

# Hardik Garg

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## SUMMARY

ECE graduate student looking for full-time opportunities.

2 years of work experience as a Software Engineer on a medical embedded device at TCS R&D department.

Represented India in the world finals of Microsoft Imagine Cup 2013 for 'Electronics Pill Box'.

## EDUCATION

### UNIVERSITY OF ILLINOIS AT CHICAGO

MS IN ELECTRICAL AND  
COMPUTER ENGINEERING

Grad. May 2018 | Chicago, IL  
GPA: 3.4/4

### MAHARSHI DAYANAND UNIVERSITY

BS IN ELECTRONICS AND  
COMMUNICATION ENGINEERING

Grad. May 2014 | Rohtak, India  
GPA: 3.2/4

## LINKS

Github:// [hardiktechnoplanet](#)  
LinkedIn:// [hardikgarg19](#)

## COURSEWORK

### GRADUATE

Computer Algorithm I  
Parallel Processing  
Intro to Operating System  
Intro to Machine Learning  
Advance Computer Architecture  
Image Analysis and Computer Vision II

## SKILLS

### PROGRAMMING

C • C++ • Python • Matlab  
OpenCV • OpenMP • BASH

### OPERATING SYSTEM

Linux • Windows • RTOS

### IDE'S

Code Composer Studio • Arduino  
• Keil • Mplab • Visual Studio

### HARDWARE

TI MSP 430 • ARM Cortex M-3  
• Arduino • Raspberry Pi • Zigbee

### EKTA FLOW | COMPUTER VISION SOFTWARE ENGINEER INTERN

Jan 2018 – May 2018 | Chicago, IL

Developed an application to help transform and manipulate point cloud data.

- The application takes the original STEP file and the point cloud file of the modeled product as input.
- Evaluates the deviations in the 2 point cloud files. Deviated points are marked on the CAD file. Technologies used: C++, Visual Studio 2017, PCL, & CMake.

### VISION 13 | UAV SOFTWARE ENGINEER INTERN

Jun 2017 – Aug 2017 | Aurora, IL

Developed Local Positioning System for unmanned vehicles.

- Programmed the flight controller to get the navigation data from the DW1000 modules when GPS is out of range. Developed SPI drivers to communicate DW1000 modules with the controller.
- Designed trilateration algorithm to get the tag location. The navigation data is sent to the Qground Control GUI. Technologies Used: Pixhawk, ARM Cortex-M3, C++, MAVLink Protocol, ArduSub, pilot, and rover software.

### TATA CONSULTANCY SERVICES | EMBEDDED SOFTWARE ENGINEER

Dec 2014 – Jun 2016 | Bangalore, India

Designed and developed software for a medical embedded device. The device removes plaque from the arteries.

- Developed SPI and I2C drivers to communicate with TFT display controller, EEPROM, and TILT sensor.
- Designed ADC to sample the input pressure, and DAC to provide the input to proportional valve. Developed a troubleshooting firmware.
- Programmed TI low-power BLE to transfer the device screen data onto another screen. Performed Unit testing. Technologies used: TI MSP430F5659 microcontroller, Code composer studio software, C, and JTAG debugger.

## RESEARCH

### UNIVERSITY OF ILLINOIS AT CHICAGO | INDEPENDENT STUDY

Oct 2016 – May 2017 | Chicago, IL

Developed a system to get the methane gas concentration in the atmosphere. These values are sent to the server for regular monitoring. Technologies used: IOT, ARM Cortex M3, Sensor studio, MQTT, BLE, and Gas sensor.

## PROJECTS

**Electronics Pill Box:** Medication reminder device synchronized with a phone app. Technologies Used: Microcontroller, RTC, SMD LED, LCD 16x2, UART, & BLE.

**Rect-O-Back:** Body posture correcting device connected to a phone app.

Technologies Used: Microcontroller, Accelerometer, Gyroscope, BLE, & UART.

**Vehicle Detection:** Vehicles are detected in the image and video. Technologies Used: HOG, SVM, Python, OpenCV, & Scikit-learn.

**Multi-Core Design Space Exploration:** Analyzed the performance impact of varying architectural parameters. Technologies Used: Linux, OpenMP, Multithreading, & AWS.

## AWARDS

2013	International	Represented India in world finals of Microsoft Imagine Cup 2013
2013	International	Won the Dell Social Innovation Challenge 2013 worldwide
2014	International	Intel Make it Wearable Challenge Finalist