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# Abdullah Vanlıoğlu

GitHub LinkedIn Personal Webpage

## **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

November 2015 - January 2019

Pixselect Technology

• Worked on object detection and tracking algorithms

#### Electric Motor Design Engineer

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