

Raj Patel

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Objective

Fourth year computer engineering student with experience in C/C++ hardware programming, debugging, and MATLAB data analysis. Proficient at project planning and documentation. Seeking Summer 2020 internship in robotic firmware and controls.

Education

Georgia Institute of Technology | Atlanta, GA

August 2016 – Present

Master of Science in Electrical and Computer Engineering

Expected Graduation, May 2021

Bachelor of Science in Computer Engineering, Robotics Minor, GPA 3.71

Expected Graduation, May 2020

Skills

Programming: C (1+ yr), C++ (2+ yr), MATLAB (3+ yr), Bash Scripting, VPython, HTML, CSS, Java, MIPS Assembly, Python, VHDL

Hardware: Microcontroller (ARM mbed, TI LaunchPad C2000, PIC32, Arduino), I/O Devices, Altera Cyclone II DE2 FPGA

IDEs: Mbed Online Compiler, TI Code Composer Studio, MPLAB X IDE, Arduino IDE, Jupyter, Google Colab, Altera Quartus II

Tools: Oscilloscope, Soldering, Multimeter, Logic Analyzer, Coolterm Serial Terminal, Git Version Control, Simulink, Wireshark

Communication: Teamwork, Agenda, Minutes, Proposal, Charts (Gantt, CPM, PERT), Report, Presentation, Doxygen, JavaDocs

Experience

Intelligent Vision and Automation Lab (IVALab) | Atlanta, GA

Jan 2019 – Present

Research Assistant

Team-based effort to improve position tracking accuracy for quadrupedal locomotion.

- Estimate motor plant characterization, including state space, in MATLAB and test in Simulink
- Tune Kalman smoother in MATLAB to extract motor velocity and acceleration

Ghost Robotics | Philadelphia, PA

May 2018 – Jul 2018

Mechatronics Intern

- Developed robotic gaits in C++ and ReStructuredText documentation to highlight SDK features
- Wrote Bash script to decrease initial SDK setup time by 85%
- Performed soldering, assembly, QA testing, and UI evaluation of robots
- Generated C++-printing robotic leg animation in VPython to decrease trial-and-error testing

Vertically Integrated Projects: Smart City Infrastructure | Atlanta, GA

Jan 2018 – Apr 2018

Research Assistant

Team-based effort to determine feasibility of UGV tracking rural road degradation.

- Assessed reliability and accuracy of texture-recording instrument after collecting asphalt data
- Designed analytical method in MATLAB to locate fissures in asphalt texture

Project

Robot Cartographer

Apr 2019

Team-based effort to allow user to define mobile robot trajectory with knowledge of nearby environment.

- Assembled robot chassis and breadboard with ARM mbed, IMU, dual H-bridge, DC motors, Hall effect encoders, LIDAR
- Designed C++ class with Doxygen documentation to handle I/O device operation and robot movement
- Implemented mbed RTOS and multithreading to detect environment without processing delay

Leadership

Georgia Tech Department of Housing | Atlanta, GA

Electronics and Communication Residence Life Representative

May 2019 – Present

- Created website in HTML and CSS to centralize access to common resources for 250+ Resident Advisors
- Innovate and compile resources to expedite or assist with mandatory duties of 250+ Resident Advisors

Resident Advisor of Towers-Hanson Residence Halls

Aug 2017 – Present

- Maintain safety of 250+ residents as first-responder to emergency situations
- Coordinate and advise budgeting, marketing, and reserving resources for 60+ events
- Proposed additional staff structure and planning guidelines to increase resident outreach efficiency