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Abdullah Vanlıoğlu

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Education

Istanbul Technical University (MSc) **February 2020 - January 2023**
Faculty of Aeronautics and Astronautics Engineering, Defense Technologies
GPA: 3.5/4.0
Focus: Deep Reinforcement Learning
Advisor: Assoc. Prof. Nazım Kemal Üre

Kocaeli University (BSc) **September 2011 - June 2015**
Electrical Engineering

Work Experience

Graduate Researcher **November 2020 - Present**
Istanbul Technical University, ITU Artificial Intelligence and Data Science Application and Research Center
Supervisor: Assoc. Prof. Nazım Kemal Üre

- My research primarily focuses on developing **Multi-Agent Deep Reinforcement Learning** methods to tackle social dilemmas, wherein the selfish interests of agents are in conflict with the collective interests of the group. I have developed incentive mechanisms that modify the system's reward setup using **Meta-gradient** and **Offline RL** to align agents' self-interested policies with the cooperative policy.

- Additionally, I have also worked on a **generative model (generative adversarial networks)** that adjusts the difficulty of the environment to solve **RL agent adaptation problem**. This generative model creates new environments that are different from the training environment and have a similar distribution. Depending on the agent score on the generated map, the generative model gets feedback and tries to generate maps that improve the adaptation skills of RL agents.

AI Engineer **January 2020 - November 2020**
Pixselect Technology

- Worked on object detection and tracking algorithms

Electric Motor Design Engineer **November 2015 - January 2019**
Femsan Electric Motors

- Designed many different type of electric motors and alternators

Publications

* Equal Contribution

- Guresti, B.*, Vanlioglu, A.*, Ure, Nazim Kemal, "Empirical Robustness Analysis of Learning to Incentivize Other Self-Interested Agents", in Proceedings of the Conference of Computational Science and Computational Intelligence (CSCI), 2022.

- Guresti, B., Vanlioglu, A., Ure, Nazim Kemal,. 2023. IQ-Flow: Mechanism Design for Inducing Cooperative Behavior to Self-Interested Agents in Sequential Social Dilemmas. In Proc. of the 22nd International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2023), London, United Kingdom, May 29 – June 2, 2023, IFAAMAS, 17 pages.

Skills

Programming	Python, C, C++, Matlab
Frameworks	Pytorch, JAX, Tensorflow
Communication	Turkish (native), English