

Abrar Rahman Protyasha

CONTACT INFORMATION	Phone: +1 (917) 862-1504 Email: aprotyas@u.rochester.edu	Website: https://aprotyas.github.io
EDUCATION	University of Rochester <i>B.S., Electrical and Computer Engineering</i> • GPA: 3.80 out of 4.00; Research and Innovation Grant (RIG) recipient.	Rochester, NY Aug 2017 – May 2021
ENGINEERING EXPERIENCE	Robotics and Artificial Intelligence Laboratory - Univ. of Rochester <i>Undergraduate Research Assistant</i> Investigating probabilistic graphical models to infer distributions of parametrized controllers for underactuated robots under the supervision of Dr. Thomas Howard . • Developed a simulation infrastructure (GUI + rendering) in modern C++ using Qt5 and Vulkan for the 3D visualization of locomotion of arbitrary robot models given a specified set of central pattern generator parameters.	Rochester, NY Aug 2020 – Present
	Silicon Labs <i>Applications Engineering Intern</i> Product validation, solutions bring-up, design collateral generation for IEEE 1588 timing modules. • Developed a 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 $\gg 100\%$.	Nashua, NH May 2020 – Aug 2020
	Wireless Communication and Networking Group (WCNG) <i>Xerox Engineering Research Fellow</i> 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.	Rochester, NY May 2019 – May 2020
RELEVANT COURSEWORK, PROJECTS	<i>Notable projects:</i> • Autonomous mobile robot software architecture : Developed ROS packages for simulation, perception, occupancy grid mapping, path planning, localization, path following controls, and an OpenGL GUI to explore a partially known world using a TurtleBot2. <i>Keywords:</i> ROS, C++14, CMake, SLAM, Sampling-based motion planning, Pure pursuit. • 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. <i>Keywords:</i> Embedded Linux, SPI communication, Feedback control, Mechanical assembly. <i>Coursework:</i> Autonomous mobile robots Digital image processing Embedded systems Signals/systems analysis Integrated circuit design Machine learning <i>Lab experience:</i> • Development of embedded systems and digital data acquisition systems on MIPS32 M4K core microcontrollers. Explored interrupts, timers, ADCs, DACs, various sensors/actuators, and communication protocols (UART, SPI, I2C). • Analog circuit design, simulation (HSpice) and extensive testing/analysis using lab test equipment - oscilloscopes, digital multimeters, function generators. • Numerical analysis and modeling of stochastic systems, and extensive data visualization using MATLAB and scientific computation libraries in Python (Numpy, Scipy, Matplotlib).	
TECHNICAL SKILLS	<i>Languages:</i> C++, Python, C, MATLAB, Bash, L ^A T _E X, HSpice, HTML/CSS. <i>Technologies:</i> UNIX, ROS, CMake, Qt5, Vulkan, Git, NumPy, SciPy. <i>Hardware skills:</i> Proficient with lab test equipment, Electronics prototyping, Soldering	