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# Abdullah Vanlıoğlu

Website
GitHub
LinkedIn

## EDUCATION

**Istanbul Technical University (MSc)**     **December 2020 - January 2023**
Defense Technologies
Focus: Multi-Agent Deep Reinforcement Learning

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

## WORK EXPERIENCE

**Graduate Researcher**     **December 2020 - Present**
Istanbul Technical University, ITU Artificial Intelligence and Data Science Application and Research Center
Advisor: 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 worked to develop **incentive mechanisms**, which modify the system's reward setup in order to ensure that the agents' self-interested policies correspond to 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 generalization 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 generalization of RL agents.

**AI Engineer**     **December 2019 - December 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

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