Arda Caliskan

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EDUCATION

University of Southern California, Viterbi School of Engineering August 2020-May 2024
Bachelor of Science in Electrical and Computer Engineering Total GPA: 3.94/4.0
University of Southern California, Viterbi School of Engineering August 2023 - May 2024
Masters of Science in Electrical Engineering

Honors: CURVE Research Fellow, Dean's List
Activities and Societies: USC Formula Electric, IEEE
Relevant Coursework: MOS VLSI Circuit Design, Computer Systems Architecture, Systems for Machine Learning, Computer Systems Organization, Introduction to Embedded Systems, Linear Circuits, Distributed Systems for the Internet of Things, Electromagnetics for Engineering Systems, Software Design for Electrical Engineers, Introduction to Digital Circuits, Physical Electronics, Linear Systems, Electronic Circuits

SKILLS & INTERESTS

Software: MATLAB, C++, C, Verilog, Python, Pytorch, Cadence Virtuoso, gem5, FPGA
Hardware: Embedded Systems, PCB design, Computer Architecture, VLSI Design

EXPERIENCE

USC – Undergraduate Teaching Assistant, Intro to Embedded Systems August 2021–Present

- Working as a Course Producer (Undergraduate Teaching Assistant) for Introduction to Embedded Systems.
- Holding office hours with 30+ students to assist in designing and debugging embedded systems that use Arduino UNOs and small electronic parts.

SPORT Lab – Undergraduate Researcher September 2023–Present

- Working with a professor and postdoc researcher designing, simulating, and optimizing digital superconducting circuits for use in a superconducting CPU design.

USC Formula Electric - Systems Electrical Co-Lead August 2022–Present

- Taking a leading role in creating SC Formula Electric's first-ever fully operational electric competition race car.
- Actively participating in the recruitment and successful integration of new team members.
- Facilitating seamless collaboration with other subteams to ensure the harmonious functioning of all electrical systems, compliance with regulations, and physical integration with the vehicle's overall structure.
- Managing and supervising the testing and wiring of critical high and low voltage systems and spearheading schematic design and fabrication.

Khan Lab – Undergraduate Research Assistant through CURVE Fellowship August 2022–May 2023

- Engineered an innovative process utilizing a Volterra NOVA system to manufacture flexible PCBs, resulting in cost savings and reduced production lead times.

STAC Lab – Undergraduate Researcher January 2022–May 2022

- Collaborated with a professor and Ph.D. candidate to produce LIDAR-derived point clouds within the CARLA simulator for data compression research for autonomous driving applications.

RECENT PROJECTS

LLM Training Project November 2023

- Implemented and trained a large language model using the LLaMA architecture.
- Optimized memory usage using automatic mixed-precision, low-rank adaptation, and gradient checkpointing to enable the model to fit inside a single GPU.
- Fine-tuned the model using the Alpaca dataset.

Cadence VLSI Project May 2023

- Designed a 20-bit adder-accumulator in Cadence Virtuoso, producing the best design in the class.
- Strategically tweaked the design to achieve the optimal balance between area and delay.
- Thoroughly assessed various logic families to maximize the chosen metric, and meticulously optimized the layout to minimize overall area utilization.

Pacman FPGA Project November 2022

- Wrote Verilog code for an FPGA-based Pacman game, seamlessly integrating it with a VGA interface.
- Incorporated a pseudo-random algorithm to infuse variability into the gameplay experience.