Shashwat Verma

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Embedded Software Engineer

Personal statement : I want to pursue a career in embedded software development, with software-hardware interactions and/or inter-device communications.

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 good data rate and longer communication range.
- Designed android application with JNI for using smart-phones as data receiver.
- Used OpenCV for transmitter detection and image processing.
- Used Matlab for data analysis and classification using machine learning.

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, can also be used as sensor hub in a cloud connection.
- Software development and testing for in-house acoustic rain and hail sensors.
- Communication 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 Team, Delft, Student team participating in shell Eco-marathon
Aim : Design low power, fast and reliable wired-communication system for race car.
- Designed sensors linked to resource-constrain ATMEGA controller.
- Software for Real-time data transfer between vehicle's MCU and central station using GPRS.

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.

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, TU Delft, Delft
- *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

April 2016 – June 2016
Image processing algorithm on MSP430, Delft,
- *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

Sep 2015 – Nov 2015
Baggage management system using functional programming, Delft,
- Designed 4 parallel controllers using mCRL2 functional programming.
- State-space and dead-lock analysis using μ-calculus.

mCRL2 | μ-calculus

Feb 2012 – Sep 2012
Efficient Traffic light system, NI-yantra 2012, Chennai
- *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

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

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.

Interests

Swimming, sketching, cooking, bowling