

# PARTH SARTHI SHARMA

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 [github.com/ParthSSharma](https://github.com/ParthSSharma)  [stackoverflow.com/u/9951130](https://stackoverflow.com/u/9951130)  [linkedin.com/in/parthssharma](https://linkedin.com/in/parthssharma)

## EDUCATION

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### Cornell University

MEng (Electrical and Computer Engineering)

*Jan 2021 - Dec 2021*

Cumulative GPA: 4.04

Masters program with a specialisation in Embedded Systems programming. Relevant coursework:

- Design with Embedded Operating Systems
- Digital Systems Design Using Microcontrollers
- Power Electronics
- Integrated Micro Sensors and Actuators: Bridging the Physical and Digital Worlds

### Ambedkar Institute of Advanced Communication Technologies and Research *2015 - 2019*

B.Tech (Electronics and Communication Engineering)

Overall CGPA: 8.3 / 10

Undergraduate program with first division. Relevant coursework:

- Embedded Systems
- Microprocessors and Microcontrollers
- Computer Organisation and Architecture
- Data Structures and Algorithms

## WORK EXPERIENCE

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### Oculii Corporation

Software Engineer II

Beavercreek, Ohio

*Jan 2022 - Present*

- Developing and designing embedded C firmware for FMCW radars
- Design, code, and document new and legacy embedded firmware features for ARM based TI microcontrollers
  - Bringup and optimization of Ethernet and Automotive Ethernet stack on AM273X
  - SBL migration for AM273X and AWR2944
  - Development of custom feature for OEMs with a reported 40% time optimization
- Spearheaded the development of end-to-end multi-frame datapath
  - Architect, implement, and test first generation bash scripts for compilation and chaining of datapath modules
  - Responsible for development and validation of increase in number of detections by 6000%.
- Bringup and validation of Valens SerDes technology for CSI2 based data transmission
  - Study and document the feasibility and advantages of said system over existing one
  - Worked closely with a team of internal and external engineers for design requirements and implementation

### Collective Embodied Intelligence Lab, Cornell University

Graduate Student Researcher

Ithaca, New York

*Jun 2021 - Dec 2021*

- Developed a human scale inflatable (HSI) rover called Martha in collaboration with a hardware team
- Redesigned the pre-existing pulley architecture and software to solve the problem of overshooting
- Successfully optimized the preexisting code-base to reduce the memory usage of the rover by 60%

**Cornell University**  
Graduate Teaching Research Specialist

Ithaca, New York  
*Jan 2021 - May 2021*

- My duties included, but were not limited to, assisting Prof. Peter Doerschuk with debugging and testing the laboratory systems and grading the assignments/homework submitted by the students with ECE 4670 (Digital Communication System Design)

**Indian Institute of Technology, Delhi**  
Research Associate

Delhi, India  
*Jun 2019 - Sept 2020*

- Worked on Genetic Algorithms for energy conservation in power grids under Prof. Ashu Verma
- Worked on hacking CAN Bus and disrupting data under Prof. B. K. Panigrahi

**Indian Institute of Technology, Delhi**  
Intern

Delhi, India  
*Jun 2018 - Aug 2018*

- Worked on automation and optimization of a remote HVAC control system
- Successfully developed an integrated light automation system (for HVAC) with 4 ambient zones

## SKILLS AND ABILITIES

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- Experience with: C, RTOS, Version Control, Microsoft Office
- Worked with: Eclipse-based IDEs, Git, Jira, Polarion
- Skilled with various 8-, 16-, & 32- bit microprocessors from TI, Microchip, RaspberryPi foundation
- Working knowledge of Linux and Bash
- Familiar with digital multimeters, oscilloscopes, and logic analyzers
- Understanding customers' needs to gain further insight and translate into product requirements
- Adept at working well with a diverse team or independently to meet schedules and corporate goals
- Detail-oriented with exceptional analytical skills
- Excellent skill to readily convey complex technical information to peers, supervisors, and customers

## PATENTS

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Ashu Verma, B.K. Panigrahi, Sumedha Sharma, Parth Sharma, "Optimal Building Energy Management System" (Indian Patent Application No.: 202011051401)

## RESEARCH PUBLICATIONS

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"A Cyber-Secure Distributed Control Architecture for Autonomous AC Microgrid," in IEEE Systems Journal, doi: 10.1109/JSYST.2020.3020968.

"Development of a Cost-effective Color Pattern-based Security System," 2019 6th International Conference on Computing for Sustainable Global Development (INDIACom), New Delhi, India, 2019, pp. 988-991.

"Coin Detection based Mobile Charging System," 2019 6th International Conference on Computing for Sustainable Global Development (INDIACom), New Delhi, India, 2019, pp. 60-63.

"Localisation of License Plate and Character Recognition Using Haar Cascade," 2019 6th International Conference on Computing for Sustainable Global Development (INDIACom), New Delhi, India, 2019, pp. 971-974.

## PROJECTS

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### **Working on the RaspberryPi Pico**

- As a part of my MEng Project at Cornell University, I worked intensively with the new RaspberryPi Pico microcontroller to explore its capabilities and limitations.

### **Rescue Robot: Scouting Owl**

- As a part of the final project for ECE 5725: Design with Embedded Operating Systems, I worked on a rescue robot called "Scouting Owl" which can be controlled remotely over a local network using TCP/IP protocol.

### **Voice Controlled Dino Game**

- As a part of the final project for ECE 4760: Digital Systems Design Using Microcontrollers, I worked on a voice controlled version of the Google Dino game on the PIC32 microcontroller.

### **COVID-19 Social Distance Enforcing Robot**

- As a part of the final project for ECE 6950: Robots as Embodied Algorithms, I worked on developing a COVID-19 social distance police which enforced the social distancing protocol. The robot ran YOLOv3 to detect people and used bounding box estimation to compute the distance between the robot and people violating the protocol.

### **Multi-Pit Cantilever Biosensor**

- As a part of the final project for ECE 4320: Integrated Micro Sensors and Actuators, I worked on the design a MEMS device for the detection of multiple micro-organisms at the same time.

### **High frequency AC switching using TRIACS**

- I developed an easy to install module that can control up-to 4 appliances over the internet for HVAC automation. It used TRIACS, optocouplers and NodeMCU in order to switch the appliances based on user input from an android application and a desktop GUI developed using Processing.

### **Hand Motion Controlled Quadpod Robot**

- This project was a part of my junior thesis during my undergraduate studies.
- During the penultimate semester of my undergraduate studies, I created a Quadpod robot that can be controlled wirelessly using hand gestures.