NGUYEN KHA DUONG

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EMBEDDED SOFTWARE ENGINEER

I am an Embedded Software Engineer with hands-on experience in developing and validating embedded systems. My expertise includes working with microcontrollers, system software development and low-level driver integration. I have been involved in projects in the automotive and IoT domains, focusing on performance optimization, debugging and test automation. I am passionate about applying my technical knowledge to solve real-world problems, continuously improving my skills and delivering high-quality solutions to meet project requirements.

Experience

BAN VIEN CORPORATION | EMBEDDED SOFTWARE ENGINEER | JUNE 2025 – PRESENT

Working on **Renesas Design Vietnam Co., Ltd.**

1. Project: **R-Car Automotive System-on-Chips (SoCs)** (6/2025 – 10/2025)
   - Link: https://www.renesas.com/en/products/automotive-products/automotive-system-chips-socs
   - Number of members: 13
   - Stage: Final release U5L
   - Developed and validated ECM (Error Control Module) and CLMA (Clock Monitor) modules within Renesas Flexible Software Package (FSP) at the low-level firmware layer for automotive safety use cases.
   - Designed and executed FSP-based unit/integration tests to measure RAM/ROM, stack usage, execution time, improving test coverage from around **50% to 100%.**
   - Develop MDF test files for gene configuration and new feature development of ECM and CLMA module.
   - Debugged FSP drivers with JTAG/J-Link/logic analyzer, shortening module bring-up time.
   - Integrated FSP builds into GitLab CI, applied static analysis, cutting post-release defects by **100%.**
   - Automated register validation in FSP by generating Excel-based register maps (with/without cluster)
   - Review team members' source code and evaluate.
   - Managed tasks on Jira/Confluence and handled GitLab & TortoiseSVN for release flow.
   - Report progress and provide weekly reports to team leader.

BRAIN LIFE | FIRMWARE ENGINNEERING | MAY 2024 – JUNE 2025

Brain Life is a company specializing in EEG brainwave research and developing brainwave related devices.
Website: https://brainlife.ai/

- Research and develop brain wave products (EEG, FNIRS, PPG).
- Process ADC noise signals and execute PWM program to control LED when there is signal from EEG (focus and relax).
- Implement program on custom board NRF5x, Gr551x, STM32Fx, EPC001,…..
- Execute Zephyr RTOS tasks such as Threads, Multithreaded, Schedular, Mutex, Semaphores.... for the system.
- Read schematics and develop programming on customboard projects.
- Write driver protocol, middle-ware and API layer: BLE (GATT, GAP, Service, Characteristic, Advertising, OTA, FOTA,…..), UART, I2C, SPI.
- Solves data transmission problems over BLE such as connecting interval and reconnecting interval.
- Collaborate with the mobile app team to come up with data standards and calculate how many bits/second the data returned to the mobile.
- Develop small functions and debugger by break point and RTT.
- Using Vscode, OpenOCD to develop source code.
- Use Oscilloscope, VOM to check the circuit and solder the circuit according to the drawing diagram.
- Check the solder joints on the PCB and debug the board if there are problems.

- Coordinate with Product department to design and assemble products.
- Manage source code on gitlab and use git flow for teamworks.
- Report progress to technical director every week.

TEKY HOLDING | TEACHER PROGRAMMING | JULY 2022 – JANUARY 2024

- Teaching method stem with more than 1500 hours.
- Teaching about website and IOT.
- Website: html, CSS, JavaScript, bootstrap, XAMP.
- IOT:
  - Programming: C / C++, Python.
  - MCU: Arduino, Esp32, Raspberry pi.
- Monitor the situation of students.
- Support to join students to experience.
- Support event organization at the holding.
- Exchange parents' learning and support for admission to customer care, course advice for parents.
- Supervise other teachers in the process of performing the task of teaching and supporting the training of new teachers (part time).
- Prepare lesson plans and edit content in accordance with students' competencies.
- Surveying and providing solutions to manage equipment problems, workshops, marketing events, ...
- And some other jobs arise if any at the facility.

NGOC BAO DISTRIBUTION COMPANY LIMITED | INTERNSHIP TECHNICAL | MARCH 2022 – JUNE 2022

- Reading and studying electronic circuit diagrams of electric car chargers.
- Learn and research the storage and inverter battery integrated with smart home system.
- Researching the electric vehicle system includes chargers, charging stations, current popular electric vehicles, each person's electric vehicle demand.
- The data report collected every week and presented the company, then offered a problem solution.
- Support customer care department to consult the strengths of the device.

Education

TON DUC THANG UNIVERSITY | AUTOMATION AND CONTROL ENGINEERING | 2019 – 11/2024

- **HUMAN TRACKING SYSTEM – 2024**
  - Build a system for managing seat positions and the status of individuals in a room to automatically activate devices, while also predicting stroke situations for timely warnings.
  - Building hardware with Esp32, HLK-LD1115H-25G Radar and integrating them onto platform with C programming language.
  - Building map siting on the webserver to simulate human position with Python Flask, HTML, CSS, JavaScript.
  - Link project: https://www.youtube.com/watch?v=hFSmnDDyQZw

- **USE OPENCV TO DETERMINE DISTANCE AND MEASURE OF THING – 2023**
  - Develop a system to determine the size, quantity, and distance of any object using OpenCV.
  - Develop a server and website interface to display the object's parameters using Python Flask, HTML, CSS, and JS.
  - Develop a product classification model based on color and size, to manage inventory quantities and update data on a website for easier management.

Skills & Abilities

- Web Design by HTML, CSS, BOOTSTRAP, JAVASCRIPT.
- Know architecture MCU: PIC 16F877A, Arduino, ESP32, STM32F103C8T6, NRF5X,….
- Know knowledge about IP ADC, Timer, Interrupt, PWM…
- PID engine control algorithm
- Protocol: UART, SPI, GPIO, I2C, RTOS, MQTT, Socket Io,…
- Ability to use English (B2 Certificate).
- MOS OFFICE ability.
- Programming: C, C++, Python, MATLAB(Array, Pointer, OOP,...)
- Soft Skills: English, Teamwork, Critical, Thinking, Presentation, Organization.
- Ability to use measuring devices: VOM, Oscilloscope, ….
- Electronic circuit design with Proteus, Altium.
- Operation on Linux operating system on UBUNTU.
- Capable of reading and understanding MCU hardware manual.
- Ability to use: QT, GIT.
- Have basic knowledge about ROS2.