ENES DEMİRAĞ

mail | github | linkedin | medium

Education

Istanbul Tecnical University, Master of Science — Istanbul, Turkey
Computer Engineering — *Feb. 2021 – Present*

Istanbul Tecnical University, Bachelor of Engineering — Istanbul, Turkey
Electronics and Communication Engineering – GPA: 2.99 – thesis — *Sep. 2016 – Feb. 2021*

Liverpool John Moores University — Liverpool, UK
Erasmus Student Exchange Program — *Jan. – June 2019*

Ümraniye Anatolian High School — Istanbul, Turkey
2012 – 2016

Experience

Baykar Defence — Aug. 2020 – Present
Software Engineer
Baykar Defence is a private Turkish defence company specialising in armed UAVs. In the last summer break of my senior year, I received an internship opportunity to work on UAV vision systems. At the end of my internship, I was offered to join the R&D team of the Akıncı project. Under the Imaging Systems and UI Development Software Team I worked 3 months as an intern, 6 months as a Part-Time Developer while studying. Shortly after getting my bachelor's degree I continued working here as a Full-Time Computer Vision Engineer.

- Developed an augmented reality system from scratch using OpenGL API.
- Worked and improved the real-time video decoding systems using FFmpeg library.
- Developed many image processing, video enhancement and filtering techniques using OpenCV library.
- Managed more than 10 different vision based projects as a lead engineer.
- Worked on camera calibration of wide angle electro optic and thermal cameras.
- Worked and improved the Data Analysis app used by all UAV pilots around the world for real-time flight analysis.
- Worked with front-end developers and have experience in GUI development with WPF framework.

Ravinspect Tech. — July – Sep. 2018
Intern
This start-up company is developing drones for visual inspection. As a software intern, I worked on Point Cloud Filtering, indoor localisation and mapping using a Stereo Camera. – my work.

- Developed a ROS package for point cloud filtering and real-time mapping – simpcl.
- Worked of stereo vision and visual odometry using ROS environment.
- Developed and deployed a real-time 3D mapping system onto a drone.

DESI Security & Lock Systems — July – Aug. 2017
Intern
DESI is a manufacturing and R&D company dealing with electronic security business. As an electronics intern I worked there, practising with electrical components and microcontrollers.

- Experienced electronic circuit incpection using oscilloscope.

ITU Department of Information Technology — Apr. – July 2017
Assistant Student
This department develops all IT needs of university as hardware, software, data communication systems and technical services in our university.

- Learned about networking, system administration, and web development.
- Worked on Linux systems.

Team Projects

ITU AUV Team | Autonomous Underwater Vehicle | *Software Team Member* | website | repo Sept. 2018 – Apr. 2020

ITU AUV Team is an underwater robotics team, that came together to prepare a fully autonomous underwater vehicle for the RoboSub and Singapore AUV Challenge competitions. I mainly worked on vision systems and object detection algorithms using machine learning tools. Also gave beginner level lectures about Linux, Git and ROS to newcomer students.

- Worked on Linux systems and ROS environment.
- Used Git and work with more than 20 students collaboratively.
- Prepared custom dataset for our needs, applied data augmentation, developed object detection system using Tensorflow, applied fine-tuning and deployed on a Nvidia Xavier computer.
- Implemented path planning and following algorithms for AUV.
- Worked on STM32 microcontroller for low-level sensor signal processing and robotic manipulations.

ITU Robotics | Student Club | *Tutor* | website | syllabus Oct. – Now. 2019

Previously known as ARIGE is a robotics club among Istanbul Technical University. The club has many achievements, tons of opportunity for Research and Development projects with great minds. Can handle any size of project from micro robots to mars rovers and underwater vehicles. A cool place for the robot enthusiasts in the ITU campus.

- Gave "Introduction to Programming with Python" lecture to nearly 30 students within ITU kampus for 5 weeks.

ITU ROV Team | Remotely Operated Underwater Vehicle | *Software Team Leader* | website Oct. 2016 – Sept. 2018

This is a university team which we founded with my friends to develop and spread underwater robots in Turkey. The team got first place in Turkey branch of the MATE ROV Competition 2017 and 2018, then attended the international finals in USA.

- Developed a GUI for vehicle operator with C# Winforms.
- Managed the software development process as a team leader. Conducted the coordination with mechanics and electronics teams.
- Worked on data communication protocols like TCP/UDP, i2c, and UART.
- Developed motor controlling and other embedded systems on Arduino.

ITU Formula Team | Self Driving Car | *Autonomous Systems Team Member* | website Sept. 2017 – Aug. 2018

At Advanced Vehicle Technologies, Autonomous and Power Systems Laboratory of my faculty, I worked as a research assistant working on autonomous driving technologies.

- Work with ECU and ignition system of an internal combustion engine.
- Worked with LiDAR systems, SLAM and point cloud processing on a driverless vehicle.
- Developed lane detection system and implement image processing algorithms.

Personal Projects

mapGAN : *2D Heightmap Generator Network – Generative Adversarial Network using TensorFlow* repo
neuraldart : *Multilayer Perceptron Neural Network Implementation with Dart* repo
gate-detection : *Underwater Object Detection using PyTorch* repo
simpcl : *Point Cloud Filtering and Mapping package for ROS* repo
programming-exercises : *Programming Exercises about Interesting Topics* repo
pixel-project : *ESP32 controlled LED Matrix* repo
yuvarlan : *Unity Game Development Project with C#* repo

School Projects

music-genre-classification : *GTZAN Music Genre Classification with CNN* repo
cifar10-classification : *CIFAR-10 Image Classification with Neural Networks* repo
graph-algorithms : *Implementation of Minimum Spanning Tree & Shortest Path algorithms with C.* repo
semaphores : *Example of interprocess communication using semaphores with C.* repo
eAuctionSystem : *Object Oriented Design and Programming of an Auction System with Java* repo
lock-pic : *Storage Lock Controller Project written in Assembly.* repo

Skills

Technical Skills : Computer Vision, Machine Learning, Linux Systems, Robotics, Object Oriented Programming
Programming Languages & Tools : C++, C#, Python, Linux, Git, ROS, OpenCV, OpenGL, FFmpeg
Soft Skills : Problem Solving, Critical Thinking, Teamwork, Communication

Languages

Turkish : Native
English : Advanced

Test Results

ITU Proficiency Exam : 94/100
YDS : 87.5/100
Online Linguistic Support Level for Erasmus+ : C1
ALES : 85.96

Courses

PCAP: Programming Essentials in Python : Python Institude

Machine Learning Crash Course : Google – my work.

Awards

2018 MATE ROV Competition : 11th - Federal Way, Washington, USA | repo
2018 MATE ROV Regional Competition : 1st - Istanbul, Turkey

2017 MATE ROV Competition : 23th - Long Beach, California, USA | repo
2017 MATE ROV Regional Competition : 1st - Istanbul, Turkey

Organizations

Kafkas Vakfı : Kafkas Vakfı is a non-governmental civil society foundation that carries out activities for the protection and development of the socio-cultural identities of Caucasians in Caucasia and the diaspora. I voluntarily work on website maintenance and organization of online activities. | Foundation Website | News Agency | YouTube Page

Teknofest : Teknofest is the first and only Aerospace and Technology Festival in Turkey. The primary goals of the festival are to raise public awareness about technology in society and to draw attention to the importance of national production. Competitions are organized in many different categories. People of all ages from primary school students to experienced people in industry can take part in the competitions with their projects. I'm one of the judges of Fighter UAV Competition, responsible for post-competition video analysis. | website

References

Büşra Alp Baykar Defence
Sencer Yazıcı PickNik Robotics
Hakkı Furkan Korkmaz Hepsiburada
Ege Saygılı Delivers AI