Le Phuong Nam

IoT Engineer - System Engineer

▸ 09/07/1997 in Binh Duong

▸ Vietnamese

▸ Unmarried

Skills

Logical Thinking

Team Work

Handle Situations

Communicate

Office

Time Management

Work Independently

Knowledge

▸ Linux Kernel, Android
▸ Python, Javascript
▸ NodeJS, MongoDB
▸ C/C++, C#, .Net Core
▸ Hardware Design
▸ Git

Biography

I studied Computer Engineering at Ho Chi Minh City University of Technology (HCMUT). And now, I am studying master program in Computer Science at HCMUT. I have been working since mid-2019 as a systems engineer (Linux, Android systems). At the end of 2020, I have moved to work on Internet of Things (IoT) systems, applications for smart cities. I have a desire to continue working on embedded systems.

Work experience

Embedded Software Engineer   **12/2021 - Present**
Bosch Global Software (BGSV)

1. **PACCAR Project** (present) – is a digital project that tracks and observes the journey and operating status of trucks when participating in traffic on the road.

- Build an intermediary service that bridges software together with cloud services, communicating through messages and network protocols.
  - Restructure architect of software, using Dynamic Loading Shared Libraries (aka Plugins).
  - Use Protocol Buffers to format the transmitted packages.
  - Use MQTT and HTTP protocol to communicate with cloud (Azure).
  - Apply database (sqlite3 library) to storage message.
- Build Linux distribution using Yocto Project.

2. **NEVONEX Project** (1.5 years) – a digital ecosystem for the use of Digital Services on agricultural machinery

- Package Linux service applications into a framework by using Snap and run it on Snap Daemon Linux service (Snapd).
- Write application using C++ with Conan and Cmake for cross-platform building:
  – Manage other services like executing and starting services.
  – Monitor system resources and resources used by managed services.
  – Build a Restful API server to provide hash function (SHA256, SH512, MD5). Using OpenSSL library.
  – Write middleware layer to provide data from the driver, then send it to the application through interfaces.
- Build Linux distribution using Yocto Project with kernel version 4.14.

Education

2022 - Present

Computer Science (CS)

HCM University of Technology

Learn Master Degree

09/2015 - 10/2019

Computer Engineering (CE)

HCM University of Technology

IoT System
Bachelor's thesis: "Building data collection system based on LoRa Multi-hop wireless network and embedded operating system for Internet of Things application".

Contact

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IoT Engineer   `12/2020 - 11/2021`
Becamex IDC - SMIC 4.0

1. **PAUL project** (5 months): intelligent production system, chain of production stations operating independently of each other, combined with Digital Twin technology.

   - Using OPC-UA protocol with single-client multi-server architecture.
   - Using Python to develop server node, C to control driver, step motor, read sensor value.
     ⇒ Demo: produce a dice

2. **Smart Street Light** (4 months): Interfere with the control of lamp illumination to save electricity and reduce costs. The goal of turning the lights on or off or changing the intensity of the lights depends on the traffic, the time and the brightness in the area.

   - Using DALI protocol to communicate with Philips lights.
   - Using LoRa-Mesh (combined LoRa-P2P and LoRaWAN) to organize and manage devices in LoRa network.
   - Using gateway RAK7240 to collect data then push data to The Things Stack.
   - Run The Things Stack, Thingsboard, GitLab Docker on Linux.
     ⇒ Currently still under development.

System Engineer   `07/2019 - 12/2020`
Embedded - System Team
STYL Solutions PTe

1. Build Android system (Linux, C)

   - Learn to build Yocto for iMx6-ULL and iMX8.
   - Optimize modules of kernel, bootloader and build Android image.
   - Write driver to control IO peripheral for Linux kernel 4.x.

2. Write application for Android device (Java)

3. Write application for Windows 10 (C++/C#)

   - Application receive a tray for TrayReturn machine by using C#: Read source, update source, update to change UI - add GIF image.
   - Application Test Tool to test device via send command code (serial command), using Qt/C++ language: Design UI and write application to handle the process of controlling Dobot robot arm and reader to determine where to touch the card automatically.
   - Use Doxygen to command code and build document.

Internship - Business Analyst
06/2018 - 08/2018

Dai-ichi Life Vietnam

Learn and practice doing the work of a BA:

- Read document about some systems of company.

- Write report about Customer Contact Management System, Royalty Point System (include define object used, kind of problem, processing department, checking process).

- Learn about the process of warehousing, draw data flow of system processing.

- Rewrite documents of product and customer management system (define data type in database, draw relationship of tables in database, define primary key and foreign key in each table).

- Write documentation for the new system (object used, function, working process, database).

- Design user interface of mobile application and define function of symbol on screen (Day-ichi Life Mobile Application).

Student
09/2015 - 06/2019

Bach Khoa University (HCMUT)

Self-study in school:

- Write Android application with Java Core.

- Perform read data from sensors using Arduino circuit with C.

- Simple commodity management application with C/C++.

- Stopwatch logic design with Verilog HDL.

- Design electronic circuits with Altium Designer, EAGLE.

- Process data from website for backend with C#.

- Write the Android app on receiving the JSON data from the server.

- Data transfer by using LoRa board, being used in Internet of Things (IoT).

- Simple projects with Android Things on Raspberry Pi 3B, using Java: Blink LED, read signal from RFID, send data to server.

- Design a website with HTML, CSS, Javascrpt.

- Build local server for website with PHP (phpMyAadmin - MySQL).

Ho Chi Minh City, 28th October 2023

Le Phuong Nam