**PRATIK SHRESTHA**

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616.706.5373

An enthusiastic and versatile Electrical and computer Engineer with progressive experience in various electrical and computer projects, team management and leadership. Dependable and organized team player with the ability to communicate effectively and efficiently. Skilled at building relationships with employees across all levels of an organization. Proficient with various programming languages and always interested to learn new skills.

**EDUCATION**

**AUG 2020 – PRESENT (Expected Graduation: December 2020)**

**MS IN COMPUTER INFORMATION SYSTEM, GRAND VALLEY STATE UNIVERSITY**

Current GPA 3.79

**AUG 2017 – AUG 2019**

**MS IN ELECTRICAL AND COMPUTER ENGINEERING, GRAND VALLEY STATE UNIVERSITY**

**EXPERIENCE**

**JUNE 2020 – SEPTEMBER 2020**

**EMBEDDED FIRMWARE ENGINEERING INTERN, SOUNDOFF SIGNAL**

Duties include

* Embedded S/W development in C++ / C Language for Firmware Programmer
* Working with NXP S12 microcontroller family with CodeWarrior IDE and PE Micro debugger using LIN, SPI, UART protocols, FTDI Chipsets. Also working with Bootloader
* Integrate the developed module with existing system and test the overall final product
* Software application development along with User Interface design in C# using Visual Studio
* Working with D2XX Driver to interface FTDI chipset with the application
* Weekly meeting, progress update and project planning

**MAY 2019 – AUG 2019**

**ELECTRICAL ENGINEERING INTERN, HIGHLIGHT INDUSTRIES**

Duties include

* Programming and designing in LabView
* Performed Image Processing using C++ and OpenCV for Basler Line scanning Camera.
* Deployed and installed MakerBot 3D printer. In-charge of 3D printer and 3D printing related projects within the company.
* Test and research on Electrical system

**AUG 2018 – DECEMBER 2018**

**GRADUATE TEACHING ASSISTANT, GRAND VALLEY STATE UNIVERSITY**

Duties include

* Assisting professors and helping students with coursework.
* Coursework includes C-programming, SolidWork, Arduino and different module interfacings

**AUG 2017 – AUG 2018**

**GRADUATE LAB ASSISTANT, GRAND VALLEY STATE UNIVERSITY**

Duties include

* Handling and managing different laboratory equipment and their conditions
* Assisting professors and students with laboratory related issues and project equipment
* Manage and operate different 3D printers like MakerBot and Lulzbot Taz 5 and 6
* Troubleshoot various issues related to lab and equipment like fixing DMMs, Oscilloscopes, Power supplies etc
* Conducted two 3D modeling projects under supervision of Mr. Ryan Aldridge

**NOV 2016 – AUG 2017**

**ASSISTANT LECTURER, ADVANCED COLLEGE OF ENGINEERING AND MANAGEMENT**

Duties include

* Class lecture and lab instructions on course Digital Logic, Microprocessor based Instrumentation and Numerical Method.
* Preparing the tests and grading the assignments and test papers
* Communication and interaction with students
* Supervisor of senior project which was done using AVR microcontroller

**DEC 2015 – NOV 2017**

**LAB INSTRUCTOR, ADVANCED COLLEGE OF ENGINEERING AND MANAGEMENT**

Duties include

* Inspection and management of different lab equipment
* Leading the Laboratory session
* Supervising minor projects
* Assisting Professors as Teaching assistant.

**PROJECTS**

**ACCELERATION OF PARTITION PROBLEM USING HLS**, **GRAND VALLEY STATE UNIVERSITY**

This project was done as my Master’s Project. The project proofs the concept that the function implemented using HLS executes faster in FPGA compared to CPU.

**Key Contributions**

* The IP overlay of the functions was created using Vivado HLS
* Various Optimization techniques were used to boost up the execution time.
* High Level driver was created using Python. The data acquisition and communication with the hardware overlay was done using Python.

**AUTONOMOUS ROBOT NAVIGATION**, **GRAND VALLEY STATE UNIVERSITY**

This project was done with a Professor for one of his class. MSP432 launchpad was used for the project along with various other peripherals.

**Key Contributions**

* The lab activity was designed in both C program as well as Assembly program to demonstrate theory
* Interfacing MSP432 with ESP8266 WiFi module and other various peripherals like motor drivers, PWM, timers
* 3D modelling of various mounts and brackets were designed on SolidWorks and 3D printed.
* Proper documentation of lab manual

**WIRELESS APPLICATION USING BLUETOOTH AND WIFI**, **GRAND VALLEY STATE UNIVERSITY**

This project was done with a Professor for one of his class. MSP432 launchpad was used for the project along with various other peripherals.

**Key Contributions**

* MSP432 interfacing with temperature sensor and HC05 Bluetooth module and ESP8266 WiFi module
* Worked on online IoT platform to collect data
* Proper documentation of lab manual

**IMAGE PROCESSING BASED OBJECT TRACKING AND NAVIGATION SYSTEM**, **ACEM**

This project was done as a part for undergraduate degree in Nepal.

**Key Contributions**

* Worked with C# and OpenCV library for image processing to detect the object based on color
* Worked on Arduino to interface motors and other sensors
* Built a program (in C#) that takes data from GPS module and plots the coordinates into google map
* Networking was done to receive live cam feed within the same network and also outside the private network
* Documentation of the project

**SKILLS**

* **Programming language**: Python, Verilog, C, C++, C#, MATLAB, Assembly level Programming, R(Basic), JAVA (Basic), JavaScript, React Native (Android and IOS environment)
* **Microcontrollers**: AVR, ARM Cortex-M (MSP432), Arduino, Raspberry Pi, NXP
* **PLC programming:** PLC, HMI design in Allen Bradley
* **Image Processing**: OpenCV and MATLAB
* **Version Control System**: Git, GitHub, Tortoise SVN
* **Machine Learning**: Python Sci-kit Learn, Panda, NumPy, Keras, TensorFLow
* **Softwares:** LabView, Visual Studio, Proteus professional, Altium, LTSpice, MATLAB, Vivado IDE, Spyder IDE, Code composer, R-Studio, Jupyter Notebook, SolidWorks, AutoCAD (Basic), Wireshark
* **Experienced with different modules**: HC-05Bluetooth, ZigBee, GSM and GPS modules, ESP8266 Wi-Fi module, motor drivers etc
* **Software Testing Tool:** JUNIT 5
* **FPGA**: PYNQ, NEXYS 4, BASYS 3
* Good knowledge of Computer Network, TCP/IP, Wireless Communication system like GSM and CDMA
* Leadership, Communication and Research
* Microsoft Office Package
* Photography and Videography

**AWARDS AND ACHIEVEMENTS**

* **Graduate Assistantship Award**
* **Best Employee Award**, Advanced College of Engineering and Management
* **Third position** for project entitled “Image processing-based object tracking and navigation system”, Nepal Telecommunication Authority
* **Best Director Award**, Short film making competition