



# TRAN QUOC SI

EMBEDDED SOFTWARE ENGINEER

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## SUMMARY

Embedded Software Intern with a solid foundation in C/C++ and Computer Architecture. Experienced in developing optimized firmware for STM32 and handling low-level hardware interfaces. Passionate about building efficient, high-performance embedded systems and solving complex engineering challenges.

## EDUCATION

### HO CHI MINH CITY UNIVERSITY OF TECHNOLOGY AND EDUCATION

Major: Computer Engineering Technology

GPA: 2.8/4.0

2019 - 2026

## SKILLS

### TECHNICAL SKILLS

- Programming: C, C++, Python.
- Microcontrollers: STM32F1/F4, ESP32.
- System Programming: Bare-metal, FreeRTOS.
- Communication Protocols: I2C, SPI, UART, MQTT.
- PCB: Altium Designer, EasyEDA.
- Tools: Git, Keil uVision, STM32CubeMX.

### PROFESSIONAL SKILLS

- AI Usage: Debugging & Research.
- Tech Research: Datasheets & Reference Manuals.
- Collaboration: Effective Technical Communication.

## LANGUAGES

Vietnamese : Native.  
English : Intermediate.

## WORK EXPERIENCE

### HCLTECH VIETNAM

*Embedded Software Intern | 10/2025 - 02/2026*

- Developed STM32F4 Bare-metal drivers (GPIO, UART, SPI) using direct registers (No HAL).
- Participated in technical presentation training & professional English workshops.
- Built a POC system to validate driver stability & hardware control logic.

## KEY PROJECTS

### WAKE WORD DETECTION ON EMBEDDED DEVICES

*Technologies: Python, PyTorch, ONNX Runtime, Raspberry Pi 5.*

- Developed hybrid CNN-BiLSTM Wake Word engine using Gated Fusion architecture.
- Applied INT8 Quantization (293KB) achieving 7.47ms latency on Raspberry Pi 5.
- Implemented Multi-aligned strategy (Start-Center-End) to eliminate false triggers (>95% F1-score).

### AUTOMOTIVE ECU NETWORK SIMULATOR

*Technologies: C, FreeRTOS, STM32F4 (Bare-metal), CAN Bus, I2C.*

- Engineered a real-time ECU-Dashboard simulator on STM32F4 using FreeRTOS for deterministic multi-tasking.
- Developed optimized Bare-metal drivers (MCAL) for CAN 2.0A/B & I2C using direct register access (No HAL).
- Structured firmware using Layered Architecture (App, ECU, MCAL) to decouple control logic from hardware.

### OTHER PROJECTS

- IoT & Web Projects: Developed a Smart Home System using ESP32 & MQTT for real-time control
- Auto Temp Control: Built a standalone STM32 System (HAL) using PWM & ADC to dynamically regulate fan speed.