

Baturay Saglam

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Research interests

reinforcement learning, optimization, LLMs
RL applications in finance and wireless communications

Education

- 2023 – present **Yale University** – New Haven, CT
PhD in Electrical Engineering
– Advisors: Dionysis Kalogerias, Amin Karbasi
- 2020 – 2023 **Bilkent University** – Ankara, Turkey
MSc in Electrical Engineering
– Advisor: Suleyman S. Kozat
– Thesis: Novel deep reinforcement learning algorithms for continuous control
- 2016 – 2020 **Bilkent University** – Ankara, Turkey
BSc in Electrical Engineering
– Standing: High honors

Experience

- Mar. 2023 – Aug. 2023 **Metawaves, Futbala AI** – Singapore (remote)
Machine Learning Engineer
Cutting-edge reinforcement learning solutions for a fully-autonomous humanoid soccer match-making in the MuJoCo control and locomotion suite.
- May 2022 – Jul. 2023 **Turk Telekom** – Ankara, Turkey
R&D Operations Specialist
Research on reinforcement learning for reconfigurable intelligent surfaces (RIS) and wireless communications.
- Sep. 2020 – Jun. 2021 **DataBoss Inc.** – Ankara, Turkey
Data Scientist, Researcher
Universal Autonomy Project (served to Turkish Armed Forces) – fully autonomous terrain vehicle powered via deep reinforcement learning. Research on RL-based fully-autonomous mini-car kits.
- Jun. 2019 – Sep. 2019 **Fraunhofer IIS** – Nuremberg, Germany
Intern Engineer
5G Bavaria Project – indoor localization via 5G.

Publications

Journal Articles

- 2024 **Mitigating Off-Policy Bias in Actor-Critic Methods with One-Step Q-learning: A Novel Correction Approach**
Baturay Saglam, Dogan C. Cicek, Furkan B. Mutlu, Suleyman S. Kozat.
Transactions on Machine Learning Research, 10.48550/arXiv.2208.00755.
- 2024 **Parameter-free Reduction of the Estimation Bias in Deep Reinforcement Learning for Deterministic Policy Gradients**
Baturay Saglam, Furkan B. Mutlu, Dogan C. Cicek, Suleyman S. Kozat.
Neural Processing Letters, 10.48550/arXiv.2109.11788.
- 2023 **Actor Prioritized Experience Replay**
Baturay Saglam, Furkan B. Mutlu, Dogan C. Cicek, Suleyman S. Kozat.
Journal of Artificial Intelligence Research, 78:639-672, 10.1613/JAIR.1.14819.
- 2023 **Deep Intrinsically Motivated Exploration in Continuous Control**
Baturay Saglam, Suleyman S. Kozat
Machine Learning, 112:4959-4993, 10.1007/S10994-023-06363-4.

Conference Papers

- 2023 **User Feedback-based Online Learning for Intent Classification**
Kaan Gonc, **Baturay Saglam**, Onat Dalmaz, Tolga Cukur, Serdar Kozat, Hamdi Dibeklioglu. In *ACM Proceedings of the 25th International Conference on Multimodal Interaction*, 10.1145/3577190.3614137.
- 2023 **Deep Reinforcement Learning Based Joint Downlink Beamforming and RIS Configuration in RIS-aided MU-MISO Systems Under Hardware Impairments and Imperfect CSI**
Baturay Saglam, Doga Gurgunoglu, Suleyman S. Kozat. In *2023 IEEE International Conference on Communications Workshops (ICC Workshops)*, 10.1109/ICCWorkshops57953.2023.10283517.
- 2022 **Actor Prioritized Experience Replay**
Baturay Saglam, Furkan B. Mutlu, Dogan C. Cicek, Suleyman S. Kozat.
In *Deep Reinforcement Learning Workshop NeurIPS*, 10.1613/JAIR.1.14819.
- 2022 **An Optimistic Approach to the Temporal Difference Error in Off-Policy Actor-Critic Algorithms**
Baturay Saglam, Furkan B. Mutlu, Suleyman S. Kozat.
In *IEEE Symposium on Adaptive Dynamic Programming and Reinforcement Learning*, 10.1109/SSCI51031.2022.10022298.
- 2021 **Estimation Error Correction in Deep Reinforcement Learning for Deterministic Actor-Critic Methods**
Baturay Saglam, Enes Duran, Dogan C. Cicek, Furkan B. Mutlu, Suleyman S. Kozat.
In *2021 IEEE 33rd International Conference on Tools with Artificial Intelligence (ICTAI)*, 10.1109/ICTAI52525.2021.00027.

- 2021 **AWD3: Dynamic Reduction of the Estimation Bias**
 Dogan C. Cicek, Enes Duran, **Baturay Saglam**, Kagan Kaya, Furkan B. Mutlu, Suleyman S. Kozat. In *2021 IEEE 33rd International Conference on Tools with Artificial Intelligence (ICTAI)*, 10.1109/ICTAI52525.2021.00123.
- 2021 **Off-Policy Correction for Deep Deterministic Policy Gradient Algorithms via Batch Prioritized Experience Replay**
 Dogan C. Cicek, Enes Duran, **Baturay Saglam**, Furkan B. Mutlu, Suleyman S. Kozat. In *2021 IEEE 33rd International Conference on Tools with Artificial Intelligence (ICTAI)*, 10.1109/ICTAI52525.2021.00199.

Honors and awards

- 2023 **University of California, San Diego:** PhD fellowship
- 2023 **Yale University:** PhD fellowship
- 2022 **Turk Telekom & Information and Communication Technologies Authority:** 5G and Beyond graduate fellowship
- 2021 **Scientific and Technological Research Council of Turkey:** Directorate of Science Fellowships and Grant Programmes – graduate fellowship
- 2020 **Scientific and Technological Research Council of Turkey:** Directorate of Research Support Programs – scholarship and governmental grant of up to \$293K (project no: 117E153)
- 2020 **Bilkent University:** Merit-based tuition waiver and stipend during MSc
- 2016 **Bilkent University:** Merit-based tuition waiver during BSc

Academic Duties

Reviewer

- 2023 – *present* Springer Machine Learning, IEEE Robotics and Automation Letters (RA-L)
- 2022 ICLR, IHLF Workshop @ ICML, RL4RealLife @ NeurIPS, ACM/IEEE International Conference on Human-Robot Interaction, IEEE International Conference on Robot and Human Interactive Communication (RO-MAN)

Teaching Assistant

- Spring 2023 **CS 115: Introduction to Programming in Python** – Bilkent University
- 2020 – 2023 **EEE 212: Microprocessors** – Bilkent University
 (Spring)
- 2020 – 2023 **EEE 211: Analog Electronics** – Bilkent University
 (Fall)