

Eren Dogan

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EDUCATION

University of California, Santa Cruz

PhD in CSE; Advisor: Matthew Guthaus

Santa Cruz, CA

September 2022 – Present

Ozyegin University

BS in CS; GPA: 4.00/4.00

Istanbul, Turkey

September 2017 – June 2022

RESEARCH

Ozyegin University

Research Intern, Advisor: Prof. H. Fatih Ugurdag

Istanbul, Turkey

October 2020 – September 2021

- **OpenCache:** An open-source generator to create custom caches using OpenRAM's SRAM arrays. It generates a synthesizable Verilog file for cache logic and configuration files for OpenRAM to generate the internal SRAMs of the cache. OpenCache inputs a configuration file that includes various parameters about the desired cache such as total size, number of ways, replacement policy, etc. Additionally, OpenCache can use other EDA tools to verify the output cache through randomly generated testbenches. This generator is written in Python using the Amaranth library, which is a Python-to-HDL toolkit.
- **Deep Compression for PyTorch Models:** Improving a "PyTorch to C generator" by applying compression methods on Convolutional Neural Networks (CNNs). Mr. Hasan Unlu of Tesla has developed a generator to deploy PyTorch models on microcontrollers efficiently. To improve this generator, I used pruning and quantization methods. Weights are saved as compressed sparse column (CSC) format to decrease memory usage and forward pass functions are improved to use CSC arrays directly without losing performance.

EXPERIENCE

Ozyegin University

Undergraduate Teaching Assistant

Istanbul, Turkey

September 2019 – June 2021

Assisted the following courses: Computer Programming (CS101), Digital Systems (EE203), Computer Architecture (CS240)

PROJECTS

Linux USB Mouse Sound Driver

March 2021 – June 2021

A Linux device driver developed for the Operating Systems course (CS350) at Ozyegin University. The kernel driver for USB mouse plays virtual click sounds when the physical mouse buttons are clicked.

Secure Chat

October 2020 – January 2021

A chat application developed for the Computer Networks course (CS447) at Ozyegin University. Client-server communication was developed using Python sockets. Encryption methods were used to implement end-to-end encryption for Internet chat.

Image Processor JS

October 2020

An image processing simulator in JavaScript. Some image processing algorithms were implemented for educational purposes.

Pathfinder JS

October 2020

A path finding simulator in JavaScript. Some shortest path finding algorithms for grid mazes were implemented for educational purposes.

OutRun JS

June 2020 – July 2020

A game simulator for the arcade game OutRun in JavaScript. Pseudo 3D game engine (faking 3D projection in a 2D world) was developed for this project.

PROGRAMMING SKILLS

Languages: Python, C/C++, Verilog, Java, JavaScript, SQL, HTML/CSS

Miscellaneous: Git, Linux, Amaranth, PyTorch