

# FETHİYE IRMAK DOĞAN

Postdoctoral Research Associate

University of Cambridge, UK

irmakdogan.com    fid21@cam.ac.uk

---

|                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OBJECTIVE                                | Advancing autonomous robots to understand, interact, and collaborate with people                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| INTERESTS                                | Human-Robot Interaction, Robot Learning, Explainability, Deep Learning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| EDUCATION                                | <p><i>Ph.D. in Computer Science, KTH Royal Institute of Technology</i> 01.2018-03.2023</p> <ul style="list-style-type: none"><li>– Thesis on <i>Robots That Understand Natural Lang. Inst. and Resolve Ambiguities</i></li><li>– 61.0 ECTS credits in PhD-level courses (<math>\approx</math> one academic year; graded pass/fail basis)</li></ul> <p><i>M.Sc. in Computer Engineering, Middle East Technical University</i> 09.2015-01.2018</p> <ul style="list-style-type: none"><li>– Thesis on <i>Hierarchical Incremental Context Modeling on Robots</i></li><li>– Graduated with High Honor degree - CGPA: 3.93/4.00</li></ul> <p><i>B.Sc. in Computer Engineering, Middle East Technical University</i> 09.2010-06.2015</p> <ul style="list-style-type: none"><li>– Graduated with Honor degree - CGPA: 3.40/4.00</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| EMPLOYMENT<br>AND RESEARCH<br>EXPERIENCE | <p>Postdoctoral researcher at <b>University of Cambridge, UK</b> 04.2024-present</p> <ul style="list-style-type: none"><li>– Generating socially appropriate and adaptive robot actions leveraging LLMs and explainability, working in the AFAR Lab with Prof. Hatice Gunes</li></ul> <p>Postdoctoral researcher at <b>KTH Royal Institute of Technology</b> 03.2023-04.2024</p> <ul style="list-style-type: none"><li>– Continual learning for robots in human environments to help people with their daily tasks, working with Prof. Iolanda Leite's research group</li></ul> <p>Doctoral researcher at KTH (employed for 80% research, 20% teaching) 01.2018-03.2023</p> <ul style="list-style-type: none"><li>– Follow-up clarification techniques (semantic or visual) for robots to resolve ambiguities in user instructions, supervised by Prof. Iolanda Leite</li></ul> <p>Visiting scholar at <b>Georgia Institute of Technology, USA</b> 11.2021-04.2022</p> <ul style="list-style-type: none"><li>– Developing a semantically-driven disambiguation method to handle ambiguous user requests with clarifying questions, supervised by Prof. Sonia Chernova</li></ul> <p>Participating in <b>Oxford Machine Learning Summer School</b> 07.2021-08.2021</p> <ul style="list-style-type: none"><li>– Selected to participate in the highly selective summer school (<math>\sim</math> 15% acceptance rate) for best-in-class training on machine learning and deep learning</li></ul> <p>Participating in <b>Amazon Alexa Prize, KTH Fantom Team</b> 02.2018-08.2018</p> <ul style="list-style-type: none"><li>– Selected as one of 8 teams among the applicants from leading 195 universities to create a social bot, supervised by Prof. Gabriel Skantze</li></ul> <p>Researcher at <b>Middle East Technical University, Turkey</b> 09.2015-01.2018</p> <ul style="list-style-type: none"><li>– Incremental context modeling for robots to make them capable of adapting to challenging real-world environments, supervised by Prof. Sinan Kalkan</li></ul> <p>Senior Design Project at Middle East Technical University 09.2014-06.2015</p> <ul style="list-style-type: none"><li>– 3D animation of fMRI data to visualize the cognitive processes in the brain, supervised by Prof. Fatos Tunay Yarman Vural</li></ul> <p>Research intern at <b>University of Southern Denmark</b> 06.2014-09.2014</p> <ul style="list-style-type: none"><li>– A plugin providing a graphical user interface for automated calibration of UR robot arms, supervised by Prof. Norbert Krueger</li></ul> <p>Research intern at Middle East Technical University 06.2013-09.2013</p> <ul style="list-style-type: none"><li>– Visualizing the 2D and 3D representations of the iCub robot's vision, supervised by Prof. Sinan Kalkan</li></ul> <p>Part time software developer at <b>Özgür Yazılım Company</b> 02.2013-06.2013</p> <ul style="list-style-type: none"><li>– Taking a role in the development of the Tekir Accounting Program</li></ul> |

|                   |                                                                                                                                                                                                                              |                 |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| 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 <i>J4</i> )                                                                                                                                                     |                 |
|                   | – 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: ‘ <i>Approaching Equalized Odds by Actively Forgetting in Deep-Learning Models</i> ’ (Princeton University)                                                                     |                 |
|                   | – Visiting MS Student: Jeshur Joshua (Vellore Institute of Technology)                                                                                                                                                       |                 |
|                   | – Visiting BS Students: Umut Ozyurt (METU, Publication <i>C13</i> ), Gizem Çınar (Bilkent University, Publication <i>C13</i> ), 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 <i>C14</i> and <i>W6</i> ), and Anna Deichler                                                                                                                                 |                 |
|                   | – Master Thesis Supervision:                                                                                                                                                                                                 |                 |
|                   | (i) Alexander Leszczynski: ‘ <i>LLMs and BTs for User Instructions</i> ’ (Publication <i>C15</i> ),                                                                                                                          |                 |
|                   | (ii) Aiman Shenawa: ‘ <i>Task specific evaluation of Large Language Models</i> ’,                                                                                                                                            |                 |
|                   | (iii) Georgios Hadji.: ‘ <i>Topic change in robot-mod. group diss.</i> ’ (Publication <i>C12</i> ),                                                                                                                          |                 |
|                   | (iv) Amrita Panesar: ‘ <i>VQA with Depth and Adap. Expl.</i> ’ (Publication <i>C9</i> )                                                                                                                                      |                 |
|                   | – 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 | – <b>Early Career Award Finalist</b> , Outstanding Women in Robotics & Automation (WiRA) Paper Awards, IEEE Int. Conf. on Robotics & Automation (ICRA) 2025                                                                  |                 |
|                   | – <b>Seal of Excellence Award</b> granted by the European Commission after a rigorous international expert project proposal evaluation (2025)                                                                                |                 |
|                   | – Special Recognition for Outstanding Reviews, ACM/IEEE HRI 2024                                                                                                                                                             |                 |
|                   | – Research Associate at Darwin College, University of Cambridge, awarded through a competitive process for research excellence and academic merit (2024)                                                                     |                 |
|                   | – <b>Fellowship from Postdoc-NeT-AI (2022)</b> , which brings together outstanding early-career researchers in the field of artificial intelligence and robotics                                                             |                 |
|                   | – <b>RSS Pioneer 2021</b> , selected to participate in the Robotics: Science and Systems (RSS) Pioneers, which brings together the world’s top early-career researchers                                                      |                 |
|                   | – <b>Honourable mention award</b> from ACM CUI 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 <b>Seed Fund Grant</b> ( $\approx 10.000$ £), 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 Robo-Identity Workshop**, IEEE RO-MAN 2025
- **Keynote speaker on Collective Gen. 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 seminar, Georgia Institute of Technology, 2021
- Image Lab seminar, 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.

---

\* Equal Contribution

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

---

\* Equal Contribution

*Conference Session Chairing*

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

*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
- 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

**SELECTED  
OUTREACH**

**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