



# VO MINH CHANH

Embedded Software Engineer

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## CAREER GOALS

Experienced in AI and embedded systems development, I am seeking new challenges in a professional and driven environment to further develop my system design expertise and grow into a Solution Architect role

## EDUCATION

<b>HCMC National University - University of Technology - Master Programme</b>	<b>2024 - 2026</b>
Computer Science (by Research) - 3 publications	GPA 3.2
<b>National Chung Cheng University - Research Programme</b>	<b>Jun-August 2025</b>
Computer Science - Research on quantization of machine learning models for IoT devices.	
<b>HCMC National University - University of Technology - Bachelor Programme</b>	<b>2019 - 2024</b>
Computer Engineering	GPA 3.0
<b>Nguyen Thi Minh Khai gifted High School</b>	<b>2016 - 2019</b>
National Physics Competition Team	Vallet scholarship

## EXPERIENCES

<b>ACLAB in HCMUT</b>	<b>Nov 2025 - Now</b>
Embedded-AI System	Firmware Team Lead & Embedded AI Engineer
* Developed end-to-end embedded AI systems on microcontrollers, handling data processing, model deployment, and real-time inference. Focused on optimizing performance, power efficiency, and integrating IoT communication within RTOS-based firmware architectures.	
* Role	
- Designed and developed end-to-end embedded AI systems for human activity recognition and fall detection using radar and wearable sensors.	
- Built and deployed on-device ML pipelines on ESP32-S3 and nRF5340, enabling real-time inference under strict resource constraints.	
- Developed signal processing and sensor fusion pipelines (radar, IMU) to improve robustness and classification accuracy.	
- Applied TinyML optimization techniques (quantization, model compression) and achieved up to 100% detection accuracy in controlled scenarios.	
- Design, implement, and optimize a machine learning model for translation gloves, using the ESP32S3 microcontroller and TensorFlowLiteMicro framework.	
- Designing a air gaming mouse by flexsensor and IMU.	
<b>FPT Software Company</b>	<b>Jun 2024 - Nov 2025</b>
Embedded-AI System	Developer Engineer
* Worked in Automotive, Embedded Systems, and AI for SDV (Software-Defined Vehicle) domains, covering ECU tools, radar systems, smart devices, and in-vehicle AI applications.	
* Role	
- Hands-on experience in Embedded Systems, Automotive Software, and AI for Software-Defined Vehicles (SDV).	
- Developed embedded firmware in C/C++ using ESP-IDF targeting ESP32-S3	
- Designed and deployed AI models on edge devices, including LLM-based pipelines, Transformer architectures, and voice-based automotive systems.	
- Deployed and optimized the model on NVIDIA Orin, leveraging CUDA cores to significantly improve inference performance.	

- Integrated BLE, Wi-Fi, and LoRa communication protocols for automotive and embedded applications. Developed cloud-connected embedded systems with AWS IoT, supporting OTA (Over-The-Air) firmware updates, remote monitoring, and device lifecycle management.
- Implemented multithreading, synchronization mechanisms (mutex, semaphore), and real-time data processing on resource-constrained systems.
- Implemented CAN / CAN-FD communication, ECU flashing, and diagnostics tools; researched and applied AUTOSAR architecture concepts.
- Applied unit testing, integration testing, code review, and system validation practices to improve software quality and robustness

### **TMA Solution Company**

Telecom System

**August 2022 - January 2024**

Embedded Software Engineer

- \* Describe Project: The project is deployed to initiate calls in a small area such as a corporate office to increase security, using the main language C/C++ and gstreamer plugin and session description protocol (sdp) to initiate create a call
- \* Role in team: Find and fix errors to ensure stable system operation
- \* Achievement
  - Detected and fixed system crashes when the session description protocol was incorrect
  - Developed the feature of storing raw audio files to vox format
  - The system is rated to increase stability by 10% due to bug patching and reduce RAM usage by 10% due to optimized memory storage.

### **Viettel IoT lab 5G**

Project title: Zigbee Technology

**May 2022 - July 2022**

Internship

- \* Describe Project: Build and develop IoT systems using Zigbee wireless technology and integrate into the IoT Thingboards platform
- \* Achievement
  - Explore the Tuya platform to initial, test, execute devices for IoT system
  - Research zigbee technology - the ways to build a IoT system using zigbee devices
  - Use CC2530 to capturing packet of zigbee devices
  - Analyze packet of Zigbee waves using WireShark software and forward it to development team
  - Deployment a IoT system using Rasberry as gateway and Thingsboard platform to manage all devices
  - Learn about the devices have 5G technology at Viettel Lab 5G, Ex: drone, embedded computer, embedded circuit,...

## **PERSONAL/ACADEMIC PROJECTS**

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### **Model Compression for Microcontrollers**

Research topic at Chung Cheng University

**June 2025 - August 2025**

Research Student

- \* Describe Project: This project applies Quantization-Aware Training (QAT) techniques to embed LSTM models into microcontrollers, combined with hyperparameter optimization during training to produce the lightest possible model weights while maintaining the highest achievable accuracy.
- \* Achievement
  - Successfully designed a compression LSTM model with accuracy of up to 92% on HAR dataset.
  - Integrated an LSTM machine learning model into the ESP32-S3 microcontroller with an inference time of 200 ms.
  - Model compression using Quantization-Aware Training (QAT) preserves nearly the full accuracy of the original model.

### **Recognize signlanguage by using flexsensor and machine learning**

Course Project

**Sep 2023 - Jun 2024**

- \* Design a glove equipped with flex sensors to capture hand gesture signals, then transmit these signals to an LSTM machine learning model to recognize the gestures. Based on the model's prediction, sound will then be emitted
  - \* Publish a research paper at international conference, ICIT 2025
    - Successfully integrated the LSTM machine learning model into data processing
    - Successfully developed a highly applicable product
    - Detected 14 different actions, including both static and dynamic actions
  - \* Technical skill
    - Using LSTM AI model
    - Use the KalmanFilter library to handle noise
    - Gyroscope sensor, flex sensor, Bluetooth
- Link project: <https://github.com/chanhCEIoT/Recognize-signlanguage>

## TECHNICAL SKILLS

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- **Languages:** C/C++, Python
- **Technologies/Frameworks:** ESP-IDF, McuXpresso, Git...

## INDUSTRIAL KNOWLEDGE

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- Embedded Systems Development
- Automotive Systems and Standards
- Internet of Things (IoT)
- Workflow and Project Management
- System Integration and Architecture
- Real Time Operating System

## CERTIFICATION

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- TOEIC R&L 625.
- AWS Certified Cloud Practitioner Certification.
- Line-following Robot design contest for first-year students
- Certificate of Internship at National Chung Cheng University - Taiwan
- Research paper at ICIT 2025 conference - ThaiLand