KAMBIZ FROUNCHI

kambiz.frounchi@gmail.com
(613) 400-6024
https://ca.linkedin.com/in/kambiz-frounchi

OBJECTIVE

To explore new challenges as a software engineer in web based software involving big data

EDUCATION

Six Month intensive bootcamp in Web Development, Carleton University, Ottawa, ON May – Nov. 2020

- Practical experience with:
  - MERN stack (MongoDB, Express, React, Node)
  - JavaScript, HTML, CSS, Bootstrap, MCV paradigm, Handlebars, Passport module for authentication
  - SQL, Node.js ORMs (Sequelize)
- Group projects: (find them at https://kambiz-frounchi.github.io/portfolio/portfolio.html)
  - Social network web application for food lovers using the MERN stack (two-person team)
  - Online bike shop application using Handlebars and MySQL DB (two-person team)
  - Web application showing latest trending news using third party (e.g. Twitter) REST API (three-person team)

Master of Applied Science in Software Eng., Carleton University, Ottawa, ON 2007 – 2009

- **Thesis:** Learning a test oracle towards automating image segmentation evaluation
- Collaborated with Siemens Corporate Research and Simula Research Laboratory for thesis research
- Conducted research in **machine learning**, image processing, verification and validation, using Weka and MATLAB

Bachelor of Computer Systems Eng., High distinction, co-op, Carleton University, Ottawa, ON 2001 – 2006

- **Final project:** Performance analysis of a QoS-aware web service replica selection framework for an extranet (joint research between Carleton University and Alcatel-Lucent)
- Conducted research and gained exposure to Service Oriented Architecture (SOA), redundancy, web services, SOAP and load balancing

INDUSTRY EXPERIENCE

Software Engineer 4, Packet Networking Data plane, Ciena, Ottawa, ON July 2016 – Present

- Contribute as a principal engineer in core architecture, design and planning (agile) aspects of several key projects
- Provide technical leadership to other engineers and help grow the team by participating in the interview process
- Work on the design and implementation of new Distributed Disaggregated Chassis products
- Design software on a docker based micro-service architecture using asynchronous paradigms including publisher/subscriber and asynchronous database (Redis) callbacks
- Contribute significantly on every aspect of the overall solution for major features including the object model, resource management, high availability, software upgrade and optimization aspects
- Re-factor software towards maintainability and robustness, resolving critical race conditions
- Designed and implemented all dataplane aspects of EVPN/L2VPN features leading two other senior engineers
- Designed and Implemented data-plane aspects of IP over MPLS and Multi-chassis Link Aggregation
- Involved on a patent (now filed) that uses protection schemes for fast convergence of ECMP path failures
- Coding is in C and some Python

Software Engineer 3, Packet Networking Data plane, Ciena, Ottawa, ON May 2014 – June 2016

- Analyzed and removed performance bottlenecks to improve the protection switching performance of G8032 rings by a factor of ten
- Served as the principal designer in the implementation of Hierarchical Egress Quality of Service, enhancing the shaping and scheduling model from a per port, per CoS model to a per port, per service, per CoS model

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Team Lead, OS and Device Firmware, BlackBerry, Ottawa, ON Jan. 2013 – Apr. 2014

- Led a team of a few developers in ARM-based device driver and platform software development for the BB10 OS, managing deliverables and deadlines
- Developed system reset infrastructure including graceful device reset and shutdown, critical process crash recovery, software/hardware hang recovery, reset diagnosis and debug infrastructure
- Developed QNX drivers for hwio, interrupts, sdio, spi and i2c, focusing on performance and power

Embedded Software Designer, OS and Device Firmware, Blackberry, Ottawa, ON 2007 – 2012

- Designed and implemented a custom shutdown solution due to hardware limitations
- Designed and implemented a framework for effective reset classification and debug on BB10
- Designed and implemented a feature to collect logs and recover from critical process crashes on BB10
- Implemented a QNX-based gpio interrupt controller driver for Qualcomm chipsets in ARM assembly
- Worked as one of the primary designers in a small team to replace the L4 Kernel running on the Qualcomm apps core with the BlackBerry in-house Kernel
- Contributed substantially to the training of the larger OS team
- Implemented platform independent OS primitive API on top of BlackBerry in-house OS in areas such as synchronization, thread IPC, interrupts and timers
- Developed the memory map for all Qualcomm based BB7 devices
- Optimized the BlackBerry boot loader speed performance by more than 6 times, finding the bottlenecks and using proper hardware blocks
- Implemented drivers to use the DMA and crypto block as part of boot loader optimization work
- Debugged and fixed critical DDR chip/DDR controller issues, collaborating closely with Qualcomm and BlackBerry hardware teams
- Brought up the BlackBerry Java Virtual Machine on BB7 devices which was a key milestone for OS readiness for the application layer teams
- Brought up IPC between the modem and apps core running different OSs for BB7
- Debugged critical issues using different tools such as JTAG ICE debugger, usb/serial logs and gdb

Software Designer, BlackBerry Software Systems, Ottawa, ON 2006 – 2007

- Conducted research to enhance the end-to-end performance of BlackBerry transport protocols
- Modeled BlackBerry protocols and device behavior via finite state machines in the OPNET simulation environment

Software Designer, BlackBerry Architecture, Ottawa, ON 2004 – 2005

- Designed an object-oriented discrete event simulation framework for traffic simulation of BlackBerry transport protocols (C++, Java)
- Used the Java Native Interface for interfacing a Java and C++ application on Symbian platforms

PUBLICATIONS

- First author of Elsevier Information and Software Technology journal paper that describes Master's thesis findings, Volume 53, Issue 12, Pages 1337-1348
- First author and presenter of IEEE conference paper on Bachelor's final project findings in CCECE 2006, Pages 1380-1384