

# Shashwat Verma

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## Embedded Software Engineer

Looking to pursue a career in embedded software development, with hardware-software interactions and/or inter-device communications. Adequate knowledge of software development and design with development frameworks.

### Education

- Aug 2015 – Nov 2017 (expected)   **Master of Science (MSc)**, *Technical University of Delft*, Delft, Netherlands  
Embedded Systems. *Specialisation* : Networking and Software.  
Relevant course work : Real-time Systems, Wireless Networking, Real-time Embedded Systems.  
Thesis Project : **Analysing performance in Light to Camera links using VLC(Visible Light Communication)**  
    > *Objective* : Designing a system with enhanced data rate and extended communication range.  
    > Designed android application with JNI for using smart-phones as data receiver.  
    > Implemented object detection using OpenCV image processing.  
    > Data analysis and classification using machine learning in Matlab.  
    Embedded C   Android application   C++   Computer Vision   Algorithm   Matlab
- July 2010 – May 2014   **Bachelor of Technology (B.Tech)**, *VIT University*, Vellore, India  
Electronics and Instrumentation Engineering  
Bachelor Project : **Automated Green-house status monitoring and Control using wireless DCS**  
    > *Objective* : Designing multi-hop wireless communication system to monitor Green-house.  
    > Designed communication system using RF-transceivers and bluetooth.  
    > PCB designing 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

### Work Experience

- Sep 2016 – Oct 2017   **Research Assistant, Disdrometrics B.V, Delft, Netherlands**  
*Aim* : Designing stand-alone rain sensor, which can also work as sensor hub in a cloud connection.  
    > Software development and testing for in-house acoustic rain and hail sensors.  
    > Communication link between sensors and cloud using Lora and GPRS.  
    > Successful designing of multi-hop wireless modules for long-distance irrigation system.  
    > PCB design for the acoustic sensors and irrigation system.  
    C   Python   LabView   LoRa   ZigBee   PCB Design
- Jan 2017 – May 2017   **Electronics Engineer, Eco-runner, Student Dream-team , Delft**  
*Aim* : Design low power, fast and reliable wired-communication system for race car.  
    > Designed sensors linked to resource-constrain ATMEGA controller.  
    > Implemented software for Real-time data transfer between vehicle's MCU and central station using GPRS.  
    Team work   C++   Python   PCB Design   RS-485
- July 2014 – June 2015   **Program Analyst Trainee, Cognizant Technology Solutions, Kolkata, India**  
*Aim* : Upgrading Oracle platform and data-migration.  
    > Worked as an Oracle EBS (PL/SQL) developer.  
    > Helped in designing data migration tool based on PL/SQL and bash.  
    > *Achievement* : Part of best team in India during Q1 2015 for Oracle EBS.  
    Team work   PL/SQL   Oracle EBS   Shell   Linux
- Jun 2012 – July 2012   **Intern, C.E.E.R.I, Pilani, India, Electronics R&D institute of Indian government**  
*Aim* : Implement low-pass audio filter on FPGA.  
    > Studied VHDL programming for FPGA.  
    > Implemented a low-pass 5<sup>th</sup> order digital audio filter on FPGA using VHDL.  
    VHDL   FPGA   Digital Filters

## Projects

Sep 2016 Nov 2016	<b>Embedded control software for UAV, Delft</b> <ul style="list-style-type: none"><li>&gt; <i>Objective</i> : Implementing real-time control algorithm for UAV stabilisation and manoeuvring.</li><li>&gt; Successfully designed communication protocol for data transfer between UAV and PC.</li><li>&gt; Used ARM M0+ to implement algorithm.</li></ul> <div>Embedded CReal-time systemControl algorithm</div>
April 2016 June 2016	<b>Image processing algorithm on MSP430, Delft</b> <ul style="list-style-type: none"><li>&gt; <i>Objective</i> : Accelerate image processing algorithm using parallel processes.</li><li>&gt; Implementing parallel processing and data-transfer between 2 processor unit using semaphores.</li><li>&gt; Successfully ported canny edge detection algorithm on MSP430 using SIMD Neon instruction set.</li></ul> <div>Embedded CComputer VisionLinux</div>
Sep 2015 Nov 2015	<b>Baggage management system using functional programming, Delft</b> <ul style="list-style-type: none"><li>&gt; Designed 4 parallel controllers using mCRL2 functional programming.</li><li>&gt; State-space and dead-lock analysis using <math>\mu</math>-calculus.</li></ul> <div>mCRL2<math>\mu</math>-calculus</div>
Jan 2013	<b>Secure connection between three controllers, Vellore</b> <ul style="list-style-type: none"><li>&gt; Implemented an encrypting and decrypting algorithm on ARM M3 based on running key cipher.</li></ul> <div>ARM M3LabView</div>
Feb 2012 Sep 2012	<b>Efficient Traffic light system, NI-yantra 2012, Chennai</b> <ul style="list-style-type: none"><li>&gt; <i>Objective</i> : Developing priority-based traffic light system for emergency vehicles.</li><li>&gt; This project was selected for final round of all-India NI-yantra competition.</li></ul> <div>LabViewC++IR communication</div>

## Skills

Type	Skill	Proficiency
Programming	C, C++, Matlab	Proficient
	Python, Java	Intermediate
	Android application development, SQL, PL/SQL	Fundamental
PCB Design	Eagle, PROTEL	Intermediate
Computer Vision	OpenCV with C++ and python	Intermediate
Communication Protocols	ZigBee, Bluetooth, WiFi, LoRa	Intermediate
Embedded	RTOS, resource-constrained platforms	Fundamental

## Extracurricular Activities

2017	Electronics engineer at student racing team, Eco-Runner TU Delft.
2012	Event organiser of 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