Yigit Korkmaz

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RESEARCH INTERESTS

I am a second-year PhD student interested in Robot Learning and Human-Robot Interaction. My goal is to develop algorithms that enable AI agents to model the behaviors and goals of humans and other agents by leveraging different forms of feedback, including explicit forms such as human demonstrations and comparisons, and more implicit forms such as human gaze and gestures.

EDUCATION

University of Southern California, Los Angeles, CA   Aug 2023 – Present
PhD in Computer Science. (Advisor: Erdem Biyik)   **GPA**: 4.0/4.0

University of California San Diego, San Diego, CA   Sep 2021 – Jun 2023
MSc in Electrical and Computer Engineering. (Advisor: Xiaolong Wang)   **GPA**: 3.91/4.0

Bogazici University, Istanbul, Turkiye   Sep 2016 – Feb 2021
BSc in Electrical & Electronics Engineering with a minor in Mechanical Engineering.   **GPA**: 3.74/4.0

PUBLICATIONS

In Submission

[T1] **Yigit Korkmaz**, Erdem Biyik. "MILE: Model-based Intervention Learning", *International Conference on Robotics and Automation (ICRA)*, 2025

Conference Papers

[C1] Jun Wang*, Yuzhe Qin*, Kaiming Kuang, **Yigit Korkmaz**, Akhilan Gurumoorthy, Hao Su, Xiaolong Wang. "CyberDemo: Augmenting Simulated Human Demonstration for Real-World Dexterous Manipulation", *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2024

RESEARCH EXPERIENCE

Learning and Interactive Robot Autonomy Lab (LiraLab)   Aug 2023 – Present
University of Southern California   *Los Angeles, CA*
Supervisor: Asst. Prof. Erdem Biyik

- Specializing in learning from humans through various modes, including explicit demonstrations and comparisons, as well as implicit cues like gaze and gestures, with the aim of equipping AI agents to understand and align with human goals and preferences.
- Developing algorithms to enhance the cooperation between humans and robots by utilizing multiple modes of information sources.

Prof. Xiaolong Wang's Research Group   Mar 2022 – Jun 2023
UC San Diego   *San Diego, CA*
Supervisor:Asst. Prof. Xiaolong Wang

- Worked on sim-to-real transfer for dexterous manipulation. Took part in developing a framework for robotic imitation learning from visual observations, leveraging simulated human demos by applying systematic data augmentation together with a curriculum learning strategy.

Existential Robotics Laboratory   Jun 2022 – Oct 2022
UC San Diego   *San Diego, CA*
Supervisor: Assoc. Prof. Nikolay Atanasov

- Investigated the effects of multimodal observations with tactile information on the performance of Reinforcement and Imitation Learning methods, especially in manipulation tasks.

Volumetric Analysis & Visualization Group (VAVLab)   Sep 2020 – Aug 2021
Bogazici University   *Istanbul, Turkey*
Supervisor: Prof. Burak Acar

- Worked on Dual Energy X-ray material discrimination, where the main aim is to create an efficient material discrimination and image understanding method to be used in dual energy x-ray detection systems by employing various computer vision and machine learning algorithms.

Professional Experience

Robotics Engineer
Mar 2021 – Aug 2021

Kodmed
Istanbul, Turkey

- Designed and built company's first social robot prototype, which can interact with people and its environment.
- Worked on autonomous navigation and mapping using various SLAM algorithms and depth sensors.
- Worked on object detection and tracking by implementing various deep learning models in ROS environment.
- Implemented real time speech recognition module using Speech-to-Text algorithms in the robot to enable voice control.
- Created a human-machine interface to be used in the robot with ROS and visualization tools such as Rviz and Gazebo.

Artificial Intelligence & Computer Vision Engineer
Jul 2020 – Feb 2021

senpai.gg
Istanbul, Turkey

- Implemented various deep learning models to infer various data from video games.
- Worked on different object detection algorithms in Python to create assisting features for video game players.

Hardware & Embedded Software Engineering Intern
Jul 2019 – Sep 2019

Pubinno
Istanbul, Turkey

- Took part in building of the first prototype for Smart Clean, which is a smart draft beer pipeline cleaner. Achieved 80% more effective cleaning with the designed algorithm.
- Designed and implemented different prototypes of liquid flow control using different boards such as Arduino and Raspberry Pi.
- Designed and built various test devices using PSpice to check the accuracy of the different sensors of Smart Tap, which is company's IoT based beverage tap.

Teaching

- Teaching Assistant for CSCI 445L - Introduction to Robotics at USC.
- Teaching Assistant for ECE 276A - Sensing & Estimation in Robotics at UC San Diego.
- Teaching Assistant for EE 352 - System Dynamics & Control at Bogazici University.

Extracurricular Activities

Lead Robot Inspector & Organization Committee Member
May 2015 – Present

Fikret Yuksel Foundation, FIRST Robotics Competition
Istanbul, Turkey

- Organizing off-season and official FIRST robotics competitions for high school students since 2015 in Ulker Sports Arena.
- During competitions, working as Lead Robot Inspector, which requires a certificate to ensure knowledge about mechanics, pneumatic systems, electrical circuits, sensors and programming.

Event Volunteer
Jan 2016 – Present

Bilim Kahramanlari, FIRST Lego League
Istanbul, Turkey

- Responsible for coordination of judging, robot matches and projects for students of age 9-16.

CMAS 3-Star Scuba Diver
Jan 2017 – Aug 2021

BUSAS - Bogazici University Underwater Sports Club
Istanbul, Turkey

- Passed required theoretical and practical courses, currenly holding CMAS 3 Star Diver License. Voluntarily working as a member of board of Bogazici University Underwater Sports Club(BUSAS).

Accomplishments

Scholarships and Fellowships
- Fulbright Master's Grantee (2yr, 2021-2023, $50,000 per year)
- High-School Full Merit Scholarship(5yr, $30,000)

Highlights
- Ranked as 431st/2,086,087 in 2016 OSYS (Turkish equivalent of SAT).
- 2 times 1st/1,070,445 in high-school entrance exams (SBS) in Turkey. 9th/1,070,445 in average of 3 years.

Services

Reviewer
- RA-L

Mentoring and Outreach
- Maintainer and one of the editors of UROS blog, a PhD-student-led robotics symposium at USC.
- Mentoring undergrads interested in pursuing research with 1:1 meetings to discuss their academic plans.
- Mentoring for the CURVE undergraduate fellowship for USC undergrads.

Skills & Interests

Related Coursework: Sensing and Estimation in Robotics, Planning and Learning in Robotics, Search and Optimization, Statistical Learning, Robot Learning, Computer Vision, Neural Networks and Pattern Recognition, System Dynamics and Control, Stochastic Processes, Signals and Systems, Digital Control.
Languages: Python, Matlab, C/C++, Bash.
Frameworks: PyTorch, Tensorflow, Keras, Numpy, Scikit Learn, OpenCV, ROS.
Interests: Scuba diving, freediving, surfing, basketball, volunteering, calisthenics.