# Shashwat Verma

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## Embedded Systems Engineer

**Personal statement :** Student of Embedded System specialising in Networking and Software, at TU Delft. I want to pursue my further career in embedded software development.

**Interests :** Embedded software development, inter-device communications, Real-time OS.

## 🎓 Education

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|---|---|
| Aug 2015 – Nov 2017 (expected) | **Master of Science (MSc)**, *Technical University of Delft*, Delft, Netherlands<br>Embedded Systems. *Specialisation* : Networking and Software.<br>Relevant course work : Real-time Systems, Wireless Networking, Real-time Embedded Systems. |
| July 2010 –May 2014 | **Bachelor of Technology (B.Tech)**, *VIT University* , Vellore, India<br>Electronics and Instrumentation Engineering |

## ☰ Work Experience

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|---|---|
| Dec 2016<br>Oct 2017 | Research Assistant, Disdrometrics B.V, Delft, Netherlands<br>Project was to design stand alone rain sensor, it is also used as data gathering and cloud connection.<br>› Software development and testing for in-house acoustic rain and hail sensors.<br>› Successful designing of multi-hop wireless modules for long distance irrigation system.<br>› PCB design for the acoustic sensors and irrigation system.<br>`C` `Python` `LabView` `ZigBee` `PCB Design` |
| Jan 2017<br>May 2017 | Electronics Engineer, Eco-runner Team, Delft, Student team participating in shell Eco-marathon<br>Objective of the project was to design low power and fast communication system for racing car.<br>› Designing communication API for sensors linked to resource-constrain ATMEGA controller.<br>› Software for Real-time data transfer between vehicle's MCU and central station using GPRS.<br>`C++` `Python` `PCB Design` `RS-485` |
| Sep 2016<br>Dec 2016 | Research Intern, Disdrometrics B.V, Delft, Netherlands<br>Project was to implement cloud connection from stand alone rain sensor.<br>› Communication between sensors and cloud using Lora and GPRS.<br>› Designing power control unit for low-energy sensor and communication unit.<br>`C` `Python` `LoRa` `MQTT` |
| July 2014<br>June 2015 | Program Analyst Trainee, Cognizant Technology Solutions, Kolkata, India<br>Worked on oracle platform upgradation project and handled data migration.<br>› Worked as an Oracle EBS (PL/SQL) developer.<br>› Helped in designing data migration tool based on PL/SQL and bash.<br>› *Achievement :* Part of best team in India during Q1 2015 for Oracle EBS.<br>`PL/SQL` `Oracle EBS` `Shell` `Linux` |
| Jun 2012<br>July 2012 | Intern, C.E.E.R.I, Pilani, India, Electronics R&D institute of Indian government<br>Project was to implement low-pass audio filter on FPGA.<br>› Studied VHDL programming for FPGA.<br>› Successfully implemented a low-pass audio filer on FPGA using VHDL.<br>`VHDL` `FPGA` `Digital Filters` |

## </> Projects

| Feb 2017 | **Analysing performance of Light to Camera links using VLC(Visible Light Communication), TU Delft, MSc Thesis** |
|---|---|
| Present | › *Objective :* Designing a system with good data rate and long communication range. |
| | › Designed android application with JNI for using smart-phones as data receiver. |
| | › Utilised OpenCV for transmitter detection and image processing. |
| | › Utilised Matlab for data analysis and classification using machine learning. |
| | Embedded C · Android application · C++ · Computer Vision · Algorithm · Matlab |

| Sep 2016 | **Embedded control software for UAV, TU Delft, Delft** |
|---|---|
| Nov 2016 | › *Objective :* Implementing real-time control algorithm for UAV stablisation and manoeuvring. |
| | › Successfully designed communication protocol for data transfer between UAV and PC. |
| | › Used ARM M0+ to implement algorithm. |
| | Embedded C · Real-time system · Control algorithm |

| Jan 2014 | **Automated Green-house status monitoring and Control using wireless DCS, VIT University, Bachelor Project** |
|---|---|
| May 2014 | › *Objective :* Designing multi-hop wireless communication system to monitor Green-house. |
| | › Designed communication system using RF-transceivers and bluetooth. |
| | › Made PCB for various sensors modules using Eagle-PCB designing tool. |
| | › Implemented central control unit for controlling physical parameters based on sensor values. |
| | Embedded C · LabView · PCB Design · Wireless communication · Bluetooth |

| April 2016 | **Image processing algorithm on MSP430, Delft,** |
|---|---|
| June 2016 | › *Objective :* Accelerate image processing algorithm using parallel processes. |
| | › Implementing parallel processing and data-transfer between 2 processor unit using semaphores. |
| | › Successfully ported canny edge detection algorithm on MSP430 using SIMD Neon instruction set. |
| | Embedded C · Computer Vision · Linux |

| Feb 2012 | **Efficient Traffic light system, NI-yantra 2012, Chennai** |
|---|---|
| Sep 2012 | › *Objective :* Developing priority-based traffic light system for emergency vehicles. |
| | › This project was selected for final round of all-India NI-yantra competition. |
| | LabView · C++ · IR communication |

## ≣ Skills

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|---|---|
| Programming Skills : | C, C++, Python, Matlab, SQL, Git, Java. |
| Embedded Programming : | *master in* Embedded C for micro-controllers (ATMEGA, PIC, etc.). |
| | *familiar with* STM controllers and other resource constrained platforms with Real-time OS. |
| Computer Vision : | *good understanding of* image processing (segmentation, object detection, etc.). |
| Misc : | *good understanding of* LabView, PCB Design using Eagle. |
| | *good understanding of* Wireless protocols (ZigBee, Bluetooth, Wifi etc.). |
| | *understanding of* Android application development and JNI. |
| | *familiar with* SQL, PL/SQL and SQL-lite. |

## ⚽ Extracurricular Activities

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|---|---|
| 2017 | Member of student racing team, Eco-Runner TU Delft. |
| 2012 | Organised an event (Robo-Ape) in GraVITas'12 (College technical festival). |
| 2012-2013 | Publicity Head for ISA-VIT student chapter, VIT Vellore. |
| 2004-2007 | Served as a volunteer in local NGO(Siksha), Pilani. |

## 🗚 Languages

**English :** Bilingual or Native proficiency.    **Hindi :** Native.

## ♀ Interests

Swimming, sketching, cooking, bowling