

# Ta Luc Gia Hoang

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## INTRODUCTION

A dedicated and passionate Embedded Software Engineer with over 7 years of experience in embedded system development.

## TECHNICAL SKILLS

- Strong programming skills in embedded-C
- Experience in operating systems: embedded Linux, FreeRTOS, Green Hills INTEGRITY-RTOS
- Experience in porting software on a variety of MCUs or SoCs
- Experience in developing embedded applications, bare-metal drivers, ROM/Flash memory management, bootloaders, wireless communications
- Familiar to work with hardware peripherals: GPIO, ADC, UART, SPI, I2C, Timers, Interrupts
- Be able to read technical documents: schematics, user manuals, hardware specifications
- Have worked on various MCUs and SoCs: TM4C123G, MSP430, ESP32, STM32, Arduino, Raspberry Pi, BeagleBone Black, Renesas, nRF52810, RISC-V SoC
- Have worked on Amazon Web Service: AWS-FreeRTOS, AWS-IoT, AWS-S3, AWS-Cloud
- Have knowledge in network programming: Socket programming
- Have knowledge in multi-task programming
- Have knowledge in image processing using OpenCV library
- Project management tools: Redmine, Jira, Confluence
- Source code management tools: Github
- Basic in Assembly, C#, Python, MFC, Object Oriented Programming (OOP)

## EXPERIENCE

**Embedded Software Engineer**

**April 3, 2023 – Current**

**HCL Vietnam Company Limited**

**Automotive Embedded Software Team**

- Participate in automotive projects at Bosch company, working on-site
- Develop CAN communication applications for Engine Control Unit (ECU) on Two-Wheelers and Powersports (2WP)
- Analyze customer requirements and documentation in line with change requests
- Implement software, test on Lab environment, and review code
- Perform unit tests as customer requirements
- Prepare test environment, analyze specifications and create script to run auto-test

**Embedded Software Engineer**

**March 21, 2022 – March 21, 2023**

**Samsung Electronics Ho Chi Minh City CE Complex**

**SW R&D Digital Appliances Department**

- Develop and maintain software applications for washing machines
- Analyze and discuss with Korean members to understand change requests and detail designs
- Handle from bare-metal drivers to application layers in embedded systems based on 32-bit Arm Cortex-M4 processors
- Write programs in C language, flash hex files, fix defects, and use Github to manage source code

- Be involved in the complete project lifecycle from requirements to final deliveries
- Research and design new features following on company's procedures

**Embedded Software Engineer**  
**Hitachi Vantara Vietnam Co., Ltd**

**June 15, 2021 – December 31, 2021**

**Printer Project Team**

- Participate in developing Controller unit for Konica Minolta industrial printers
- Work with project members, responsible for assignments.
- Investigate customer requirements, code review and create detailed designs, diagrams
- Implement and update embedded software features
- Test and report issues
- Build, run simulator on Linux Virtual Machine,
- Working environment: Linux, C/C++, Oracle VM VirtualBox, Jira

**Embedded Software Engineer**  
**SH Consulting Vietnam Co., Ltd**

**September 17, 2018 – January 29, 2021**

**Firmware Team**

- Provide embedded software solutions for customers include developing, testing and debugging
- Develop firmware for specific boards
- Port software programs (drivers, libraries, etc.)
- Create documents such as user manuals, setup guidelines, etc.
- Develop test tools by C#
- Develop flash memory management APIs supporting for customer's Finger Vein Scanning Device
- Port a Renesas debugging program (VC++, MFC) from Windows to Linux and test with Renesas E2 emulator device
- Develop bootloader and over-the-air (OTA) firmware update features for STM32 board (32-bit ARM Cortex-M7) which is connected to a LAN
- Add new features and test LoRa firmware as customer requirements
- Develop and test Bluetooth advertising packet features of a BLE Sensor Earlobe device (nRF52810 SoC 32-bit ARM Cortex-M4 Processor) as customer requirements
- Evaluate performance of RISC-V CPU of SiFive HiFive Unleashed board, the industry's first commercially available Linux-capable RISC-V SoC, build and flash 64-bit RISC-V Linux image on board and run with a hand-written digit recognition example
- Create IoT demo for RISC-V Day Tokyo 2019 event, which used Andes Corvette-F1 board, ESP32, FreeRTOS and Amazon IoT Core to communicate with a specific Android application
- Create IoT demo for RISC-V Day Vietnam 2020 event, which used SiFive HiFive1 Rev B board, ESP32, FreeRTOS and Amazon-S3 to communicate with a specific Android application
- Create IoT Security demo for RISC-V Day Tokyo 2020 event, which used Andes Corvette-F1 board, ESP32, Amazon-FreeRTOS, Amazon-IoT Core and a secure element ATECC608A Root of Trust (RoT) chip to implement secure boot feature

**Embedded Software Engineer**  
**Renesas Design Vietnam Co., Ltd**

**March 1, 2017 – September 07, 2018**

**OS Solution Team**

- Provide maintenance for R-Car boards, an embedded system used on cars
- Mainly work on both INTEGRITY RTOS and Linux OS
- Test and maintain Board Support Packages (BSPs) for Renesas Platform
- Use Yocto to build customized Linux images and BSPs
- Port OS (Linux, Integrity), kernel device drivers
- Create Unit Test, Automation Test by CANTATA software
- Test a Renesas image processing chip, analyze video performance

- Develop People Detection application for testing image processing API (similar to OpenCV API)
- Support to update features of libraries such as graphic, audio, video, image processing
- Develop HUD (Head Up Display) on car application using an on-board image rendering chip
- Setup auto-test environment, configure internal network and write python script
- Report issue, create notes and guidelines clearly for teammate

## **Internship**

**June 13, 2016 – August 19, 2016**

### **Vigilant Video**

#### **R&D Department**

- Investigate and set up working environment for embedded system with Raspberry Pi
- Investigate how to use Basler camera
- Self-study some basic video streaming concept: color space, image compressions, Socket programming, TCP/UDP, V4L2
- Develop IP Camera application using a Raspberry Pi and a Basler camera that can stream video to a PC connected to LAN

## **EDUCATION**

**8/2012 – 1/2017**

**BACH KHOA UNIVERSITY (BKU)**

**VIETNAM NATIONAL UNIVERSITY – HO CHI MINH CITY**

Faculty of Electrical & Electronics Engineering

Major Electronics – Telecommunication

GPA: 7.21

**4/2016**

**IIG VIETNAM**

TOEIC Certificate – Total score: 695

## **ACADEMIC PROJECTS**

**Streaming video:** design a stream video application for a mini-computer (BeagleBone Black)

**People Counting Camera:** develop an application using OpenCV for processing and counting people

**Wireless sensor networks in agriculture (Graduation Thesis):** collect data from sensors (humidity, temperature, light intensity) and send to center node via RF; design and develop both hardware and software using Raspberry Pi, MSP430, RF modules and sensors

## **PERSONAL PROFILE**

### **Personality and Soft-skills:**

- An honest, sociable and reliable colleague
- Ability to communicate in English
- Strong analysis skill and ability to work independently
- Ability to self-investigate and solve issues
- Capacity for managing time and working under high pressure and take responsibilities
- Logical thinking, patient and careful worker
- Presentation
- Teamwork

### **Hobbies:**

- Reading, biking, travelling