

VIGNESH RAJMOHAN

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EDUCATION

Carnegie Mellon University, Pittsburgh, PA

B.S. Electrical & Computer Engineering, additional Major in Robotics | GPA: 3.54/4.0

May 2022

Relevant Courses: (15-213) Intro to Computer Systems (Current) • Human-Robot Interaction • (15-122) Data Structures in C • Probability Theory • Intro to ECE

James L. Mann High School, Greenville, SC

High School Diploma | WPGA: 5.328 | GPA: 4.0 | Rank: 1/371 (2018 Graduating Class Valedictorian)

June 2018

EXPERIENCE

ABB, San Jose, CA

Robotics Software Engineering Intern

May 2019 – Aug 2019

- Created prototype Externally Guided Motion (EGM) system with production intent, for adaptive reverse kinematic path planning in ABB collaborative robots (ABB YuMi) (7 DOF) and industrial robots (ABB IRB 1200 and IRB 120) (6 DOF).
- Developed vision algorithms with OpenCV + Point Cloud Library for surface-orientation detection/classification.
- Established and validated testing protocol for ABB Vision computer documentation in an agile development environment.
- Significantly improved safety performance of ABB IRB 1200 and IRB 120 Industrial robots within the operating envelope by developing and testing a digital envelope. Enhanced software was implemented globally at all ABB R&D entities.

Carnegie Mellon University Astrobotics, Pittsburgh, PA

Sep 2018 - Present

Student Researcher, Lunar Rover 2021 Mission

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

Carbyte Web and App Development

Jul 2017 - Present

Founder | iOS and Android App Development | Freelance Web Development | carbyteweb.com

- Constructed Apps for iOS and Android Devices | Code for some projects on GitHub
- Created websites for organizations and small businesses in short lead time.

PROJECTS

LampEx, a 4 degrees of freedom robotic lamp that interacts with users using computer vision and machine learning and “expresses” itself using principles of human robot interaction.

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. | [Repository on GitHub](#)

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 and Axios js to change the order of songs on a playlist in real time. | [Repository on GitHub](#)

SKILLS

Programming Languages: C • Python • C++ • C# • VBA • Arduino | **GitHub:** vigneshrajmohan | **Version Control:** Git

Web Development: ReactJS • HTML • CSS • JavaScript | **Databases:** Redis • SQL | **Fabrication:** 3D Printing • Laser Cutting

Operating Systems: Ubuntu • MacOS • Windows 8.1/10 | **Methodologies:** Scrum • GitFlow • Agile

Software: SolidWorks • Robot Studio • Microsoft Office • Logic Pro X • Final Cut Pro X

HONORS & AWARDS

Finished in the top 3 at a Carnegie Mellon CS Hackathon and voted community favorite | Carnegie Mellon University

Nov 2018

CMU Mousetrap Car Design Challenge Champions | Carnegie Mellon University

Apr 2019

Stockholm Junior Water Prize State Winner | Water Research Competition

Apr 2018

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

Oct 2017

LEADERSHIP & ACTIVITIES

CMU Robotics Club Member

Aug 2019 – Present

- Robo-Submarine Team and personal projects.

J. L. Mann Circuit Club Founder and President

Sep 2015 – May 2018

- Planned meetings consisting of circuit projects, programming, product prototyping and design.
- Planned a schoolwide Hack-a-thon

FIRST Robotics

- FLL Mentor, Referee/Judge at State to International Competitions
- FRC Team: Entech 281, Mechanical and Programming Teams

Aug 2016 – Jan 2018

Sep 2014 – Feb 2016

J. L. Mann Student Council

- Student Body Treasurer: Helped raise and account for a total of \$206,432 for charity

Apr 2017 – Apr 2018