Ali Ekin Gurgen

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Education

Princeton University, Princeton, NJ *2017 - 2021*
B.S.E. in Mechanical & Aerospace Engineering, GPA: 3.75/4.00
Certificates: Applications of Computing, Robotics & Intelligent Systems, Statistics & Machine Learning

- Turkish Student Association (President): Organize events for the Turkish community at Princeton.
- McGraw Center (Physics Tutor): Tutor Princeton students in mechanics (PHY 103) and electromagnetism (PHY 104).

Robert College, Istanbul, Turkey *2012 - 2017*
High School Diploma, GPA: 96.28/100

- Koç Family Outstanding Success Award, Alfred Friendly Scholarship, National High Honors

Experience

Software Engineering Intern (Autonomous Vehicles) *Jun 2020 - Present*
Ford Motor Company - Istanbul, Turkey

- Work as the principal full-stack developer to create a web-based Human-Machine Interface for L4 autonomous trucks.
- Write JavaScript libraries to read and convert raw autonomous driving data from ROS into the XVIZ protocol.
- Develop a web app that lets drivers visualize and interact with autonomous vehicle data, utilizing React and WebGL.

Robotics Research Assistant *Oct 2019 - Present*
Intelligent Robot Motion Lab at Princeton University - Princeton, NJ

- Investigate applications of computer vision and machine learning in providing end-to-end solutions to the mobile robot navigation problem in Prof. Anirudha Majumdar's research lab.
- Implemented a PyBullet simulation of an UGV in an obstacle dense environment, designed and conducted a dataset collection procedure to collect more than 50,000 RGB-D images to be used for training.
- Designed, trained and validated a neural-network-based motion planner that uses the input from an onboard FPV camera to predict a sequence of control inputs that result in collision-free paths, using PyTorch for deep learning.

Robotics Engineering Intern *January 2020*
Samsung AI Research Center - New York, NY

- Collaborated with 2 other interns on a project to control a 7-DOF robotic arm that can autonomously hook rings.
- Conducted research on developing a vision-based robotic manipulation method for novel circular objects, performed inverse kinematics calculations, and utilized an RGB-D camera and Dynamixel motors for actuating the detection and manipulation tasks.

Software Developer, Hardware Designer *Sep 2017 - Dec 2019*
Princeton Robotics Club - Princeton, NJ

- Designed, built and coded (in C) an Arduino-based maze solving robot for the Princeton Micromouse Competition against teams from Harvard, Brown, Union and Rutgers, and won first prize.
- Assembled an autonomous quadcopter drone, utilizing a ROS driver on Raspberry Pi to process computer vision input, enabling the drone autonomously fly through a course of rectangular hoops.

Skills

Programming Languages	ML / Computer Vision	Full-Stack / Visualization	Hardware
• C/C++	• PyTorch	• React, NodeJS	• CAD/CAM
• Python	• TensorFlow	• PyQt, Flask	• Manal Machining
• Java	• OpenCV	• SQL	• 3D Printing
• JavaScript	• AWS	• HTML, CSS	• Laser Cutting
• MATLAB	• PyBullet	• UI/UX Design	

Languages: Turkish (Native), English (Fluent), German (Novice)