# Abrar Rahman Protyasha


**Contact Information**

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**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 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).