Erdem Bıyık

https://ebiyik.github.io

Email: biyik@usc.edu
3737 Watt Way, Powell Hall (PHE)
Room 214, Los Angeles, CA 90089

Current Position

- **University of Southern California** — Los Angeles, CA, USA
  Assistant Professor of Computer Science — *Aug 2023 – present*
  Assistant Professor of Electrical and Computer Engineering - Systems (by courtesy) — *Jan 2024 – present*

Education

- **Stanford University** — Stanford, CA, USA
  Doctor of Philosophy in Electrical Engineering; GPA: 4.07/4.00 — *Sep 2017 – Jun 2022*
  Advisor: Prof. Dorsa Sadigh

- **Stanford University** — Stanford, CA, USA
  Master of Science in Electrical Engineering; GPA: 4.08/4.00 — *Sep 2017 – Apr 2019*

- **Bilkent University** — Ankara, Turkey
  Bachelor of Science in Electrical and Electronics Engineering; GPA: 4.00/4.00 — *Aug 2012 – Jun 2017*
  Rank: 1/170 based on GPA

- **National University of Singapore** — Singapore
  Exchange Student in Electrical and Computer Engineering — *Aug 2015 – Dec 2015*

Work Experience

- **UC Berkeley, Center for Human-Compatible Artificial Intelligence (CHAI)** — Berkeley, CA, USA
  Postdoctoral Researcher — *Jul 2022 - Jul 2023*
  - **Reward Learning**: Working on various active reward learning projects for robotics under the supervision of Prof. Stuart Russell and Prof. Anca Dragan
  - **Reinforcement Learning for Deep Brain Stimulation**: Working on the applications of reinforcement learning algorithms for deep brain stimulation under the supervision of Prof. Anca Dragan

- **Google Research** — Mountain View, CA, USA
  Research Intern — *Jun 2021 - Sep 2021*
  - **Recommender Systems**: Working on active preference elicitation for recommender systems under the supervision of Dr. Yinlam Chow, Dr. Mohammad Ghavamzadeh, and Prof. Craig Boutilier
  - **Preference-based Reinforcement Learning**: Working on relaxing initial state assumptions in preference-based reinforcement learning under the supervision of Dr. Yinlam Chow and Dr. Mohammad Ghavamzadeh

- **National Magnetic Resonance Research Center (UMRAM)** — Ankara, Turkey
  Undergraduate Researcher & Research Intern — *Apr 2016 - Sep 2017*
  - **csMRI**: Developing compressed sensing methods for accelerated MRI under the supervision of Prof. Tolga Çukur
  - **SSFP Imaging**: Developing coil compression methods and artifact suppression techniques for balanced SSFP under the supervision of Prof. Tolga Çukur

- **ASELSAN** — Ankara, Turkey
  Intern (2015), Research Engineer (2017) — *Jun 2015 - Jul 2015, Apr 2017 - Aug 2017*
  - **Military Communications (2015)**: Developing a C++ program to decode and encode data in MIL-STD-3014 protocol with an easy-to-use interface
  - **Algorithms Design (2015)**: Designing algorithms to solve composite launch acceptability region problem

- **SSFP Imaging (2017)**: R&D projects related to field inhomogeneity, banding profile estimation, coil compression and banding suppression in bSSFP MRI under the supervision of Dr. Aykut Koç

- **École polytechnique fédérale de Lausanne (EPFL)** — Lausanne, Switzerland
  Research Intern via Summer@EPFL Program — *Jun 2016 - Sep 2016*
  - **Approximate Message Passing**: Research about approximate message passing algorithms as an intern in the Information Processing Group under the supervision of Prof. Rüdiger Urbanke

- **Anadolu Agency** — Ankara, Turkey
  Intern — *Jun 2014 - Jul 2014*
  - **Image Processing**: Developing a Java, C++ and MySQL based program that uses image registration, matching and comparison techniques to detect copyright infringements

Teaching Experience

- **University of Southern California** — Los Angeles, CA
  Instructor — *Fall 2023, Spring 2024*
  - **CSCI445L Introduction to Robotics (Spring 2024)**: Teaching the course
  - **CSCI699 Robot Learning (Fall 2023)**: Designing and teaching the course

- **Stanford University** — Stanford, CA
  Teaching Assistant — *Winter 2020, Winter 2021*
  - **CS237B / EE260B / AA174B / AA274B Principles of Robot Autonomy II**: Holding office hours and sections, preparing and grading homeworks and exams
    Awarded "outstanding course assistant" by the CS department (top 5%) in Winter 2021

- **Bilkent University** — Ankara, Turkey
  Teaching Assistant — *Spring 2014, Fall 2016*
  - **CS114 Introduction to Programming for Engineers (2014)**: Teaching in the weekly tutorials & recitations
  - **EEE211 Analog Electronics (2016)**: Teaching, interviewing and grading students in the laboratory sessions

- **Stanford University** — Stanford, CA
  Guest Lecturer — *Winter 2022*
  - **CS333 Safe and Interactive Robotics**: Teaching "learning from human preferences"

Mentoring

- **Current Ph.D. Students**: Ayush Jain (co-advised with Joseph Lim), Sumedh Sontakke (co-advised with Laurent Itti), Anthony Liang (co-advised with Jesse Thomason), Jesse Zhang (co-advised with Jesse Thomason and Joseph Lim), Pavel Czempin, Yigit Korkmaz
- **Current M.Sc. Students**: Xinhu Li, Dhanush Kumar Varma Penmetsa, Thomas Reeves, Zhaojing Yang
- **Current Undergraduate Students**: Jaiv Doshi, Miru Jun, Yuxi (James) Qian

Honors & Awards

- **Stanford CS Outstanding Course Assistant**: Awarded to the top 5% of CAs in the department. Awarded for the "Principles of Robot Autonomy II" course in Winter 2021
- **Qualcomm Innovation Fellowship 2020 North America**: Finalist (as a group of two PhD students)
- **HRI 2020 Honorable Mention**: Awarded for the paper "When Humans Aren't Optimal: Robots that Collaborate with Risk-Aware Humans"
- **Qualcomm Innovation Fellowship 2019 North America**: Finalist (as a group of two PhD students)
- **Stanford University James D. Plummer Graduate Fellowship (2017-2018)**: Full tuition waiver & stipend during the first year of PhD program

- **Bilkent University Electrical and Electronics Engineering Department, Graduation Awards (2017)**: Academic Excellence, Research Excellence, Voluntary Professional Activities, Social Awareness and Activities
- **Scholarship of the Turkish Prime Ministry (2012-2017)**: Awarded monthly stipend during the BSc program (given to those who rank in first 100 among 1.8 million students in nationwide university entrance exam)
- **Bilkent University Comprehensive Scholarship (2012-2017)**: Full tuition waiver & stipend during the BSc program
- **IEEExtreme Programming Competitions**: 2^{nd} in Turkey, 78^{th} among all participants, 2015. 1^{st} in Turkey, 73^{rd} among all participants, 2014. 1^{st} in Turkey, 100^{th} among all participants, 2013 (All as a group of three students)
- **Turkish Intelligence Foundation (TZV) Marathon**: Ranked twice in top 25 and once 6^{th}, 2012-2014
- **İşbank Golden Youth Award (2012)**: Granted for outstanding performance in the nationwide university entrance exam
- **Nationwide University Entrance Exam (LYS)**: Ranked 13^{th} among 1.8 million students in Turkey, 2012

Invited Talks & Poster Presentations

- Optimizing Robot Behavior via Comparative Language Feedback
  - Human-Interactive Robot Learning (Workshop at HRI 2024 – poster)
- Data-Efficient Learning from Human Feedback and Large Pretrained Models for Robotics
  - Arizona State University, School of Computing and Augmented Intelligence (2023)
- Open Problems in Reinforcement Learning from Human Feedback and Potential Solutions for Data-Efficiency
  - University of Amsterdam, The Amsterdam Machine Learning Lab (2023)
- Efficient Robot Learning via Interaction with Humans
  - Southern California Robotics (SCR) Symposium 2023
- ViSaRL: Visual Reinforcement Learning Guided by Human Saliency
  - 7th Annual Center for Human-Compatible Artificial Intelligence (CHAI) Workshop (2023 – poster)
- Learning Preferences for Interactive Autonomy
  - Middle East Technical University, Robotics and AI Technologies Application and Research Center (2022)
  - Sonoma State University, Engineering Colloquium (2022)
  - Cornell University, Robotics Seminar (2022)
  - University of Wisconsin-Madison, Computer Science, Department Seminar (2022)
  - University of Illinois Urbana-Champaign, Computer Science, Department Seminar (2022)
  - University of Michigan, Robotics Institute, Department Seminar (2022)
  - University of Southern California, Computer Science, Department Seminar (2022)
  - Imperial College London, Department of Aeronautics, Aerodynamics & Control Seminar (2022)
  - Carnegie Mellon University, Robotics Institute, Department Seminar (2022)
  - UCLA, Electrical and Computer Engineering, Department Seminar (2022)
  - Bilkent University, Electrical and Electronics Engineering, Graduate Seminar (2021)
  - UC Berkeley, Center for Human-Compatible Artificial Intelligence (CHAI), Beneficial AI Seminar (2021)
  - Sabancı University, Computer Science & Engineering, Department Seminar (2021)
  - Koç University, AI Meetings (2021)
  - Bay Area Robotics Symposium (BARS) 2021 (poster)
  - Virginia Tech, Mechanical Engineering, Department Seminar (2021)
  - Caltech Yue Lab (2021)

- UT Austin Personal Autonomous Robotics Lab (2021)
- UC Berkeley InterACT Lab (2021)

- Learning Multimodal Rewards from Rankings
  - 6th Annual Center for Human-Compatible Artificial Intelligence (CHAI) Workshop (2022)
  - CoRL 2021

- Learning from Humans for Adaptive Interaction
  - HRI Pioneers 2022

- APReL: A Library for Active Preference-based Reward Learning Algorithms
  - Human-Interactive Robot Learning (HIRL) (Workshop at HRI 2022)
  - HRI 2022
  - AI-HRI 2021 at AAAI Fall Symposium Series

- Partner-Aware Algorithms in Decentralized Cooperative Bandit Teams
  - AAAI 2022
  - AI-HRI 2021 at AAAI Fall Symposium Series

- The Role of Representations in Human-Aware Learning and Control *(with Dorsa Sadigh)*
  - "Aware-Learning: How to Benefit from Priors" Workshop @ CDC 2021

- Interactive Robotics through the Lens of Learning *(with Dorsa Sadigh)*
  - NCCR (The National Centre of Competence in Research, Switzerland) Automation Seminar, 2021

- Leveraging Smooth Attention Prior for Multi-Agent Trajectory Prediction
  - Center for Automotive Research at Stanford (CARS) Annual Meeting (2021 – poster)

- Learning Reward Functions from Scale Feedback
  - CoRL 2021 (poster)

- Learning how to Dynamically Route Autonomous Vehicles on Shared Roads
  - ETH Zurich, Institute for Dynamic Systems and Control, Autonomy Talks (2021)
  - The 32nd IEEE Intelligent Vehicles Symposium Workshop (2021)
  - 3rd NorCal Control Workshop (2021)
  - Stanford Robotics Lunch (2019)
  - Center for Automotive Research at Stanford (CARS) Annual Meeting (2020 – poster)

- Walking the Boundary of Learning and Interaction *(with Dorsa Sadigh)*
  - 3rd Robot Learning Workshop: Grounding Machine Learning Development in the Real World @ NeurIPS 2020

- When Humans Aren't Optimal: Robots that Collaborate with Risk-Aware Humans *(with Minae Kwon)*
  - University of Chicago, Graduate Seminar on Topics in Human-Robot Interaction (2020)

- Active Preference-Based Gaussian Process Regression for Reward Learning
  - RSS 2020

- The Green Choice: Learning and Influencing Human Decisions on Shared Roads
  - CDC 2019

- Active Learning of Reward Dynamics from Hierarchical Queries
  - IROS 2019
- Asking Easy Questions: A User-Friendly Approach to Active Reward Learning
  - CoRL 2019 (poster)
- Efficient and Safe Exploration in Deterministic Markov Decision Processes with Unknown Transition Models
  - ACC 2019
  - Stanford AI Safety Retreat 2019 (poster)
- Batch Active Preference-Based Learning of Reward Functions
  - CoRL 2018
  - Stanford HAI 2019 (poster)
  - TRI Joint University Workshop 2019 (poster)
  - Stanford SystemX Fall 2018 (poster)
  - BARS - Bay Area Robotics Symposium (BARS) 2018 (poster)

Professional Activities

- **Editorial Board**
  - **Associate Editor** for Robot Learning, IEEE Robotics and Automation Letters (RA-L), 2023 – present
  - **Associate Editor**, IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2024
- **Conferences Organized**
  - **Finance Chair**, Conference on Robot Learning (CoRL), 2024
  - **Local Arrangements Chair**, Bay Area Robotics Symposium (BARS), 2021
  - **Local Arrangements Chair**, Bay Area Robotics Symposium (BARS), 2020
  - **Organizer**, Emergent Behaviors in Human-Robot Systems (Workshop at Robotics: Science and Systems (RSS)), 2020
  - **Local Arrangements Chair**, Bay Area Robotics Symposium (BARS), 2018
- **Program Committee Member**
  - Center for Human-Compatible Artificial Intelligence (CHAI) Workshop, 2023
- **Area Chair**
  - Responsible AI (RAI) (Workshop at International Conference on Learning Representations (ICLR)), 2021
- **Reviewer for Journals**
  - ACM Transactions on Human-Robot Interaction (THRI)
  - Artificial Intelligence
  - Autonomous Agents and Multi-Agent Systems
  - Autonomous Robots (AURO)
  - Cognitive Systems Research
  - Frontiers in Robotics and AI
  - Nature Communications
  - IEEE Control System Letters (L-CSS)

- IEEE Robotics and Automation Letters (RA-L)
- IEEE Robotics and Automation Magazine (RAM)
- IEEE Transactions on Automatic Control (TAC)
- IEEE Transactions on Control Systems Technology (TCST)
- IEEE Transactions on Human-Machine Systems (THMS)
- IEEE Transactions on Intelligent Transportation Systems (T-ITS)
- IEEE Transactions on Neural Networks and Learning Systems (TNNLS)
- IEEE Transactions on Robotics (T-RO)
- Journal of Machine Learning Research (JMLR)
- Proceedings of the Royal Society A
- Robotics
- The International Journal of Robotics Research (IJRR)

- **Reviewer for Conferences**
  - Robotics: Science and Systems (RSS), 2020–2021, 2023–2024
  - Conference on Uncertainty in Artificial Intelligence (UAI), 2023–2024
  - Learning for Dynamics & Control (L4DC), 2020, 2023–2024
  - IEEE International Conference on Robotics and Automation (ICRA), 2021–2024
  - ACM/IEEE International Conference on Human-Robot Interaction (HRI), 2020–2024
  - Conference on Neural Information Processing Systems (NeurIPS), 2023
  - IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2020, 2022–2023
  - IEEE Conference on Decision and Control (CDC), 2019–2020, 2023
  - Conference on Robot Learning (CoRL), 2019–2023
  - International Joint Conference on Artificial Intelligence (IJCAI), 2023
  - American Control Conference (ACC), 2019, 2021–2022
  - IEEE Conference on Control Technology and Applications (CCTA), 2021
  - IEEE-RAS International Conference on Humanoid Robots (Humanoids), 2020
  - International Conference on Computer-Aided Verification (CAV), 2019
  - ACM International Conference on Hybrid Systems: Computation and Control (HSCC), 2019
- **Reviewer for Workshops**
  - RSS Pioneers Workshop 2023–2024
  - HRI Pioneers Workshop 2023–2024
  - Interactive Learning with Implicit Human Feedback Workshop (ILHF) at ICML 2023
  - AAMAS Workshop on Rebellious and Disobedient AI (RaD-AI), 2022–2023
  - CoRL Workshop on Aligning Robot Representations with Humans, 2022
  - NeurIPS Workshop on Foundation Models for Decision Making (FMDM), 2022
  - NeurIPS Workshop on Progress and Challenges in Building Trustworthy Embodied AI (TEA), 2022
  - NeurIPS Workshop on Machine Learning Safety, 2022
  - RSS Workshop on Learning from Diverse, Offline Data (L-DOD), 2022
  - RSS Workshop on Social Intelligence in Humans and Robots, 2022
  - Artificial Intelligence for Human-Robot Interaction Symposium (AI-HRI) at AAAI Fall Symposium Series, 2021
  - ICRA Workshop on Social Intelligence in Humans and Robots, 2021
  - Bridging AI and Cognitive Science (BAICS) (Workshop at International Conference on Learning Representations (ICLR)), 2020

Outreach and Mentoring

- **Berkeley Artificial Intelligence Safety Initiative for Students, 2023-present** Berkeley, CA, USA
  - **Mentor at Supervised Program for Alignment Research**: Mentoring three undergraduate students on a multi-agent inverse reinforcement learning research project
- **Berkeley Artificial Intelligence Research Lab (BAIR), 2022-2023** Berkeley, CA, USA
  - **BAIR Undergraduate Mentoring Program Mentor**: Mentoring undergraduate students about their future career, getting involved in AI research, and applying for industry or graduate school
- **Stanford University Department of Computer Science, 2020-2022** Stanford, CA, USA
  - **CS Mentorship Program Organizer**: Organizing the CS mentorship program and the related social events
  - **CS Mentorship Program Mentor**: Mentoring first and second-year undergraduate students about their future career, getting involved in research projects, and applying for industry or graduate school
- **Stanford University AI Laboratory (SAIL), 2018-2020** Stanford, CA, USA
  - **AI Mentorship Program Organizer**: Organizing the AI mentorship program and the related social events
  - **AI Mentorship Program Mentor**: Mentoring first and second-year undergraduate students about their future career, getting involved in AI research, and applying for industry or graduate school
  - **Robotics Lunch Organizer (2019-2020)**: Organizing bi-weekly robotics lunch sessions where invited professors, postdoctoral researchers and Ph.D. candidates present their research
- **Stanford STEM to SHTEM Summer Internship Program, 2019** Stanford, CA, USA
  - **Mentor**: Mentoring high school students in a research project about decision making under risk / time constraints
- **IEEE Bilkent Student Branch, 2012-2017** Ankara, Turkey
  - **Road to University Volunteer (2013-2017)**: Introducing engineering and campus life to high school students from all around Turkey
  - **Vice Chair (2014-2015)**: Managing and organizing the technical trainings and social events
  - **Robotics and Automation Society Member (2012-2015)**: Assistantship in the electronics and robotics focused tutorials
  - **Web Team Member (2012-2014) and Webmaster (2013-2014)**: Designing and managing the website of IEEE Bilkent SB, its communities and events; teaching in web design tutorials and in MATLAB tutorials; organizing a Java programming competition and weekly brain teasers
- **GazeteBilkent, 2014-2017** Ankara, Turkey
  - **Online Operations Manager**: Managing the website of GazeteBilkent, an online newspaper
- **Bilkent University, 2014-2017** Ankara, Turkey
  - **Webmaster of Electrical and Electronics Engineering (2013-2017), Mechanical Engineering (2015-2017), Economics (2016-2017) Departments**: Designing, developing and managing the websites of the departments and developing necessary web tools
  - **1st and 2nd Industrial Design Projects Fairs Student Coordinator and Webmaster (2015, 2016)**: Organizing the fair in which the senior students of Bilkent EEE present their industry projects
  - **Graduate Research Conference '15 Student Coordinator (2015)**: Organizing the conference series in which graduate students of Bilkent EEE present their research and projects
  - **Graduate Research Conference '14 Webmaster and Organization Team Member (2014)**: Organizing the conference series in which graduate students of Bilkent EEE present their research and projects
- **Bilkent Chess Society, 2013-2014** Ankara, Turkey
  - **Vice Chair**: Organizing tournaments on campus, participating in local events as a team
- **Bilkent Academic Career Club, 2013** Ankara, Turkey
  - **Physics Olympiads Volunteer**: Organizing a physics competition among high school students

Patents

1. Z Cao, **E Bıyık**, WZ Wang, A Raventos, A Gaidon, G Rosman, D Sadigh. "Reinforcement Learning Based Control of Imitative Policies for Autonomous Driving", US Patent Application No. US17/002,650.

Journal Publications

1. **E Bıyık**, N Anari, D Sadigh. "Batch Active Learning of Reward Functions from Human Preferences", ACM Transactions on Human-Robot Interaction (THRI), 2024.
2. S Casper*, X Davies*, C Shi, TK Gilbert, J Scheurer, J Rando, R Freedman, T Korbak, D Lindner, P Freire, T Wang, S Marks, CR Segerie, M Carroll, A Peng, P Christoffersen, M Damani, S Slocum, U Anwar, A Siththaranjan, M Nadeau, EJ Michaud, J Pfau, D Krasheninnikov, X Chen, L Langosco, P Hase, **E Bıyık**, A Dragan, D Krueger, D Sadigh, D Hadfield-Menell (*equal contribution). "Open Problems and Fundamental Limitations of Reinforcement Learning from Human Feedback", Transactions on Machine Learning Research (TMLR), 2023.
3. **E Bıyık**, N Huynh, MJ Kochenderfer, D Sadigh. "Active Preference-Based Gaussian Process Regression for Reward Learning and Optimization", The International Journal of Robotics Research (IJRR), 2023; doi: 10.1177/02783649231208729.
4. M Tucker, K Li, E Novoseller, M Pétriaux, G Burger, **E Bıyık**, M Masselin, D Sadigh, JW Burdick, Y Yue, AD Ames. *Anonymous Submission*, Nature Machine Intelligence, 2022. *(Submitted)*
5. **E Bıyık**, DP Losey, M Palan, NC Landolfi, G Shevchuk, D Sadigh. "Learning Reward Functions from Diverse Sources of Human Feedback: Optimally Integrating Demonstrations and Preferences", The International Journal of Robotics Research (IJRR), 2022; doi:10.1177/02783649211041652
6. DA Lazar*, **E Bıyık***, D Sadigh, R Pedarsani (*equal contribution). "Learning How to Dynamically Route Autonomous Vehicles on Shared Roads", Transportation Research Part C: Emerging Technologies (TR_C), 2021; doi: 10.1016/j.trc.2021.103258
7. **E Bıyık***, DA Lazar*, R Pedarsani, D Sadigh (*equal contribution). "Incentivizing Efficient Equilibria in Traffic Networks with Mixed Autonomy", IEEE Transactions on Control of Network Systems (TCNS), 2021; doi: 10.1109/TCNS.2021.3084045.
8. **E Biyik***, K Keskin*, SUH Dar, A Koc, T Çukur (*equal contribution). "Factorized sensitivity estimation for artifact suppression in phase-cycled bSSFP MRI", NMR in Biomedicine, 2020; doi: 10.1002/nbm.4228.
9. **E Biyik**, E Ilicak, T Çukur. "Reconstruction by Calibration over Tensors for Multi-Coil Multi-Acquisition Balanced SSFP Imaging", Magnetic Resonance in Medicine (MRM), 2017; doi: 10.1002/mrm.26902.
10. E Ilicak, LK Senel, **E Biyik**, T Çukur. "Profile-encoding reconstruction for multiple-acquisition balanced steady-state free precession imaging", Magnetic Resonance in Medicine (MRM), 2016; doi: 10.1002/mrm.26507.

Refereed Conference Publications

11. E Ellis, GR Ghosal, SJ Russell, A Dragan, **E Bıyık**. *A Generalized Acquisition Function for Preference-based Reward Learning*, 2024 IEEE International Conference on Robotics and Automation (ICRA), Yokohama, Japan, May 2024.
12. S Sontakke, J Zhang, S Arnold, K Pertsch, **E Bıyık**, D Sadigh, C Finn, L Itti. *RoboCLIP: One Demonstration is Enough to Learn Robot Policies*, 37th Conference on Neural Information Processing Systems (NeurIPS), New Orleans, Louisiana, USA, Nov. 2023.
13. V Myers, **E Bıyık**, D Sadigh. *Asking Preference Questions Online in Active Reward Learning*, 2023 IEEE International Conference on Robotics and Automation (ICRA), London, United Kingdom, May 2023.
14. M Srivastava, **E Bıyık**, S Mirchandani, ND Goodman, D Sadigh. *Assistive Teaching of Motor Control Tasks to Humans*, 36th Conference on Neural Information Processing Systems (NeurIPS), New Orleans, Louisiana, USA, Nov. 2022.
15. E Brockbank, H Wang, J Yang, S Mirchandani, **E Bıyık**, D Sadigh, J Fan. *How do People Incorporate Advice from Artificial Agents when Making Physical Judgments?*, 44th Annual Meeting of the Cognitive Science Society (CogSci), Toronto, Ontario, Canada, Jul. 2022.
16. Z Cao, **E Bıyık**, G Rosman, D Sadigh. "Leveraging Smooth Attention Prior for Multi-Agent Trajectory Prediction", 2022 IEEE International Conference on Robotics and Automation (ICRA), Philadelphia, Pennsylvania, USA, May 2022; doi: 10.1109/ICRA46639.2022.9811718.
17. **E Bıyık**, A Talati, D Sadigh. *APReL: A Library for Active Preference-based Reward Learning Algorithms*, ACM/IEEE International Conference on Human-Robot Interaction (HRI), Sapporo, Hokkaido, Japan, Mar. 2022.

18. **E Bıyık**, A Lalitha, R Saha, A Goldsmith, D Sadigh. *Partner-Aware Algorithms in Decentralized Cooperative Bandit Teams*, Thirty-Sixth AAAI Conference on Artificial Intelligence (AAAI), Vancouver, British Columbia, Canada, Feb. 2022; doi: 10.1609/aaai.v36i9.21158.
19. N Wilde*, **E Bıyık***, D Sadigh, SL Smith (*equal contribution). *Learning Reward Functions from Scale Feedback*, 5th Conference on Robot Learning (CoRL), London, United Kingdom, Nov. 2021.
20. V Myers, **E Bıyık**, N Anari, D Sadigh. *Learning Multimodal Rewards from Rankings*, 5th Conference on Robot Learning (CoRL), London, United Kingdom, Nov. 2021.
21. WZ Wang*, M Beliaev*, **E Bıyık***, DA Lazar, R Pedarsani, D Sadigh (*equal contribution). *Emergent Prosociality in Multi-Agent Games Through Gifting*, 30th International Joint Conference on Artificial Intelligence (IJCAI), Montreal, Quebec, Canada, Aug. 2021; doi: 10.24963/ijcai.2021/61.
22. K Li, M Tucker, **E Bıyık**, E Novoseller, JW Burdick, Y Sui, D Sadigh, Y Yue, AD Ames. "ROIAL: Region of Interest Active Learning for Characterizing Exoskeleton Gait Preference Landscapes", 2021 IEEE International Conference on Robotics and Automation (ICRA), Xi'an, China, May 2021; doi: 10.1109/ICRA48506.2021.9560840.
23. M Beliaev, **E Bıyık**, DA Lazar, WZ Wang, D Sadigh, R Pedarsani. "Incentivizing Routing Choices for Safe and Efficient Transportation in the Face of the COVID-19 Pandemic", 12th ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS), Nashville, Tennessee, USA, May 2021; doi: 10.1145/3450267.3450546.
24. Z Zhu, **E Bıyık**, D Sadigh. "Multi-Agent Safe Planning with Gaussian Processes", IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Las Vegas, Nevada, USA, Oct. 2020; doi: 10.1109/IROS45743.2020.9341169.
25. **E Bıyık***, N Huynh*, MJ Kochenderfer, D Sadigh (*equal contribution). "Active Preference-Based Gaussian Process Regression for Reward Learning", Robotics: Science and Systems (RSS), Corvallis, Oregon, USA, Jul. 2020; doi: 10.15607/rss.2020.xvi.041.
26. Z Cao*, **E Bıyık***, WZ Wang, A Raventos, A Gaidon, G Rosman, D Sadigh (*equal contribution). "Reinforcement Learning based Control of Imitative Policies for Near-Accident Driving", Robotics: Science and Systems (RSS), Corvallis, Oregon, USA, Jul. 2020; doi: 10.15607/rss.2020.xvi.039
27. M Kwon, **E Bıyık**, A Talati, K Bhasin, DP Losey, D Sadigh. "When Humans Aren't Optimal: Robots that Collaborate with Risk-Aware Humans", ACM/IEEE International Conference on Human-Robot Interaction (HRI), Cambridge, United Kingdom, Mar. 2020; doi: 10.1145/3319502.3374832. ***Honorable mention award.***
28. **E Bıyık**, DA Lazar, D Sadigh, R Pedarsani. "The Green Choice: Learning and Influencing Human Decisions on Shared Roads", 58th IEEE Conference on Decision and Control (CDC), Nice, France, Dec. 2019; doi: 10.1109/CDC40024.2019.9030169.
29. C Basu, **E Bıyık**, Z He, M Singhal, D Sadigh. "Active Learning of Reward Dynamics with Hierarchical Queries", IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Macau, China, Nov. 2019; doi: 10.1109/IROS40897.2019.8968522.
30. **E Bıyık**, M Palan, NC Landolfi, DP Losey, D Sadigh. "Asking Easy Questions: A User-Friendly Approach to Active Reward Learning", 3rd Conference on Robot Learning (CoRL), Osaka, Japan, Oct. 2019.
31. **E Bıyık***, J Margoliash*, SR Alimo, D Sadigh (*equal contribution). "Efficient and Safe Exploration in Deterministic Markov Decision Processes with Unknown Transition Models", American Control Conference (ACC), Philadelphia, Pennsylvania, USA, Jul. 2019; doi: 10.23919/ACC.2019.8815276.
32. **E Bıyık***, DA Lazar*, R Pedarsani, D Sadigh (*equal contribution). "Altruistic Autonomy: Beating Congestion in Shared Roads", Workshop on Algorithmic Foundations of Robotics (WAFR), Mérida, México, Dec. 2018; doi: 10.1007/978-3-030-44051-0_51
33. **E Bıyık**, D Sadigh. "Batch Active Preference-Based Learning of Reward Functions", 2nd Conference on Robot Learning (CoRL), Zürich, Switzerland, Oct. 2018.
34. HC Baykara*, **E Bıyık***, G Gül*, D Onural*, AS Öztürk*, İ Yıldız* (*equal contribution). "Real-Time Detection, Tracking and Classification of Multiple Moving Objects in UAV Videos", 29th IEEE International Conference on Tools with Artificial Intelligence (ICTAI), Boston, Massachusetts, USA, Nov. 2017; doi: 10.1109/ICTAI.2017.00145.
35. **E Bıyık**, J Barbier, M Dia. "Generalized Approximate Message-Passing Decoder for Universal Sparse Superposition Codes", IEEE International Symposium on Information Theory (ISIT), Aachen, Germany, Jun. 2017; doi: 10.1109/ISIT.2017.8006798.

Workshop Proceedings

36. J Tien*, Z Yang*, M Jun, SJ Russell, A Dragan, **E Bıyık** (*equal contribution). *Optimizing Robot Behavior via Comparative Language Feedback*, 3rd Workshop on Human-Interactive Robot Learning (HIRL) at ACM/IEEE International Conference on Human-Robot Interaction (HRI), Boulder, Colorado, USA, Mar. 2024.

37. A Liang, J Thomason, **E Bıyık**. *ViSaRL: Visual Reinforcement Learning Guided by Human Saliency*, Pretraining for Robotics (PT4R) Workshop at the 2023 International Conference on Robotics and Automation (ICRA), London, United Kingdom, May 2023.

38. **E Bıyık**. *Learning from Humans for Adaptive Interaction*, 17th Annual Human-Robot Interaction Pioneers Workshop (HRI Pioneers), Sapporo, Hokkaido, Japan, Mar. 2022.

39. M Kwon, **E Bıyık**, A Talati, K Bhasin, DP Losey, D Sadigh. *When Humans Aren't Optimal: Robots that Collaborate with Risk-Aware Humans*, Cooperative AI NeurIPS Workshop 2021, Virtual, Dec. 2021.

40. **E Bıyık**, A Lalitha, R Saha, A Goldsmith, D Sadigh. *Partner-Aware Algorithms in Decentralized Cooperative Bandit Teams*, Artificial Intelligence for Human-Robot Interaction Symposium (AI-HRI) at AAAI Fall Symposium Series, Washington DC, USA, Nov. 2021.

41. **E Bıyık**, A Talati, D Sadigh. *APReL: A Library for Active Preference-based Reward Learning Algorithms*, Artificial Intelligence for Human-Robot Interaction Symposium (AI-HRI) at AAAI Fall Symposium Series, Washington DC, USA, Nov. 2021.

42. M Beliaev*, WZ Wang*, DA Lazar, **E Bıyık**, D Sadigh, R Pedarsani (*equal contribution). "Emergent Correlated Equilibrium through Synchronized Exploration", RSS 2020 Workshop on Emergent Behaviors in Human-Robot Systems, Corvallis, Oregon, USA, Jul. 2020.

Ph.D. Dissertation

43. **E Bıyık**. "Learning Preferences for Interactive Autonomy", Ph.D. Dissertation, Department of Electrical Engineering, Stanford University, May 2022.

Preprints

44. Y Wang*, Z Sun*, J Zhang, Z Xian, **E Bıyık**, D Held†, Z Erickson† (*equal contribution, †equal advising). "RL-VLM-F: Reinforcement Learning from Vision Language Foundation Model Feedback", arXiv preprint, Feb. 2024.

45. **E Bıyık**, F Yao, Y Chow, A Haig, C Hsu, M Ghavamzadeh, C Boutilier. "Preference Elicitation with Soft Attributes in Interactive Recommendation", arXiv preprint, Nov. 2023.

46. S Katz*, A Maleki*, **E Bıyık**, MJ Kochenderfer (*equal contribution). "Preference-based Learning of Reward Function Features", arXiv preprint arXiv:2103.02727, Mar. 2021.

47. **E Bıyık**, K Wang, N Anari, D Sadigh. "Batch Active Learning Using Determinantal Point Processes", arXiv preprint arXiv:1906.07975, Jun. 2019.