Cevahir Koprulu

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EDUCATION

University of Texas at Austin   M.S. 2023, PhD 2026
Electrical and Computer Engineering   GPA: 3.95/4
Research Focus: Reinforcement Learning and Multi-task Learning.

Bilkent University (Ankara/Turkey)   June 2021
Bachelor of Science in **Electrical and Electronics Engineering**   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   Istanbul, Turkey
Engineering Intern (all the work is under NDA)   June 2020 - June 2021
Python, Pytorch, ROS

- 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)   Ankara, Turkey
Industrial Design Project (all the work is under NDA)   Sept 2019 - June 2020
Python, C++, Pytorch, ROS

- 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	*UAI, 2023*
Cevahir Koprulu, *Thiago D. Simão, Nils Jansen, Ufuk Topcu*	
Reward-Machine-Guided, Self-Paced Reinforcement Learning (Full Paper)	*UAI, 2023*
Cevahir Koprulu, *Ufuk Topcu*	
Reward-Machine-Guided, Self-Paced Reinforcement Learning (Extended Abstract)	*AAMAS, 2023*
Cevahir Koprulu, *Ufuk Topcu*	
Joint Learning of Reward Machines and Policies in Environments with Partially Known Semantics	*ArXiV, 2023*
Christos Verginis, **Cevahir Koprulu**, *Sandeep Chinchali, Ufuk Topcu*	
Act to Reason: A Dynamic Game Theoretical Driving Model for Highway Merging Applications	*CCTA, 2021*
Cevahir Koprulu, *Yildiray Yildiz*	

TECHNICAL SKILLS

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

RELEVANT COURSEWORK

- UT Austin: 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 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   Ankara, Turkey
Undergraduate Researcher   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   Ankara, Turkey
Chairman   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 that operates via 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 bluetooh-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 100/120 (Fall 2020)
- French: DELF B1 (Spring 2015)

Recreational Interests

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