

Cevahir Koprulu

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EDUCATION

University of Texas at Austin

Electrical and Computer Engineering

Research Focus: Reinforcement Learning and Multi-task Learning.

M.S. 2023, PhD 2026

GPA: 3.93/4

Bilkent University (Ankara/Turkey)

Bachelor of Science in **Electrical and Electronics Engineering**

June 2021

GPA: 3.73/4

Honours/Awards:

Bilkent University Comprehensive Scholarship (Fall 2016-Spring 2021)

Scholarship of Turkish Prime Ministry (Fall 2016-Spring 2021)

Bilkent University EEE Department High Honours (8 Consecutive Semesters: Fall 2016-Spring 2020)

University Entrance Exam, Ranked 24th among 2 million students (June 2016)

FIRST Robotics Competition 2015: Recycle Rush, Rookie All-Star Award (Spring 2015)

WORK EXPERIENCE

Eatron Technologies

Engineering Intern (all the work is under NDA)

Python, Pytorch, ROS

Istanbul, Turkey

June 2020 - June 2021

- Worked on **graph convolutional** and **self-attention**-based architectures to extract spatio-temporal features of a traffic scene for trajectory prediction in a Level-2+ ADAS powered autonomous vehicle.

ROKETSAN (in collaboration with Bilkent University)

Industrial Design Project (all the work is under NDA)

Python, C++, Pytorch, ROS

Ankara, Turkey

Sept 2019 - June 2020

- Developed a mobile robot that completes tasks given by a human leader, combining **YOLOV3 for object detection** and **artificial potential field method for path planning** in a mapped area with unknown obstacles.

RESEARCH WORK

Risk-Aware Curriculum Generation for Heavy-tailed Task Distributions

Cevahir Koprulu, *Thiago D. Simão, Nils Jansen, Ufuk Topcu*

UAI, 2023

Reward-Machine-Guided, Self-Paced Reinforcement Learning (Full Paper)

Cevahir Koprulu, *Ufuk Topcu*

UAI, 2023

Reward-Machine-Guided, Self-Paced Reinforcement Learning (Extended Abstract)

Cevahir Koprulu, *Ufuk Topcu*

AAMAS, 2023

Joint Learning of Reward Machines and Policies in Environments with Partially Known Semantics

Christos Verginis, Cevahir Koprulu, Sandeep Chinchali, Ufuk Topcu

ArXiv, 2023

Act to Reason: A Dynamic Game Theoretical Driving Model for Highway Merging Applications

Cevahir Koprulu, *Yildiray Yildiz*

CCTA, 2021

TECHNICAL SKILLS

- Programming languages: (Competent) Python, MATLAB, (Knowledgeable) C++, Java
- Software: Pytorch, TensorFlow, ROS, Linux

RELEVANT COURSEWORK

- UT Austin: Causality and Reinforcement Learning, Statistical Machine Learning, Learning-based Optimal Control, Game-Theoretic Modeling of Multi-Agent Systems, Program Synthesis, Cyber-Physical Systems, Reinforcement Learning, Convex Optimization, Probability and Statistics, and Complex Networks in the Real World.
- Bilkent University: Statistical Learning and Data Analytics (Grad), Robust Feedback Theory (Grad), Introduction to Financial Mathematics (Grad), Neural Networks, Deep Learning, Image Analysis and Pattern Recognition, and Game Theory.

RELEVANT JOBS, RESEARCH AND LEADERSHIP EXPERIENCES

Systems Laboratory

Undergraduate Researcher

Ankara, Turkey
Sept 2019 - July 2021

- Developed **human driver models** from real-traffic data that can change its reasoning level dynamically by combining **level-k game theory** and **reinforcement learning**. Published the corresponding work at CCTA 2021.

IEEE Robotics and Automation Society at Bilkent University

Chairman

Ankara, Turkey
May 2017 - June 2018

- Organized “Mühendis Kafası” in cooperation with Technology Development Foundation of Turkey: Series of sessions on Computer Vision and Deep Learning.
- Gave lectures on robotics, control techniques, and related micro-controller programming: EE-101: Introduction to Robotics with Arduino.

SHORT PROJECTS

Automatic Image-Captioning via InceptionV3 - EEE-443 Neural Networks

Fall 2019

- An auto image-captioning project based on Inception V3 to extract feature vectors processed with GLoVe word representations via merge and inject structures to carry out an image captioning task using LSTMs and GRUs.

Knockurity: Knocking Based Door Security System in C++ - EEE-212 Microprocessors

Spring 2018

- A security system operates by recognizing knocking patterns and registering users by their secret knocks. The system provides user access by Bluetooth-based wireless control for various functions.

The Thing: Wireless Controller in VHDL - EEE 102 Digital Design

Fall 2017

- A Bluetooth-based wireless controller that utilizes an inertial measurement unit via transferring orientation data from an Arduino to an FPGA to enable the user to control the mouse on a PC Screen.

LANGUAGE SKILLS

- Turkish: Native proficiency
- English: TOEFL 110/120 (Fall 2020)
- French: DELF B1 (Spring 2015)

RECREATIONAL INTERESTS

I enjoy bouldering, sports climbing, cycling, watching soccer (football :)), and reading/watching podcasts on psychology.