

VIGNESH RAJMOHAN

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EDUCATION

Carnegie Mellon University

B.S. Electrical & Computer Engineering, additional Major in Robotics • GPA: 3.61/4.0

Pittsburgh, PA

May 2022

Relevant Courses

Computer Systems

Human-Robot Interaction

Digital Systems

Robot Kinematics & Dynamics

Data Structures

Probability Theory

WORK EXPERIENCE

CMU School of Computer Science

Teaching Assistant • Intro to Computer Systems (15-213)

Pittsburgh, PA

Aug 2020 - Present

- Teach recitations on systems topics including machine-level code, memory, networking, and concurrency.
- Conduct office hours and grade assignments for 500+ students.

United Robotics LLC

Robotics Software Engineer

San Jose, CA

Jul - Aug 2020

- Consulted through United Robotics to develop software to allow for “mirroring” gesture-based control of a YuMi robot arm for upcoming T-Mobile 5G Experience.

CMU Robotics Institute

Research Intern • Human and Robot Partners Lab (HARP)

Pittsburgh, PA

Jun 2020 - Present

- Worked to implement policy iteration reinforcement learning for path planning for an autonomous taxi.
- Integrated multiprocessing to optimize reinforcement learning performance.
- Created interactive online user study with an embedded simulation.

ABB Robotics

Software Engineering Intern

San Jose, CA

May - Aug 2019

- Constructed Externally Guided Motion (EGM) system for rapid responsive robot control using TCP/UDP.
- Developed vision algorithms with OpenCV + Point Cloud Library for surface-orientation detection/classification.
- Improved safety of ABB industrial robots, enhanced software was implemented globally at all ABB R&D entities.

PROJECTS

Dynamic Memory Allocator

Implemented a dynamic memory allocator for C programs using segregated free lists with FIFO policy. Supports malloc, calloc, realloc, and free functions. Optimized using footer-less blocks and mini blocks. Developed using C, used GDB for debugging.

Thread

An iOS application written in Python that allows users to leave a digital “thread” when traveling using GPS data and record visual landmarks using photos to document the route and get accurate directions back to the start location.

Next Up

Group Spotify queuing and voting app that utilizes the Spotify API and Python in tandem with a Flask backend and a React UI to change the order of songs on a playlist in real time.

SKILLS

Programming Languages: C • Python • C++ • Java • HTML/CSS • JavaScript • RAPID • MATLAB

Tools: ReactJS • NodeJS • SQL • Git

Fabrication: 3D Printing • Laser Cutting

Methodologies: Scrum • GitFlow • Agile

Software: SolidWorks • AutoCAD • Fusion 360 • ABB Robot Studio • Microsoft Office

OS: Linux/Unix

HONORS & AWARDS

Valedictorian • James L. Mann High School

May 2018

Third Place, Hack-112 Beginner CS Hackathon • Carnegie Mellon University

Nov 2018

First Place, CMU Mousetrap Car Design Challenge • Carnegie Mellon University

Apr 2019

International Finalist, “Who Wants to Be a Mathematician” • International Math Competition

Oct 2017

ACTIVITIES

CMU Robotics Club Member

Mar 2019 - Present

- Robo-Submarine Team and personal projects (LampEx: a robotic interactive desk lamp)

CMU Lunar Rover Avionics Team

Sep 2018-May 2019

- Motor controller implementation and chassis testing of prototype wheeled rovers.
- Construction of preconfigured PCBs and testing the validity of the circuitry.