

# Cevahir Koprulu

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## EDUCATION

**University of Texas at Austin**, Austin, TX, USA

Electrical and Computer Engineering

**Interests:** Reinforcement Learning (RL), Generalization, and Adaptation.

M.S. 2023, PhD 2026

GPA: 3.93/4

**Bilkent University**, Ankara, Turkey

Electrical and Electronics Engineering

B.Sc. June 2021

GPA: 3.73/4

### Honours/Awards:

Bilkent University Comprehensive Scholarship

Scholarship of Turkish Prime Ministry

Bilkent University EEE Department High Honours

University Entrance Exam, Ranked 24<sup>th</sup> among 2 million students

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

## WORK EXPERIENCE

### [Honda Research Institute - US](#)

*Research Intern* (all work is under NDA)

Python, PyTorch, RAY

Ann Arbor, MI

May 2024 - August 2024

- Developed an **action advising framework**, GEN2SPEC, that leverages generalist agents to train specialist agents in a continual learning setting. This framework accelerates the training of an RL agent via action advice from a transformer-based meta-RL agent that can adapt to unseen tasks.

### [Eatron Technologies](#)

*Engineering Intern* (all work is under NDA)

Python, C++, PyTorch, ROS

Istanbul, Turkey

June 2020 - June 2021

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

### [ROKETSAN](#) (in collaboration with Bilkent University)

*Industrial Design Project* (all work is under NDA)

Python, C++, PyTorch, ROS

Ankara, Turkey

Sept 2019 - June 2020

- Developed a mobile robot that follows a human leader, combining **YOLOv3 for object detection** and **artificial potential field method for path planning** in a mapped area with unknown dynamic obstacles.

## RESEARCH WORK

Neural Stochastic Differential Equations for Uncertainty-Aware, Offline Reinforcement Learning

**Cevahir Koprulu**, Franck Djeumou, Ufuk Topcu

*Under Review*

Safety Prioritizing Curricula for Constrained Reinforcement Learning

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

*Under Review*

Dense Dynamics-Aware Reward Synthesis: Integrating Prior Experience with Demonstrations

**Cevahir Koprulu**, Po-han Li, Tianyu Qiu, Ruihan Zhao, David Fridovich-Keil, Sandeep P.

Chinchali, Ufuk Topcu, Tyler Westenbroek

*Under Review*

[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

*Artificial Intelligence, 2024*

[Act to Reason: A Dynamic Game Theoretical Driving Model for Highway Merging Applications](#)

**Cevahir Koprulu**, Yildiray Yildiz

*CCTA, 2021*

## TECHNICAL SKILLS

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- Programming languages: (Expert) Python, (Proficient) C++, Julia
- Frameworks: PyTorch, JAX, TensorFlow, ROS, RAY

## RELEVANT COURSEWORK

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- **UT Austin:** Online Learning, 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.
- **École polytechnique fédérale de Lausanne** (Exchange - Spring 2019): Image Analysis and Pattern Recognition (Grad), Convex Optimization (Grad), Deep Learning (Grad), and Biological Modelling of Neural Networks (Grad).
- **Bilkent University:** Statistical Learning and Data Analytics (Grad), Robust Feedback Theory (Grad), Introduction to Financial Mathematics (Grad), Neural Networks, and Game Theory.

## RESEARCH AND LEADERSHIP EXPERIENCES

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### Center for Autonomy

*Ph.D. Student*

Austin, TX  
Aug 2021 - Ongoing

### 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**.

### 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.

## LANGUAGE SKILLS

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

## RECREATIONAL INTERESTS

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I enjoy climbing, cycling, watching soccer (football :)), and learning about history and psychology.