

Alexander D. Gotsis

SEEKING FULL-TIME EMPLOYMENT STARTING SUMMER 2020

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Education

Carnegie Mellon University

Pittsburgh, Pennsylvania

M.S. IN ELECTRICAL AND COMPUTER ENGINEERING (OVERALL GPA 3.65/4.00)

Expected May 2020

B.S. IN ELECTRICAL AND COMPUTER ENGINEERING WITH UNIVERSITY HONORS (OVERALL GPA 3.49/4.00)

May 2019

- CIT Dean's List Fall 2015, Spring 2017, and Spring 2018, Senior Leadership Recognition, University Honors

Selected Coursework

Logic Design and Verification	Intro to Computer Architecture	Structure & Design of Digital Systems	Capstone Design
Operating Systems Design & Impl.	Embedded Systems Software Engineering	Advanced Storage Systems	Secure Coding

Experience

NVIDIA Corporation

Santa Clara, California

CUDA UNIFIED VIRTUAL MEMORY SYSTEMS SOFTWARE INTERN - GPU RTL DESIGN/VERIFICATION INTERN

July 2019 - December 2019

- Perform bugfixes and improvements on the Unified Virtual Memory (UVM) linux kernel module of the CUDA kernel-mode driver and its unit and performance tests. Implement and verify a new cross-platform performance test for the Copy Engine to guide development.
- Future contributions to GPU sub-modules on the GPU RTL Design/Verification team from September to December.

MITRE Corporation

Bedford, Massachusetts

EMBEDDED SOFTWARE COOP/INTERN

May 2018 - August 2018

- Develop and test a multiple power & clock fault testing suite as Python interfaces for Arbitrary Waveform/Function Generators.
- Profile Dwenguino AVR instructions and develop suite for profiling other hardware implementations.
- Alter programmable logic for secure video game console eCTF to store symmetric keys. Win 2nd place in eCTF and Iron Flag Award.

Robotany

Pittsburgh, Pennsylvania

ELECTRICAL ENGINEERING POWER SYSTEMS INTERN

May 2017 - May 2018

- Design 3-phase delta 240V electrical power system for robotic vertical farm, fixture wiring, and control racks.
- Specify and implement power system including conduits, transformers, and load centers. Manage and direct assembly teams.

Auditory Lab (Profs. Heller and Grover)

Pittsburgh, Pennsylvania

ELECTRICAL AND COMPUTER ENGINEERING RESEARCH & DEVELOPMENT ENGINEER

May 2016 - May 2017

- Engineer mobile application to assist in teaching echolocation skills to visually impaired persons on an interdisciplinary team.
- Provide back-end design for and administrate data collection server.

Skills & Hobbies

SystemVerilog	FPGAs	ARM	Python	Computer Architecture	Operating Systems	Realtime Embedded	Climbing
UNIX Systems	C / C++	x86	Git	Reverse Engineering	Lab Equipment	Rapid Prototyping	Hiking/Backpacking

Projects & Extracurriculars

- **RTL Design/Verification Projects** LOGIC DESIGN & VERIFICATION - 18-341 (FALL 2018), COMPUTER ARCHITECTURE - 18-447 (SPRING 2019)
Designed & implemented optimized pipelined matrix multiply-accumulate, concurrent "NoC" packet router, and more in SystemVerilog. Implemented a series of increasingly complex RISC-V processors ranging from a single-cycle design to an out-of-order architecture.
- **UNIX-like Kernel from Scratch** OPERATING SYSTEMS DESIGN & IMPLEMENTATION - 15-410/605 (SPRING 2018)
Designed & implemented the entirety of a small (14k loc) and robust UNIX-like kernel on x86-32 with a partner over 8 weeks. Some features include kernel-level threads, user-level threads, condition variables, mutexes, readers-writers locks, and virtual memory management.
- **Embedded Capture the Flag** 2ND PLACE TEAM, IRON FLAG AWARD (JUNE 2018 - JULY 2018)
Designed a secure video game console with a team part time over 8 weeks. Defended own design & attacked other team's systems.
- **Build 18 Hardware Hackathon** BUILDER (JANUARY 2017)
During a week-long Hardware Hackathon, designed & implemented a protocol for driving a 96 x 64 RGB LED Matrix via an FPGA in SystemVerilog. Use this display to show programmatically derived 3D animations.
- **Activities Board Technical Committee** CORE MEMBER & EXECUTIVE BOARD (2015 - PRESENT)
Direct & implement production services for campus events including 3-phase power systems, rigging, and professional audio & lighting.
- **CMU Explorers Club (CMUX)** MEMBER (2015), HIKING CHAIR & TREASURER (2016-PRESENT)
CMUX is an club dedicated to making outdoor activities more accessible. Organize hikes as Hiking Chair. Manage finances as Treasurer.
- **Spring Carnival Committee** HEAD OF ELECTRICAL (2016 - 2019)
Responsible for the power distribution and safety of all building organizations for Spring Carnival. Oversee implementation and inspection.