KAAN OKUMUŞ

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EDUCATION

Master of Science, École Polytechnique Fédérale de Lausanne (EPFL)   Sep. 2021 - Present
Communication Systems
CGPA: 5.37/6.00, Anticipated Graduation Date: Jul. 2023

Bachelor of Science, Middle East Technical University (METU)   Sep. 2016 - Jul. 2021
Electrical and Electronics Engineering
CGPA: 3.87/4.00, Ranked 6th out of 350 students

EXPERIENCE

Intern   Jul. 2022 - Present
Kandou Bus

I am working as a signal processing intern. I started working for the analysis of link model of high speed wired communication. Then, I continued working on phase locked loops (PLL) and will provide a GUI for charge pumped PLL parameter optimization for analog design team of Kandou. I'll also work for Ising Machines and their implementation for synchronization purposes.

Student Assistant   Apr. 2022 - Present
EPFL Hub for Advanced Image Reconstruction

I contribute to the development of PycSou v2. PycSou is a Python 3 package for solving linear inverse problems with state-of-art proximal algorithms. The software implements in a highly modular way the main building blocks -cost functionals, penalty terms and linear operators- of generic penalised convex optimisation problems.

Intern   Aug. 2020 - Sep. 2020
HAVELSAN A.Ş., Information and Communication Technologies

I designed and developed a cat breed detection app using Object Detection and Image Classification tools with Neural Networks and Deep Learning techniques. I also designed a GUI in Python for my application.

Intern   Jun. 2020 - Aug. 2020
ASELSAN A.Ş., SST - Digital and Embedded Systems

Using MicroZed 7010 that is based on the Zynq-7000 family, I designed Embedded Hardware Systems using Vivado® Design Suite and developed them using its Software Development Kit (SDK) with the use of C programming language. Also, I designed Digital IIR and FIR filters using Python with Scipy module and run it on the operating system on MicroZed that is compiled using Petalinux.

COMPUTER SKILLS

C, C++, MATLAB, Simulink   *Advanced Level, Self-Improved*
Python with Numpy, Scipy, TensorFlow, PyTorch   *Advanced Level, Self-Improved*
Swift, R, Linux, Bash   *Advanced Level, Self-Improved*

LANGUAGE PROFICIENCY

Turkish (*Native Speaker*), English (*Advanced*), French (*Intermediate*)

HONORS AND AWARDS

Award for best user interface as a member of the team, HAI-CO.   Jul. 2021
Middle East Technical University, Electrical and Electronics Engineering - Senior Engineering Design Committee

Doç. Dr. Bülent Kerim Altay (BKA) Award   Jun. 2021
Middle East Technical University, Electrical and Electronics Engineering

Dean's High Honor Roll   2017-2021
Middle East Technical University

8 times (every semester)

CERTIFICATES

Data Science: Data Visualization from HarvardX - edX	Jul. 2021
Digital Signal Processing 4: Applications from EPFL - Coursera	Jul. 2021
Convolutional Neural Networks - Coursera	Sep. 2020
Convolutional Neural Networks in TensorFlow - Coursera	Aug. 2020
Neural Networks and Deep Learning - Coursera	Aug. 2020
Introduction to TensorFlow for AI, Machine and Deep Learning - Coursera	Aug. 2020

PROJECTS

Ground-Truth Aware Poisson-Gaussian Noise Parameters Estimation of Images   Present
École Polytechnique Fédérale de Lausanne, Computational Photography Project

The purpose of this project is to propose a Poisson-Gaussian modeling for the raw-image of the sensors and propose an algorithm to solve the parameters of this model with the use of observed and ground-truth images. Maximum likelihood solution is derived, and its practical implementation is discussed and two algorithms based on variance and cumulant statistics are proposed.

Self-Monitoring for Symptoms   Jun. 2021
Middle East Technical University, Design Project

A wearable device as a chest strap and mobile application is designed to monitor COVID-19 symptoms of the user and warn the user about the probability of having COVID-19. Cough, fever and heart rate of the user are automatically detected by the wearable device, while other major symptoms are designed to be logged in via mobile application. The data transmission between wearable device and mobile application is handled by BLE technology.

A Lane Adjuster Analog Electronic Circuit for Smart Car Applications   Jan. 2020
Middle East Technical University, Analog Electronics Project

The purpose of the project is to model the lane decision according to the type of the car behind it. This model is achieved by analog electronic circuits with certain specifications that are the type and the lane information of the car. All these specifications are processed and generated via signal generator, summing and power amplifier, microphone driver, filter and the logic design circuits.