Yigit Korkmaz

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Research Interests

Robotics, intelligent systems, reinforcement learning, computer vision, swarm robotics, machine learning applications in robotic systems, path and motion planning, human-machine interaction.

Education

University of California San Diego — *San Diego, CA*
MSc in Intelligent Systems, Robotics & Control. **GPA**: 3.90/4.0 — Sep 2021 – Present
Bogazici University — *Istanbul, Turkey*
BSc in Electrical & Electronics Engineering. **GPA**: 3.74/4.0 — Sep 2016 – Feb 2021
Minor in Mechanical Engineering. **GPA**: 3.75/4.0 — Sep 2017 – Feb 2021

Teaching & Research Experience

Teaching Assistant for EE 352 - System Dynamics & Control — Feb 2020 – Jun 2020
Bogazici University — *Istanbul, Turkey*
Supervisor: Prof. Yagmur Denizhan
- Held weekly problem sessions for students, helped them with their midterm studies.
- During online education period, attended weekly quizzes as supervisor.

Teaching Assistant for EE 101 - Orientation to Electrical Engineering — Sep 2019 – Jan 2020
Bogazici University — *Istanbul, Turkey*
Supervisor: Dr. Sema Dumanli Oktar
- Assisted students in laboratory sections where practical basis of EE are implemented. Helped them with PCB design and implementation.

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.
- Implemented various numerical material discrimination methods and machine learning models to classify pixels. Tested performances of different methods in simulation environments.
- The project is done in collaboration with The Scientific and Technological Research Council of Turkey.

Intelligent Systems Laboratory — Sep 2019 – Jun 2020
Bogazici University — *Istanbul, Turkey*
Supervisor: Prof. H. Isil Bozma
- Voluntarily worked at Intelligent Systems Laboratory, which is a robotics laboratory located in Bogazici Uni.
- Primarily worked on RGB-D segmentation and object detection by using a robot with a motorized Kinect mounted to it.
- Localization and path planning by using artificial potential field algorithms are implemented using ROS.

Accomplishments

Scholarships and Fellowships
- Fulbright Master's Grantee (2yr, starting from 2021 Fall, $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.
- One of the 2 students (out of ≥ 500) currently in minor program with major in EE. One of the students in 10% in terms of GPA in both departments (exact rank announced during graduation. Average GPA in the department ≤ 3.05)

Work Experience

Robotics Engineer
KodMed

Mar 2021 – Aug 2021

Istanbul, Turkey

- Designed and built company's first cognitive 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.

Part Time Artificial Intelligence & Computer Vision Engineer
FalconAI

Jul 2020 – Feb 2021

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.
- Developed various scripts using openCV, Keras and Tensorflow to improve and evaluate learning models' performance.

Hardware & Embedded Software Engineering Intern
Pubinno

Jul 2019 – Sep 2019

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.
- Worked mainly in R&D department. Designed and implemented different prototypes of 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.

Extracurricular Activities

Lead Robot Inspector & Organization Committee Member
Fikret Yuksel Foundation, FIRST Robotics Competition - Turkey

May 2015 – Present

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
Bilim Kahramanlari, FIRST Lego League - Turkey

Jan 2016 – Present

Istanbul, Turkey

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

Volunteer
Science Truck and Science Museums

Jan 2012 – Apr 2014

Istanbul, Turkey

- Took part in building a mobile science museum that traveled 20.000 miles across Turkey. Introduced projects and scientific concepts to attending adults and children all over the country.

CMAS 3-Star Scuba Diver
BUSAS - Bogazici University Underwater Sports Club

Jan 2017 – Present

Istanbul, Turkey

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

Skills & Interests

Related Coursework: Search and Optimization, Statistical Learning, Introduction to Machine Learning, Computer Vision, System Dynamics and Control, Introduction to Robotics, Control, Technology and Design, Signals and Systems, Mechanical Vibrations, Digital Control.
Languages: Python, Matlab, C/C++, Bash, SPICE.
Frameworks: PyTorch, Tensorflow, Keras, Numpy, Scikit Learn, OpenCV, ROS.
Interests: Scuba diving, freediving, surfing, basketball, volunteering, calisthenics.