

Anil Karaca

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Interests

Operating Systems, Computer Architecture, Embedded Systems, Data Communication, Image Processing, Deep Learning

Education

BACHELOR OF SCIENCE - ABET ACCREDITED | HACETTEPE UNIVERSITY | ANKARA, TURKEY | 08/2017 – 06/2023 (EXPECTED) | CGPA: 3.04/4.00

- Attended English Preparatory School in the first semester of 2017-2018 academic year
- Major: Electrical and Electronics Engineering (English)
- Coursework and Projects:
 - Computers and Programming: Implemented the fundamental concepts of programming including dynamic memory allocation with C
 - Fundamentals of Digital Systems: Designed Arithmetic-Logic Unit with VHDL using Xilinx Vivado software
 - Microprocessor Architecture and Programming: Built simulation for circuits including operational amplifiers with x86 Assembly
 - Data Structures: Implemented and compared different data structures and sorting algorithms with C++
 - Data Communication: Analyzed the layered structure of computer networks alongside Dijkstra's and Bellman Ford's algorithms
 - Image Processing: Trained YOLOv3 model for component detection on PCBs by using Python and Google Colab
 - Embedded System Design: Built an IoT weather reporting system by utilizing MSP430s, ESP8266s and an MQTT server
 - Computer Control: Learned the concepts of discrete control systems and simulated them by using MATLAB and Simulink
- Graduation Project:
 - USRP-based Testbed for Undergraduate Digital Communications Course | Advisor: Dr. Berkan Dölek | 09/2022 – Present
 - Implemented FM Receiver, FM Transmitter, FRS Full-Duplex and Peak Detection concepts on Ettus Research USRP X310 by using GNU Radio
 - Designed Graphical User Interfaces for these digital communication concepts by using Qt
 - Documented our work and created tutorials about implemented concepts by using Sphinx Python documentation generator
 - Currently working on FFT-based frequency offset calculation at baseband and wireless transmission of files between USRPs
- References:
 - Dr. Berkan Dölek | Professor at Hacettepe University | berkan@ee.hacettepe.edu.tr
 - Dr. İsmail Uyanık | Assistant Professor at Hacettepe University | uyanik@ee.hacettepe.edu.tr

OPEN EDUCATION | ANADOLU UNIVERSITY | ESKİŞEHİR, TURKEY | 08/2022 – 06/2024 (EXPECTED)

- Major: Computer Programming (Turkish)
- Courses: Information Technologies, Web-based Programming, Spreadsheet Programming, User Experience Design

Experience

EMBEDDED SYSTEM ENGINEER | STG ENGINEERING | ANKARA, TURKEY | 09/2022 – PRESENT

- Building Embedded Linux Distributions for AMD – Xilinx Zynq Ultrascale+ MPSoC FPGAs with PetaLinux
- Building Embedded Linux Distributions for BeagleBone Black platforms with Yocto Project
- Configuring the FSBL, U-Boot and Kernel components of Embedded Linux Distributions by using C and Shell script
- Programming GStreamer applications by using C/C++ to utilize the VCU components of AMD – Xilinx K26 SoMs

MAINTENANCE AND AUTOMATION ENGINEERING INTERN | ARÇELİK GLOBAL | ESKİŞEHİR, TURKEY | 07/2022 – 08/2022

- Worked for the maintenance and automation of one of the biggest compressor plants in the world.
- Participated in a voluntary R&D project for elected interns by researching the opportunities for Arçelik Global in Southeast Asia market
- Conducted a total of 5 automation projects for the compressor production line by using TIA Portal software for Siemens S7-1200 PLCs

Reference: Burak Avağ | Senior Electrical-Automation Engineer at Arçelik Global | burak.avag@arcelik.com

IMAGE PROCESSING AND MACHINE INTERACTION ENGINEERING INTERN | BAYKAR TECHNOLOGIES | ISTANBUL, TURKEY | 08/2021 - 09/2021

- Worked for one of the largest Unmanned Aerial Vehicle manufacturers in the world.
- Built a real-time camera calibration application for automatic path planning of Bayraktar TB2 UAVs by using OpenCV and MATLAB
- Implemented the Davide Scaramuzza's Camera Calibration for Omnidirectional Cameras algorithm with C++
- Built a live and secure video broadcasting system by using the TCP/IP protocol with Qt

Reference: Enes Demirağ | MLOps Engineer at Chooch | enes.demirag@chooch.com

Projects

- Hydrogen-based Rocket System | Plan-S Innovation Challenge | 09/2022 – 11/2022
 - Researched the presence of hydrogen in cosmic rays and their possible use cases for hydrogen-based rockets
- Personal Website Design | 06/2020 – 09/2020
 - Designed and built a personal website by using HTML5, CSS3, Bootstrap and JavaScript from scratch
- Autonomous Traffic Robot | ITURO (Istanbul University Robot Olympics) |12/2017 – 02/2018
 - Took part in the image processing part of this project by using OpenCV

Organizations

CO-FOUNDER | HACETTEPE FREE SOFTWARE SOCIETY | 11/2019 – PRESENT

- Developed key operational initiatives to establish and drive an organization
- Organized a variety of technical and social events for the community (100+ members) including:
 - Modern Web Design Course in cooperation with IEEE branch
 - GNU/Linux System Administration Course
 - Introduction to Programming and Algorithms Course
 - Web Programming with PHP

Certificates

- MongoDB and Mass Data for developers and DBAs | Mustafa Akgül Free Software Camp | 08/2022
- Automotive Summer Camp Certificate of Achievement | Automotive Industry Association | 07/2022
- Aviation Engines School | TEI-TUSAŞ Engine Industries, Inc. | 06/2022
- Deep Learning Specialization | deeplearning.ai | 10/2020
- The Web Developer Bootcamp | Udemy | 09/2020

Language

- Turkish (Native)
- English (Fluent)
 - Took courses since the beginning of primary school
 - Attended several voluntary courses provided by Tahmaz Language School and Afyon Kocatepe University
 - Improved my skills by watching movies and generally being surrounded by the culture
- Deutsch (Elementary)
 - Took courses since the beginning of high school
 - Attended 2 voluntary courses provided by Hacettepe University
 - Currently following an elementary level online course by Goethe-Institute

Outreach Activities

- Sport:
 - Played basketball as a point guard for “12 Dev Adam Basketbol Okulları” and my high school team.
 - Played table tennis for my high school team.
- Societies:
 - Member of IEEE, ACM and Robotics Society branches in Hacettepe University
- Hobbies:
 - Video Games
 - Movies
 - Comics
 - Sports