University of Waterloo
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Employment

Software Engineer, Intern **Magna Electronics** **Spring 2016**

LPSD(Line Based Parking Slot Detection) for MAP (Magna Auto Parking)

- Reduced park line detection time by 25-30% by implementing Hough Transform and Robust Line Detection using the data structures for all hough parameters.
- Compiled linux kernel, added Target Communication Framwork support to linux and ported VS-13' LPSD application to linux complying to Automotive Functional Safety(ISO-26262), ASILs and MISRA C.
- Converted the xml configuration files to data structures for the whole project that led to the speed increment.

Grad. Research Student **University of Waterloo** **Fall 2015 –**

- Specification Based Bug Detection for Embedded Software - automatically analyzes specifications in order to generate concrete rules for the detection of constraint violations, and addition of runtime checks from processor specification pdfs.
- Non-Intrusive Co-operative Operating System Tracing Through Power Consumption.

Grad. Teaching Assistant **University of Waterloo** **Winter 2016, Fall 2016**

- Courses: Operating Systems (SE350), Operating Systems and System Programming (ECE254)
- Lab Demo: Designed a simple Operating System (OS) with a basic multiprogramming environment, priority levels, preemption, simple memory management, message-based interprocess communication, a basic timing service, system console I/O and debugging support. (RTX project in LPC 1760) (Grading and Turoring)

Undergrad Research Associate **STUDSAT-2** **Fall 2014 - May 2015**

- Implemented Real Time operating system using FreeRTOS with sixty four task for the proper operation of the satellite right from the ejection; and also developed the operational flow of the twin nano-satellite.

Research Fellow, Intern **Indian Institute of Science** **Spring 2014**

Supercomputer Education and Research Center - Computational Electromagnetics

- Designed, simulated and tested four wideband antennas (Vivaldi, Sinuous, Microstrip, Multi-arm Spiral Microstrip) for an aircraft application.

Education

Waterloo, ON **University of Waterloo** **Fall 2015 -**

- M.S. in Computer Engineering, Real-time Embedded Software Group. Expected August 2017. GPA: 4.0
- Graduate Coursework: Methods and Tools for Software Engineering; Computer Aided Verification; Design and Algorithms; Design and Analysis of Algorithm.
- B.E in Electronics and Communication Engineering, NMIT, Bangalore India. Gold Medal, GPA: 9.73/10

Technical Experience

Projects

- **Smart Helmet** (2014). Smart Helmet to avoid accidents due to drunk riders - Interfaced with alcohol sensors, temperature sensor, pulse sensor and acceleration sensor with GPS and GSM module. Tiva C series, C.
- **Early Breast Cancer Detection** (2013). Matlab project for the early breast cancer detection using mammography, Mammograms Region of Interest (ROI) identification using statistical properties.
- **Server** (Fall 2016). Multiple Producer/Conumer server with load balancing. Finding the optimium values of producer and consumer with multiprocessing and multithreading in real time. C/C++, R.

Languages and Technologies

- Assembly, C/C++, OOP, Python, VHDL, Verilog, Embedded Linux, ARM, MATLAB, Unix Shell & Python Scripting, and make. Communication Protocols: RS232, RS485, ethernet, TCP/IP, SPI, CAN & I2C.
- Firmware, Bios, Operating Systems, Machine Language & Virtualization, Embedded software development, Real-time controls, System Software, SoC level software development (ARM, x86 or other architectures).
- Experienced in Embedded Microprocessor tools, wide range of microcontroller (TI, NXP), fluent in software fundamentals.Trained in Automotive Functional Safety - ISO 26262 from Omnex Inc, Michigan.
- For more info Curriculum Vitae: **http://www.lamichhanekamal.com.np/Docs/Cuv.pdf**