Antti Meriluoto

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EDUCATION

Cornell University, College of Engineering, Ithaca, NY
Master of Engineering, Electrical and Computer Engineering **Expected Dec. 2024**

Bachelor of Science, Computer Science **Expected May 2024**
GPA: 3.77; Dean's List: Fall 2020, Spring 2021, Fall 2021, Fall 2022, Spring 2023
Relevant Courses: Operating Systems; Computer Systems Organization; Analysis of Algorithms; Artificial Intelligence; Machine Learning; Embedded OS; Object-Oriented Programming & Data Structures; Discrete Math; Functional Programming; Linear Algebra; Multivariable Calculus; Differential Equations

Awards: SAT 1590, AP Scholar with Distinction, National Merit Commendation

SOFTWARE ENGINEERING EXPERIENCES

NASA Jet Propulsion Laboratory, Pasadena, CA, *Software Engineering Intern* **May 2023-Aug. 2023**
- Developed a device driver in C for Green Hills INTEGRITY RTOS to support a PCIe FPGA Card
- Abstracted RTOS APIs with a library supporting DMA transfers to/from CPU, device RAM, and device flash
- Wrote functions that parsed and loaded a description bitstream, enabling remote reconfiguration of the FPGA
- Provided software interface for an FPGA designed to simulate a peripheral IMU in a hardware-in-the-loop testbed, and verified functionality by analyzing output waveforms on an oscilloscope
- Fixed IRQ-line incompatibility with mounted NFS by debugging and modifying ISR

CACI International Inc., Florham Park, NJ, *Embedded Software Engineering Intern* **May 2022-Aug. 2022**
- Redesigned a polling-based debug shell to an IRQ model to reduce CPU time allocation by 50%
- Implemented a background monitoring task using multithreading and concurrency protocols to track telemetry
- Captured system state and developed behavior with high-level data structures in C++ like queues, trees, and maps
- Resolved 25+ software bugs and isolated issues in the hardware using a debugger and test-driven development
- Designed interfaces and derived classes as abstractions for data paths usable in two repositories
- Utilized Scrum as a framework for Agile Development as the only intern in a team of 6 software engineers

Cornell Rocketry Team, Cornell University, *Flight Software Engineer* **Sep. 2021-Present**
- Programmed flight software to poll data from the peripherals of the Central Flight Computer, filter potential noise, relay to ground control, and store in on-board SD card using Linux and bare-metal code in C and C++
- Collaborated with other sub-teams to integrate software interfaces with recovery and payload systems
- Developed algorithms such as apogee detection to provide useful, retrospective insight into missions
- Oversaw unit tests and integration tests to implement test-driven development
- Wrote FSMs controlling valve actuation with PWM for Supercharge and Cold Flow Hybrid Motor Tests

LEADERSHIP AND PREPROFESSIONAL EXPERIENCES

Cornell University, Ithaca, NY, *Information Specialist and Tour Guide* **Oct. 2021-Present**
- Led tour groups of 20-30 visitors around campus on tours lasting upwards of 2 hours, presenting information about the school's history and traditions in a comprehensive and engaging style, and conducting Q&As weekly
- Provided personalized guidance and advice to prospective students and their families for 10+ hours every week

New Jersey Computer Science Students Alliance, Newark, NJ, *Instructor* **Feb. 2019-Apr. 2019**
- Instructed a class of 10 high school students from schools without CS offerings an introductory Python course
- Led lessons introducing object-oriented practices on top of providing individualized one-on-one tutoring

PROJECTS

Force Glove, Python, Raspberry Pi OS
- Built an embedded system using a Pi 0 and a Pi 4 to remotely control a ground robot with a wearable glove
- Utilized I2C to leverage peripherals including a 6 DoF IMU and flex sensors for controlling the robot's motion

RISC-V Processor
- Built a simulation of a RISC-V Processor in Logisim to execute Assembly programs
- Constructed components like an ALU using logic gates and ran testing scripts to verify functionality

SPECIALIZED SKILLS

Software Development: C, C++, Java, Python, JavaScript, OCaml, Linux, RTOS, Embedded Software, Git, TDD
Languages: Finnish (fluent); French (intermediate); Spanish (basic)