Thien Nguyen Quang

EMBEDDED SOFTWARE ENGINEER

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Majors	Institute	Year	GPA
Computer Engineering	HCMUT	2021 - now	3.2/4.0
Mathematics	Le Hong Phong High School	2018 - 2021	3.5/4.0

Summary

Have a passion for Microcontrollers & Microprocessors, Embedded systems, and IoT technology. Possess a background in microcontroller programming, firmware development, and Internet of Things connectivity protocols. Excitement and a desire to use technical expertise in the role of an embedded engineer for innovative projects to support the creation of cutting-edge embedded systems solutions.

Key Courses Undertaken

Computer Science and Engineering

- Discrete, Math Modeling, Data Structures and Algorithms, Operating Systems, Computer Networks, Data Mining, Machine Learning, Distributed Systems.
- Computer Architecture, Digital Signal Processing, Microcontrollers & Microprocessors, Embedded System, System Performance Evaluation, Internet of Things Application Development.

Technical Skills

- **Tools**: Git, Pycharm, VSCode, Google Colab, Docker, Keil C, STM32CubeIDE
- **Programming Languages**: Python, C/C++, R
- **Web Development**: ReactJS, JavaScript (.js, .jsx), TypeScript (.ts), HTML, CSS
- **Design**: Figma, Canva, Design, Logo Maker
- **Operating Systems**: Linux (Ubuntu)
- **Others**: Keras, Tensorflow, Opencv-Python

Projects

Developing an Autonomous Robot on Turtlebot3-Burger Platform

Sep 2024 - May 2025

Capstone Project

Project Link

- Developed a full-featured web application: Gateway API, Robot Services, and Databases.
- Configured Firebase Firestore and Realtime Database for scalable and responsive data management.
- Implemented basic TurtleBot3 simulation features on ROS 2: SLAM mapping, map visualization, autonomous navigation, and ROS–WEB integration via rosbridge.
- Implemented a fundamental voice recognition system using Whisper, enhanced with keyword-based sentence splitting to improve command accuracy and reliability.

Technologies: Firebase (Firestore, Realtime DB), ROS 2 (Humble), ReactJS, JavaScript (.js, .jsx), CSS, Python, Firebase Admin SDK (Firestore), WebRTC VAD, SoundDevice.

Tools: VSCode, Ubuntu, PyCharm, Git.

Energy Consumption Prediction Pipeline

Oct 2024 - Dec 2024

Distributed Systems Project

Project Link

- Configured a multi-broker Kafka cluster with custom topic partitioning and replication using Docker Compose to ensure high availability and scalability.
- Streamed real-time sensor data to corresponding Kafka topics using device-specific partition keys for balanced load distribution.

- Implemented a Kafka consumer to parse topic streams, convert messages into structured JSON, and insert data into NeonDB.
- Verified prediction outputs by querying NeonDB and displaying the results for simulation and testing purposes.

Technologies: Apache Kafka (multi-broker), Kafka Topics & Partitioning, NeonDB, JSON Data Schema.

Tools: Docker, PyCharm, VSCode, Git.

Digital Clock combines UART and SPI Protocols - S32K144F, MAX7219

Aug 2024

FPT Software Intern

Project Link

- Generated Register header files for using functions of those (LPSPI, LPUART, LPIT, GPIO).
- Transmitted Data using LPSPI.
- Transmitted/Received Data using LPUART (Interrupt).
- Generated a Real-Time counter every 0.5s using LPIT (Interrupt).
- Displayed each mode and each function when receiving the signal from 1 in 2 buttons.
- Designed User Interface, connect S32K Board using Serial (UART).

Technologies: S32K144F, C, Python, Serial, Tkinter.

Tools: Keil C, Pycharm, VSCode, Herculus, Figma, Git.

AI-Integrated Image Detection for Autonomous Mecanum Robot Control

Dec 2023 - Jan 2024

Computer Engineer Project

Project Link

- Generated Line Detection.
- Configured Adafruit and updated to server.
- Trained AI model and Generate AI Detection.
- Designed User Interface.

Technologies: Mecanum, MQTT, Adafruit_IO, Python, Keras, Tensorflow, Opencv-Python, PIL, Tkinter.

Tools: Ohstem, Pycharm, Teachable Machine, Figma, Git.

Traffic Signal System Combining with Pedestrian Buzzer - STM32

Oct 2023 - Nov 2024

Microcontrollers & Microprocessors Project

Project Link

- Implemented Button States.
- Modified Automatic, Manual, and Tuning Modes.
- Generated Pedestrian Scramble Mode (setting the buzzer sound).
- Connected UART.

Technologies: STM32, C.

Tools: STM32CubeIDE, TeraTerm, Git.

AIoT Home

Feb 2024 - May 2024

Multidisciplinary Project

Project Link

- Connected Microbit devices and updated data into Adafruit Server and received the changed data from the server to handle the following steps.
- Implemented AIOT system in Ohstem (Python) and processed the output either manually or automatically.

Technologies: MQTT, Adafruit_IO, Python.

Tools: Ohstem, Pycharm, Git.

Experiences

Leader Mecanum Robot Project
Dec 2024 - Jan 2024

- Created a timetable and monitored it constantly to ensure that work is finished on time.
- Supported my team member in training AI models and generating AI detection.
- Interacted more with instructors and teaching assistants to get projects on track.
- Grasped the entire project's knowledge and coding.
- Skills: English, Communication.

University Tutor
Jan 2024 - May 2024

- Supported a small group of university students in Microcontrollers & Microprocessors subject.
- Skills: English, Communication.

Achievements & Certifications

OISP Scholarship
Dec 2024

Semester 231

Outstanding Mathematical student at municipality degree
Mar 2021

Third place

OISP Exhibition and Presentation Contest 2021
Dec 2021

Top 55 excellent community projects

IELTS 6.0
Feb 2021

CEFR Level B2, Speaking 6.5