Lab, Middle East Technical University, 2021

SCIENTIFIC CONTRIBUTIONS

Journal Articles

J1 **F. I. Doğan**, W. Liu, I. Leite, and S. Chernova, 'Semantically-Driven Disambiguation for Human-Robot Interaction,' *RAS*. (in preparation)

J2 E. Bartoli, **F. I. Doğan**, and I. Leite 'Streaming Network for Continual Learning of Object Relocations under Household Context Drifts', *RA-L*. (in preparation)

J3 **F. I. Doğan**, G. I. Melsión, and I. Leite, 'Leveraging Explainability for Understanding Object Desc. 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,' *RAS*, 2020.

Refereed Conference Publications

C1 **F. I. Doğan**, U. Ozturk, G. Cinar, and H. Gunes, 'Generating Socially Appropriate Robot Actions Leveraging LLMs and User Explanations', ICRA, 2025. (under review)

C2 E. Yadollahi*, **F. I. Doğan***, Y. Zhang, B. Nogueira, T. Guerreiro, S. Levy-Tzedek, and I. Leite, ' Shaping Perceptions: How Expectations Influence Evaluations of Robot Behavior and Explanations?', HRI, 2025. (under review)

C3 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.

* Equal Contribution

C4 **F. I. Doğan**, I. Torre , and I. Leite, 'Asking Follow-Up Clarifications to Resolve Ambiguities in Human-Robot Conversation,' *HRI*, 2022.

C5 M. Iovino, **F. I. Doğan**, I. Leite, and C. Smith, 'Interactive Disambiguation for Behavior Tree Execution,' *Humanoids*, 2022.

C6 A Panesar, **F. I. Doğan**, and I. Leite, 'Improving Visual Question Answering by Leveraging Depth and Adapting Explainability' *RO-MAN*, 2022.

C7 **F. I. Doğan**, S. Kalkan, and I. Leite, 'Learning to Generate Unambiguous Spatial Referring Expressions for Real-World Environments,' *IROS*, 2019.

C8 P. Jonell, P. Fallgren, **F. I. Doğan**, J. Lopes, U. Wennberg, and G. Skantze, 'Crowdsourcing a self-evolving dialog graph,' *CUI*, 2019.

C9 **F. I. Doğan***, İ. Bozcan*, M. Celik, and S. Kalkan, 'Cinet: A learning based approach to incremental context modeling in robots,' *IROS*, 2018.

C10 **F. I. Doğan**, H. Çelikkanat, and S. Kalkan, 'A Deep Incremental Boltzmann Machine for Modeling Context in Robots,' *ICRA*, 2018.

C11 **F. I. Doğan**, H. Çelikkanat, and S. Kalkan, 'Robotlarda Bağlamın Derin Artırımlı Boltzmann Makineleri ile Modellenmesi,' *Turkey Robotics Conference (ToRK)*, 2018.

C12 **F. I. Doğan**, S. Kalkan, 'Bağlamın Hiyerarşik Doğası,' *Turkey Robotics Conference (ToRK*), 2016.

C13 O. Yıldız, **F. I. Doğan**, İ. Öztekin, E. Mızrak, and F. T. Y. Vural, 'A robust normalization method for fMRI data for brain decoding,' *SIU*, 2016.

Workshop Proposals

P1 E. Yadollahi, **F. I. Doğan**, M. Romeo, D. Kontogiorgos, P. Qian, and Y. Zhang, 'Explainability in Human-Robot Collaboration: Real-World Concerns,' *HRI*, 2025. (under review)

P2 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.

P3 M. Pattel*, **F. I. Doğan***, Z. Zeng, K. Baraka, and S. Chernova, 'Semantic Scene Understanding for Human-Robot Interaction,' *HRI*, 2023.

P4 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 SSU for HRI*, 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*, HRI 2021.

W4 **F. I. Doğan**, and I. Leite, 'Open Challenges on Generating Referring Expressions for Human-Robot Interaction,' *Workshop on NLG for HRI*, 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 Eng., METU*, 2017.

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* Equal Contribution

POSTERS AND DEMOS

- AI-CARING Symposium 2022
- Invited demo on SIGDIAL Conference 2019
- SpLU-RoboNLP Workshop at the NAACL-HLT Conference 2019
- SoRos Workshop 2018 and 2019
- Amazon Alexa Prize Summit 2018

SERVICES AND VOLUNTEERING

Organization Committee

- Workshop on Explainability for Human-Robot Collaboration, HRI 2024
- Workshop on Semantic Scene Understanding for Human-Robot Interaction, HRI 2023
- Workshop on HRI for Explainable Robotics, 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
- SpLU-RoboNLP Workshop, 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)
- International Conference on Human-Robot Interaction (HRI)
- International Conference on Intelligent Robots and Systems (IROS)
- International Conf. on Robot & Human Interactive Communication (RO-MAN)
- Signal Processing and Communication Application Conference (SIU)
- Turkey Robotics Conference (ToRK)

Student Volunteer

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

SELECTED OUTREACH

- 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 board member, 2016-2018
- Student Delegate Committee member at Middle East Technical University, 2010-2011