Muhamad Andung Muntaha

April 28, 2019

muam@kth.se
+46764091032, +6281380260278

Profile

A T-Profile software engineer with demonstrated history in delivering professional projects using various technology. I am passionate in writing software to build and integrate complex systems. My skills varies from working with low-level stuff up to building distributed systems. I am now narrowing down my specialty in the area of Real-Time Systems and Embedded Linux. I always learn and implement best practices and design patterns resulting in high quality deliverables.

Work Experience

- **Scania Sverige** — Stockholm, Sweden
  Thesis Worker in Real-Time Systems — *January 2019 - June 2019*
  Working on a real-time system running on RT-Linux for the hardware-in-the-loop integration testing environment. The main task is to ensure that the real-time requirements are met while the system is having different load in order to produce a correct testing result.
  - RT-Linux user-space programming in C and C++ utilising the standard library and the POSIX API.
  - Developed Python scripts to automate parameterised execution time data gathering.
  - Analysed the system's schedulability using response time analysis theorem.

- **Freelance** — Stockholm, Sweden
  Embedded Linux Developer — *August 2018 - December 2018*
  Built a cellular network automatic testing device comprises of a single board computer running embedded Debian Linux, a cellular module connected through serial port, and a touchscreen.
  - Developed an application in Qt using C++, JavaScript, and QML.
  - Wrote bash shell scripts to communicate with host's OS features.
  - Implemented communication to cloud backend through HTTPS REST API.

- **Ontel AB** — Stockholm, Sweden
  Embedded Software Developer — *March 2018 - December 2019*
  Designed and implemented firmware using ARM MbedOS in C++ for IoT edge device satisfying limited power and unreliable network constraint.
  - Developed a custom driver for a particular cellular module.
  - Implemented a lightweight and secure communication mechanism to cloud backend using CoAP over UDP utilising DTLS encryption.
  - Implemented communication with subsystems including 3d accelerometer sensor, power management IC, and security module through i2c.

- **KTH MIST Student Satellite Project** — Stockholm, Sweden
  Embedded Software Developer — *March 2018 - December 2018*
  Responsible in implementing end-to-end communication between ground station and satellite's main onboard computer.
  - Designed and implemented a MISRA-C compliance radio communication API in FreeRTOS using C language which communicate to satellite's radio module subsystem through i2c. It uses CCSDS protocol encapsulated in AX.25 protocol.
  - Developed a radio link communication simulator using Arduino boards.
  - Extended the ground station software using Microsoft WPF in C#.

- **Schlumberger** — Jakarta, Indonesia
  IT Engineer & Software Developer — *November 2013 - June 2017*
  - **Web Development:** Gathered requirements, proposed, and developed new business applications to transform current business processes using Microsoft Sharepoint and JavaScript.

- **Mobile Development:** Extended existing business applications to have its mobile version using Microsoft Xamarin and C#.
- **Operation Support:** Managed and ensured the availability of IT Services on site (servers, networking, disaster recovery, etc.) as well as provided second level of user support in handling IT issues.
- **Transformation Agent:** Took a role as an enabler in digital transformation by providing business applications based on Lean Six Sigma methodology. It mainly tracked several defined KPI which then provided real-time feedbacks to the stakeholders. Hours of non productive time had been eliminated and million dollars of soft cost saving had been claimed.

Education

- **KTH, Royal Institute of Technology** Stockholm, Sweden
  M.Sc. Embedded Systems, minor in Embedded Software *August 2017 - June 2019*
  Completed main courses:
  - **Embedded Systems:** Understanding embedded systems development ranging from realtime task scheduling, cache, memory, I/O, ISR and RTOS. Including a lab assignment which covered realtime application development using ADA and Micro C OS II RTOS running on a single core FPGA.
  - **Embedded Software:** Thorough task scheduling concept and correct methodology in designing and modelling realtime system. Including a lab assignment to convert images to ASCII art which satisfy a throughput requirement running on multi-core FPGA.
  - **Software Reliability:** Covered several techniques to generate efficient test cases which covered white box testing, black box testing, and requirement based testing.
  - **Modern Method in Software Engineering:** Covered ranging methodology in software development life cycle and a lab assignment to practice Agile methodology.
  - **Networked Systems Security:** Covered fundamental concepts and technologies related to the security of modern, state-of-the-art networked systems.
- **10 Nopember Institute of Technology** Surabaya, Indonesia
  B.Sc. Electrical Engineering, minor in Computer Engineering *2009 - 2013*
  - Thesis: Self-localization of Humanoid Robot Inside Soccer Field Using Triangulation and Particle Filter Methods.
  - Simulation was done in Webots robot simulator and written in C++ utilising OpenCV library. It then cross compiled to Darwin-OP humanoid robot platform running on embedded Linux.

Skills

- **Programming Language:** C, C++, C#, Java, Dart, Python, JavaScript, Bash, CSS, HTML
- **Real-Time OS:** Arm MbedOS, MicroC/OS-II, FreeRTOS, RT-Linux
- **Cross Platform:** Qt, Xamarin, Flutter
- **Web-Backend:** .Net Core MVC, LoopBack Node.js, SignalR
- **Web-Frontend:** Vue.js
- **Database:** MongoDB, SQLServer
- **Build System:** CMake, Make, QMake
- **Container:** Docker
- **Version Control:** Git
- **Documentation:** Doxygen
- **CI/CD:** Jenkins, Travis, Gitlab CI