Benjamin LaGreca

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Objective: Get a computer, or software engineering position post-graduation (Spring of 2025)

Education and Academics

Rochester Institute of Technology — Graduation: May 2025

Computer Engineering, Masters & Bachelor of Science (Dual degree Masters/Bachelors program), GPA: 3.7

Skills

- C/C++ Embedded Programming, Python, VHDL, and Dart/Flutter programming
- Linux C programming and common Linux tools including git, Vim, ip, gcc, gdb, make, bash, etc.
- Computer Networking and Linux Socket Programming
- ROS2, Gazebo, URDF, MoveIt and related technologies
- PyTorch for various AI applications.

Projects

Patent for a new method of automatic GRE tunnel establishment

Co-authored a patent at L3Harris for a new method for automatic GRE tunnle establishment. Researched the current state of the art and implemented the protocol. Includes automatic address deconfliction, and virtually no interference with previous networking solutions by utilizing Class E network addresses.

Spot Robotic Arm (Multidisciplinary Senior Design)

Aided in the design and production of a robotic arm for Boston Dynamic's Spot platform. Learned and used ROS2, Gazebo, URDF, and related tools for simulation and control of robotic arm.

Nintendo 64 Controller Adapter

Used an Arduino Uno to interface with and recieve data from a Nintendo 64 controller, which sent controller data to a Arduino Pro-Micro over I2C. The Pro-micro emulated a generic gamepad over USB. Requried understanding of the communication protocol, and deep understanding of the Arduino's I/O system due to timing constraints.

Experience

L3Harris Systems/Software Engineering Co-op (May - August 2023 and 24)

- Aided in patent filing, research, implementation, and design of a new protocol for automatic GRE tunneling for a tactical router.
- Researched and implemented eBPF XDP (express data path) programs. Acts as a kernel "fast pass" to allow for near line-speed performance.
- Reverse engineered iproute2 package for functionality of netlink sockets. Used netlink sockets for communication with the Linux kernel to create, modify, and destroy IP GRE tunnels.
- Designed and implemented various Linux C socket code for a new tactical router.

Biamp Systems Firmware Engineering Co-op (May - December 2022)

- Implemented a C++ interface to work with PTP4L, a terminal based PTP (Precision time protocol) management client for Linux.
- Developed a Python program using PyQt5 GUI framework to discover the company's products on selected subnets.

TA for Assembly and Embedded programming (2022-2023)

- Helped students with ARM assembly labs ranging from creating a simple UART driver, to implementing circular FIFO queues and interrupt handlers
- Required strong debugging abilities, and a thorough understanding of course material