Mert Albaba

Webpage | E-Mail | Google Scholar | LinkedIn

How can we enable robots autonomously acquire new skills? I develop multimodal imitation learning approaches that combine (inverse) reinforcement learning, vision language models (VLMs), and vision transformers.

Research Interests: Robotics - Vision-language-action models (VLAs) - Imitation Learning - Reinforcement Learning

7+ years research experience in reinforcement learning & imitation learning, 9 first-author papers.

EDUCATION

ETH ZURICH & MAX PLANCK INSTITUTE
PhD in Computer Science
07.2022 - Present

ELLIS Student
CLS Fellow

BILKENT UNIVERSITY
MSc and BSc in Electrical Engineering
2015 - 2021

Research Fellow
Research Award

RESEARCH EXPERIENCE

MESHCAPADE | Machine Learning Research Intern — July 2025 – December 2025

- Developed **GURMO**, a generalist model for robot motion that generates **embodiment-agnostic robot motions** from textual or keypoint conditioning signals.

ETH ZÜRICH & MAX PLANCK INSTITUTE | Scientific Researcher — July 2022 – Present

- Research on reinforcement learning and robotics. Supervised by Michael Black and Andreas Krause.
- Developed **RILe**, a novel imitation learning framework that achieves up to 20% better state-of-the-art performance in **humanoid robot locomotion**.
- Created **NIL**, the **first imitation learning approach without any data** leveraging video diffusion models, achieving state-of-the-art performance in humanoid robot locomotion.

SYSTEMS LAB, BILKENT UNIVERSITY | Researcher — March 2017 – July 2022

- Combined **reinforcement learning** with **game theory** for complex human behavior modeling, setting the state-of-the-art performance.

OZER'S LAB, BILKENT UNIVERSITY | Researcher — January 2020 – December 2020

- Developed SyNet, a **novel object detection framework** that achieves more than 10% performance improvement in detecting objects in UAV images.

PROJECTS

RILE – REINFORCED IMITATION LEARNING | Website | Supervisors: Michael Black and Otmar Hilliges

- An imitation learning framework that outperforms state-of-the-art by 20% in humanoid robot locomotion. RILe employs a novel trainer–student framework, and learns an adaptive reward function along with the policy.

NIL – NO-DATA IMITATION LEARNING | Website | Supervisors: Michael Black and Andreas Krause

- An imitation learning approach that achieves state-of-the-art performance without using any explicit data. NIL leverages pretrained video diffusion models to generate robot videos, and learns physically plausible robotic control policies from them.

CLOPS - VISION-DRIVEN AVATAR MOTION GENERATION | Website | Supervisors: Michael Black

- A reinforcement learning guided avatar motion generation method that generates motions based on partially observable egocentric observations.

GC-TTT – GOAL-CONDITIONED TEST-TIME TRAINING | Website | Supervisors: Andreas Krause

- A test-time adaptation method for offline goal-conditioned reinforcement learning. GC-TTT selects data from an offline dataset in a self-supervised way, and fine tunes the policy for a better performance during test time.

GURMO - GENERALIST UNIVERSAL ROBOT MOTION MODEL | Supervisors: Michael Black and Andreas Krause

- A generalist embodiment-agnostic robot motion model capable of generating motions for multiple humanoid robots using textual or keypoint conditioning signals.

SKILLS

EXPERTISE: • Imitation Learning • Reinforcement Learning • Diffusion Models • VLAs • VLMs • Humanoid Robots

TECHNICAL SKILLS: • Python • C++ • Java • C | • JAX • PyTorch • Tensorflow | • MuJoCo (MJX) • Isaac Lab

TOP PUBLICATIONS

- Link **NIL: No-data Imitation Learning by Leveraging Pre-trained Video Diffusion Models**. On arXiv and Under Review
- Link **Test-time Offline Reinforcement Learning on Goal-related Experience**. On arXiv and Under Review
- Link **Moving by Looking: Towards Vision-Driven Avatar Motion Generation**. On arXiv and Under Review
- Link **RILe: Reinforced Imitation Learning**. Accepted at 7th Robot Learning Workshop @ ICLR 2025 and Under Review
- Link **SyNet: An Ensemble Network for Object Detection in UAV Images.** ICPR, IEEE.
- Link **Modeling Cyber-physical Human Systems via an Interplay between Reinforcement Learning and Game Theory**. Annual Reviews in Control, 48.

ACCOMPLISHMENTS

- Ranked top 0.0001% (15th among 2 million students) in National University Graduate Examination
- Informatics Olympiad Participant