FETHİYE IRMAK DOĞAN

Postdoctoral Research Associate
University of Cambridge, UK
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OBJECTIVE Advancing autonomous robots to understand, interact, and collaborate with people

INTERESTS Human-Robot Interaction, Robot Learning, Explainability, 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*
- 61.0 ECTS credits in PhD-level courses (≈ one academic year; graded pass/fail basis)

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 AND RESEARCH EXPERIENCE

Postdoctoral researcher at ***University of Cambridge****, UK* 04.2024-present
- Generating socially appropriate and adaptive robot actions 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 (employed for 80% research, 20% teaching) 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 (∼ 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 Lecture in the Affective AI 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

SUPERVISION

University of Cambridge 04.2024-present

- *Mentoring PhDs*: Wang Tang (Sichuan University, Publication *J4*)
- *Master Thesis Supervision*: Rafal Karpiński (Utrecht University)
- *BS Student Projects (Cambridge)*: Lara Horne, Yuval Weiss, Yasaswi Malladi
- *Google DeepMind Intern*: Yifei Shi (King's College London)
- *Senior Thesis Supervision*: Rahma Elsheikh: *'Approaching Equalized Odds by Actively Forgetting in Deep-Learning Models'* (Princeton University)
- *Visiting MS Student*: Jesher Joshua (Vellore Institute of Technology)
- *Visiting BS Students*: Umut Ozyurt (METU, Publication *C13*), Gizem Çınar (Bilkent University, Publication *C13*), Sujith Sai (Rourkela National Institute of Technology), Zeynep Altundal (Sabanci University)

KTH Royal Institute of Technology 01.2019-02.2025

- *Mentoring PhDs*: Ermanno Bartoli (Publication *C14* and *W6*), and Anna Deichler
- *Master Thesis Supervision*:
  (i) Alexander Leszczynski: '*LLMs and BTs for User Instructions*' (Publication *C15*),
  (ii) Aiman Shenawa: '*Task specific evaluation of Large Language Models*',
  (iii) Georgios Hadji.: '*Topic change in robot-mod. group diss.*' (Publication *C12*),
  (iv) Amrita Panesar: '*VQA with Depth and Adap. Expl.*' (Publication *C9*)
- *MS Project Supervision*: Shipra Jain, Jiaming Huang
- *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

- **Seal of Excellence Award** granted by the European Commission after a rigorous international expert project proposal evaluation (2025)
- Research Associate at **Darwin College**, University of Cambridge, awarded through a competitive process for research excellence and academic merit (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 from Int. Conf. on Conversational User Interfaces 2019
- High honour certificates (Spring 2014-2015, Fall 2014-2015, Spring 2013-2014, Fall 2013-2014), and honour certificate (Spring 2012-2013) from METU

GRANTS AND FUNDS

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

INVITED TALKS

- Keynote speaker on Collective Generative Futures, CHIA Early Career Conf., 2025
- Science seminar, Darwin College, University of Cambridge, 2025
- Google DeepMind Research Ready 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

J5 E. Yadollahi*, **F. I. Doğan***, Y. Zhang, B. Nogueira, T. Guerreiro, S. Levy-Tzedek, and I. Leite, 'Expectations, Explanations, and Embodiment: Attempts at Robot Failure Recovery'. (under review for *Int. Journal of Human-Computer Studies*)

J4 W. Tang, **F. I. Dogan**, L. Qing, H. Gunes, 'AsyReC: A Multimodal Graph-based Framework for Spatio-Temporal Asymmetric Dyadic Relationship Classification'. (under review for *IEEE Transactions on Circuits and Systems for Video Technology*)

J3 N. Churamani, S. Checker, **F. I. Doğan**, H. L. Chiang, and H. Gunes 'Feature Aggregation with Latent Generative Replay for Federated Continual Learning of Socially Appr. Robot Behaviours'. (in prep. for *IEEE Transactions on Robotics*)

J2 **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.

J1 **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

C17 **F. I. Doğan**, M. Patel, W. Liu, I. Leite, and S. Chernova, 'A Model-Agnostic Appr. for Semantically-Driven Disamb. in HRI'. (under review for *IEEE RO-MAN*)

C16 N. I. Abbasi*, **F. I. Dogan***, G. Laban*, J. Anderson, T. Ford, P. B. Jones, H. Gunes, 'Robot-Led VLM Wellbeing Assess. of Children'. (under review for *IEEE RO-MAN*)

C15 A. Leszczynski, S.Gillet, I. Leite, and **F. I. Dogan**, 'A Test-Driven Appr. for Modular Unders. of User Instr. Leveraging BTs and LLMs'. (under review for *IEEE RO-MAN*)

C14 E. Bartoli, **F. I. Doğan**, and I. Leite 'Streaming Netw. for Cont. Learning of Object Reloc. under Household Context Drifts'. (under review for *IEEE RO-MAN*)

C13 **F. I. Doğan**, U. Ozturk, G. Cinar, and H. Gunes, 'GRACE: Generating Socially Appr. Robot Actions Leveraging LLMs and Human Explanations', *IEEE ICRA*, 2025.

C12 G. Hadjiantonis, S. Gillet, M. Vázquez, I. Leite, and **F. I. Doğan**, 'Let's move on: Topic Change in Robot-Facilitated Group Discussions', *IEEE RO-MAN*, 2024.

C11 **F. I. Doğan**, I. Torre , and I. Leite, 'Asking Follow-Up Clarifications to Resolve Ambiguities in Human-Robot Conversation,' *ACM/IEEE HRI*, 2022.

C10 M. Iovino, **F. I. Doğan**, I. Leite, and C. Smith, 'Interactive Disambiguation for Behavior Tree Execution,' *IEEE Humanoids*, 2022.

C9 A Panesar, **F. I. Doğan**, and I. Leite, 'Improving Visual Question Answering by Leveraging Depth and Adapting Explainability,' *IEEE RO-MAN*, 2022.

C8 **F. I. Doğan**, S. Kalkan, and I. Leite, 'Learning to Generate Unambiguous Spatial Referring Expressions for Real-World Environments,' *IEEE IROS*, 2019.

C7 P. Jonell, P. Fallgren, **F. I. Doğan**, J. Lopes, U. Wennberg, and G. Skantze, 'Crowdsourcing a self-evolving dialog graph,' *ACM CUI*, 2019.

C6 **F. I. Doğan***, İ. Bozcan*, M. Celik, and S. Kalkan, 'Cinet: A learning based approach to incremental context modeling in robots,' *IEEE IROS*, 2018.

C5 **F. I. Doğan**, H. Çelikkanat, and S. Kalkan, 'A Deep Incremental Boltzmann Machine for Modeling Context in Robots,' *IEEE ICRA*, 2018.

* Equal Contribution

C4 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 SocialBot Grand Challenge*, 2018.

C3 **F. I. Doğan**, H. Çelikkanat, and S. Kalkan, 'Robotlarda Bağlamın Derin Artırımlı Boltzmann Makineleri ile Modellenmesi,' *Turkey Robotics Conference (ToRK)*, 2018.

C2 O. Yıldız, **F. I. Doğan**, İ. Öztekin, E. Mızrak, and F. T. Y. Vural, 'A robust normalization method for fMRI data for brain decoding,' *IEEE SIU*, 2016.

C1 **F. I. Doğan**, S. Kalkan, 'Bağlamın Hiyerarşik Doğası,' *ToRK*, 2016.

Workshop Proposals

P4 E. Yadollahi, **F. I. Doğan**, M. Romeo, D. Kontogiorgos, P. Qian, and Y. Zhang, 'Exp. in Human-Robot Collob.: Real-World Concerns,' *In Proc. of ACM/IEEE HRI*, 2025.

P3 E. Yadollahi, M. Romeo, **F. I. Doğan**, W. Johal, M. D. Graaf, S. Levy-Tzedek and I. Leite, 'Exp. for Human-Robot Collaboration,' *In Comp. of ACM/IEEE HRI*, 2024.

P2 M. Pattel*, **F. I. Doğan***, Z. Zeng, K. Baraka, and S. Chernova, 'Semantic Scene Understanding for Human-Robot Interaction,' *In Comp. of ACM/IEEE HRI*, 2023.

P1 W. Johal, L. Phaijit, **F. I. Doğan**, A. Tabrez, and M. Graaf, 'HRI for Explainable Robotics,' *IEEE RO-MAN*, 2023.

Refereed Workshop Contributions

W6 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.

W5 **F. I. Doğan**, 'Social Robots That Understand Natural Language Instructions and Resolve Ambiguities,' *RSS Pioneers Workshop*, RSS 2021.

W4 I. Torre, **F. I. Doğan**, and D. Kontogiorgos, 'Voice, Embodiment, and Autonomy as Identity Affordances,' *Workshop on Robo-Identity*, HRI 2021.

W3 **F. I. Doğan**, and I. Leite, 'Open Challenges on Generating Referring Expressions for Human-Robot Interaction,' *Workshop on NLG for HRI*, INLG 2020.

W2 **F. I. Doğan**, S. Kalkan, and I. Leite, 'Learning to Gen. Unambiguous Spatial Ref. Expressions for Real-World Env.,' *SpLU-RoboNLP Workshop*, NAACL-HLT 2019.

W1 **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 **F. I. Doğan**, and S. Kalkan, 'Hierarchical Context Modeling Using Incremental Deep Boltzmann Machines,' *Technical Report, Dept. of Computer Eng., METU*, 2017.

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

COMMUNITY EVENTS AND SERVICES

Organization Committee

- Robotics and Embodied Intelligence Workshop, CHIA, University of Cambridge, 2025
- Workshop on Expl. in Human-Robot Collaboration: Real-World Concerns, HRI 2025
- 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

Conference Session Chairing

- Chair of Human-Robot Interaction Session at IEEE ICRA 2025

* Equal Contribution

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)
- ACM International Conference on Multimedia
- International Conference on Multimodal Interaction (ICMI)
- 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

- Featured in BBC Click by Spencer Kelly for his 1000th and final episode, 2025
- HE+ Hampshire Lecture, Trinity Hall, University of Cambridge 2025
- Trinity Hall Science Open Day, University of Cambridge 2025
- Human Machine Interaction Showcase, University of Cambridge, 2025
- 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
- Featured in a documentary on Sveriges Television (SVT), 2020
- Sweden's 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
- Live broadcast on national Turkish TV (Kanal B) on image processing and AI, 2017
- European Researchers' Night event for high school students, 2016

EXTRA-CURRICULAR

- Member of the Dept. Research Staff Forum, University of Cambridge (2024-present)
- Theater (played in private theatres for 8 years and 5 plays)
- Computer Engineers' Association board member, 2016-2018
- Student Delegate Committee member at Middle East Technical University, 2010-2011