University of Waterloo
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Kamal Lamichhane

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Employment

System Safety Consultant **Peloton-tech, Mountain View** **May 2017-Sept.2017**
Functional Safety at Peloton-tech in Truck Platooning System (Collaborative work on-site and off-site)
- Performed ISO-26262 gap analysis in the truck platooning system on HW/SW requirement.
- Suggested the required changes in design, verification, and validation complying to ISO-26262 and MISRA-C.
- Performed Verification and Validation; derived test cases in compliance with automotive functional safety.

Software Engineer, Intern **Magna Electronics, Toronto** **Spring 2016**
LPSD(Line Based Parking Slot Detection) for MAP (Magna Auto Parking)
- Implemented Robust Line Detection using modified Hough Transform. Improved detection time by 23%.
- Ported VS-13' LPSD app. to Linux (Peta Linux in Zynq board), complying to Automotive Functional Safety(ISO-26262) & MISRA C. Recompiled Linux kernel to add Target Communication Framework support.

Teaching- Lab Instructor & TA **University of Waterloo** **Winter 2016 - Present**
- Lab Instructor –Operating System and System Programming(ECE254); TA –Operating Systems (SE-350); TA –Programming for Performance (ECE-459)
- Lab Duties: Designed an Operating System (OS) with a basic multiprogramming environment, priority levels, preemption, simple memory management, message-based inter-process communication, a basic timing service, system console I/O and debugging support. (OS in LPC 1760-NXP Cortex-M3) (Grading and Tutoring)

Research Associate **STUDSAT-2, Bangalore** **Fall 2014 - May 2015**
- Implemented Real-time Operating System using FreeRTOS in STM32(ARM Cortex-M4) for STUDSAT-2 (twin nanosatellite). Contributed in the sensors, actuators and system integration. Contributed to the operational flow development of the project. Published in IEEE, Links: RTOS & Operational Flow.

Education

Waterloo, ON **University of Waterloo** **December 2017(Expected)**
- M.S. in Computer Engineering, Real-time Embedded Software Group. **GPA: 3.85/4**
  - Specification-Based Bug Detection for Embedded Software [In review, ACM TECS] –(Fall '15-Spring '16)
  - Non-Intrusive Program Tracing through Power Consumption; Run-time Monitoring & Anomaly Detection of Co-operative OS in Embedded Devices. [In Conference review, Date-2018] –(Fall '16-Spring '17)
  - Envelope Processing for Online Classification of High-Frequency Traces(Time-series Data) –(Fall 2017)
- Graduate Coursework: Methods and Tools for Software Engineering, Computer Aided Verification, Design and Analysis of Algorithm, Machine Learning, and Design and Analysis of Experiment.
- B.E in Electronics and Communication Engineering, NMIT, Bangalore India. **Gold Medal, GPA: 9.73/10**
- Undergraduate Coursework: Algorithms, OS, Microcontrollers, Embedded Systems, Data Structures, DSP.

Technical Experience

Projects and Training
- **ISO-26262** –Trained in Automotive Functional Safety - ISO 26262 from Omnex Inc, Michigan (Winter '16).
- **Summer Research Fellowship** at Supercomputer Research Center, Indian Institute of Science (Spring '14).
- **Robotics** –Trained in advanced robotics from the Robotics Institute Carnegie Mellon University(Spring '13).
- **City Map Server** Real-time multiple Producer/Consumer city map server (TCP/IP) with load balancing.
- **Smart Helmet** for Drunk Riders –ARM Cortex-M4 (Quarterfinal TI India Design Contest '14).
- **Early Breast Cancer Detection** –C++, MATLAB, Machine Learning (Winter '13).

Languages and Technologies
- Assembly, C/C++, OOP, Python, VHDL, Embedded Linux, ARM, AVR, LLVM, MATLAB, GIT, Unix Shell & Python Scripting. Communication Protocols: RS232, RS485,Ethernet/IP, TCP/IP, SPI, CAN & I2C.
- Firmware, BIOS, Real-time Operating Systems, Virtualization, Embedded software development, System Software, SoC level software development (ARM, x86 or other architectures). Debugging skills with GDB, JTAG, Oscilloscopes, and Logic analyzers. Experienced in wide range of microcontrollers (TI, NXP, Atmel)

*For extended info on research papers and experience : follow the link Curriculum Vitae & Website