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 scrum framework.

Education

Aug 2015 – Nov 2017 (expected)
Master of Science (MSc), *Technical University of Delft*, Delft, Netherlands
Embedded Systems. *Specialisation* : Networking and Software.
Relevant coursework : 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 an android application with JNI to use smart-phones as the data receiver.
- Implemented an object detection algorithm using OpenCV image processing.
- Analysis and classification of received data using machine learning in Matlab.

Embedded C | Android application | C++ | OpenCV | 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 a multi-hop wireless communication system to monitor a Green-house.
- Designed this communication system using RF-transceivers and Bluetooth.
- Designed PCB for sensors modules using Eagle-PCB designer.
- Implemented a 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 a stand-alone rain sensor, which can work as sensor hub in a cloud connection.

- Software development and testing for in-house acoustic rain and hail sensors.
- Implemented the communication link between sensors and cloud by using Lora and GPRS.
- Successful implementation of multi-hop wireless modules for a long-distance irrigation system.
- Designed 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 the race car.

- Interfaced sensors with resource-constrain ATMEGA controller.
- Implemented Real-time data transfer between vehicle's MCU and central station.

Teamwork | 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 the best team in India during Q1 2015 for Oracle EBS.

Teamwork | 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^{th} order digital audio filer on FPGA using VHDL.

VHDL | FPGA | Digital Filters

Projects

Sep 2016 – Nov 2016 — **Embedded control software for UAV, Delft**
- *Objective :* Implementing a real-time control algorithm for UAV stabilisation and manoeuvring.
- Successfully designed a communication protocol for data transfer between the UAV and PC.
- Used ARM M0+ to implement the algorithm.

Embedded C | Real-time system | Control algorithm

April 2016 – June 2016 — **Image processing algorithm on MSP430, Delft**
- *Objective :* Accelerate an image processing algorithm using a multi processor system.
- Implemented parallel processing algorithm and synchronisation between two processor units using semaphores.
- Successfully ported the canny edge detection algorithm on MSP430 using SIMD Neon instruction set.

Embedded C | Computer Vision | Linux

Sep 2015 – Nov 2015 — **Baggage management system using functional programming, Delft**
- Performed requirement analysis for a baggage management system.
- Implemented parallel controllers for the system using mCRL2 functional programming.
- State-space analysis and deadlock detection for this system using μ-calculus.

mCRL2 | μ-calculus

Jan 2013 — **Secure connection between three controllers, Vellore**
- Implemented an encrypting and decrypting algorithm based on running key cypher using ARM M3 MCU.

ARM M3 | LabView

Feb 2012 – Sep 2012 — **Efficient Traffic light system, NI-yantra 2012, Chennai**
- *Objective :* Developing a 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

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 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 and bowling