Abrar Rahman Protyasha

Contact Information

Phone: +1 (917) 862-1504
Email: aprotyas@u.rochester.edu
Website: https://aprotyas.github.io

Education

University of Rochester — Rochester, NY
B.S., Electrical and Computer Engineering — **Aug 2017 – May 2021**

- GPA: 3.80 out of 4.00; Research and Innovation Grant (RIG) recipient.

Relevant Coursework, Projects

Coursework:

Machine learning, Autonomous mobile robots, Digital image processing, Random processes, Embedded systems programming, Computer architecture, Integrated circuit design.

Notable projects:

- **Autonomous mobile robot software architecture**: Developed ROS packages (C++) for perception, occupancy grid mapping, path planning, localization, and path following controls to explore a partially known world using a TurtleBot2, in addition to a simulator and OpenGL GUI for testing purposes (https://aprotyas.github.io/projects/amr.html)
- **Remotely operated vehicle**: Designed a wirelessly controlled vehicle with an on-board Raspberry Pi and PIC32 MCU, driving two DC gear-motors through a dual motor driver carrier using a PID controller. (https://aprotyas.github.io/projects/remote-vehicle.html)
- **Feedforward neural network**: Implemented a neural network for binary classification on the HIGGS dataset using NumPy. (https://aprotyas.github.io/projects/nn.html)

Professional Experience

Silicon Labs — Nashua, NH
Applications Engineering Intern — **May 2020 – Aug 2020**

Product validation, solutions bring-up, and design collateral generation for IEEE 1588 timing modules.

- Developed a 1 PPS/ToD stream alignment tool on an ARM Cortex-M4 based EFM32 MCU.
- Established procedure to demonstrate PTP synchronization of IEEE 1588 modules using the W32Time networking module in MS Windows. Reduced demo bring-up cost by $\gg 100\%$.
- Traced IEEE 1588 modules' electrical/performance specifications to underlying components to conform with internal documentation standards.

Wireless Communication and Networking Group (WCNG) — Rochester, NY
Xerox Engineering Research Fellow — **May 2019 – May 2020**

Researched on mobile ad-hoc network creation and management.

- Developed channel selection, IPV6 support, and improved debugging infrastructure in a wireless network emulating testbed used to evaluate mobile ad-hoc network protocols.
- Automated network data acquisition using Python test scripts and socket programs in C.
- Compiled use-case data, generated weekly reports, and led weekly lab meetings on this project.

University of Rochester — Rochester, NY
Lead Teaching Assistant — **Aug 2018 – May 2020**

Lead TA for ECE114 (Intro to C/C++ programming). Responsibilities included creating assignments, delivering lecture sessions, and establishing general course direction with Prof. Stephen Kastner.

Busza Lab, University of Rochester Medical Center — Rochester, NY
Research Assistant — **Feb 2019 – June 2019**

Investigated the relationship between muscle exercise and early stroke mobility recovery.

- Statistically analyzed and processed arm sEMG signals on MATLAB to predict arm motion.
- Created an angle measurement tool using an Arduino Uno feeding into MATLAB.

Technical Skills

Languages: C++, Python, C, MATLAB, Bash, LaTeX, Verilog.

Technologies: Git, ROS, OpenGL, NumPy, SciPy, UNIX, Network utilities (ifconfig, Mininet).