

LE NHAT TRUONG

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TECHNICAL PROFILE

Final-year Integrated Circuit Engineering student with hands-on experience in embedded hardware development, low-power PCB design, RISC-V processor verification, computer vision, sensor integration, and IoT communication. Experienced in designing and bringing up a modular STM32L4P5 platform and applying statistical methods to power-measurement datasets from an STM32L432 reference board.

EDUCATION

Ho Chi Minh City University of Foreign Languages and Information Technology (HUFLIT)

Major in Integrated Circuit Engineering (Ky thuat vi mach) | GPA: 3.63/4.00

2023 - Present

Relevant Coursework: Embedded Systems, Embedded Programming, Microprocessors and Microcontrollers, Digital Logic Design, Internet of Things, Intelligent Systems

TECHNICAL SKILLS

Embedded and Hardware: STM32L4, schematic design, 2-layer and 4-layer PCB layout, board bring-up, power measurement, SPI, I2C, UART, SWD

Programming and HDL: C, Python, Verilog

AI and Data: TensorFlow, pandas, NumPy, OpenCV, dataset consolidation, time-series preprocessing, data visualization

Design and Verification Tools: Altium Designer, STM32CubeIDE, Vivado, Proteus, functional simulation, waveform analysis, testbench development

TECHNICAL EXPERIENCE AND PROJECTS

Energy-Efficient STM32L4 Board Design and Benchmarking

Feb 2026 - Aug 2026

Altium Designer | STM32L4P5 | INA228 | Permutation Test | Benjamini-Hochberg Correction

- Developed an extended STM32L4P5 low-power platform based on an STM32L432 reference design as part of a two-member graduation thesis.
- Designed a modular architecture comprising a 2-layer power-supply board and a separate 4-layer MCU board; completed schematic capture and PCB layout in Altium Designer.
- Integrated communication and programming interfaces into the extended STM32L4P5 platform and analyzed INA228 measurement data collected from the STM32L432 reference board.
- Completed fabrication and successful first-pass board bring-up without requiring a PCB revision.
- Applied permutation tests to quantify Buck-LDO power differences across voltage and operating regions, using Benjamini-Hochberg correction to control the false discovery rate across multiple comparisons.

ESP32-Based Greenhouse Monitoring and Control System

Dec 2025 - Mar 2026

ESP32 | Arduino IDE | FreeRTOS | RS485 Modbus RTU | I2C | UART | MQTT | JSON

- Redesigned the sensor-acquisition subsystem of an existing Raspberry Pi 5-based greenhouse system for ESP32 to reduce cost, power consumption, and system complexity.
- Integrated a 7-in-1 industrial soil sensor over RS485 Modbus RTU and DFRobot environmental and CO2 sensors over I2C/UART using available device libraries.
- Structured separate FreeRTOS tasks for sensor acquisition and MQTT telemetry, publishing JSON payloads and handling Wi-Fi/MQTT reconnection for reliable real-time operation.
- Contributed the ESP32 sensing and communication subsystem to a three-member team; app-side automation controlled pumps, lights, and fans through ESP32-connected relays.

Single-Cycle RV32IM Processor Design and Verification

Feb 2025 - Present

Verilog | Vivado | Testbench Development | Functional Simulation | Waveform Analysis

- Verified a single-cycle 32-bit RISC-V processor supporting 48 RV32I and RV32M instructions.
- Developed Verilog testbenches, investigated implementation errors through simulation and waveform analysis, and supported module integration.
- Prepared the integrated design for subsequent timing and resource-utilization analysis in Vivado.

Real-Time Vietnamese Traffic Sign Detection Using YOLOv26

May 2026 - Aug 2026

Python | YOLOv26 | GPU Inference | Dataset Integration | Raspberry Pi 5

- Consolidated two compatible public traffic-sign datasets into a unified collection of more than 10,000 images after reviewing class-label compatibility.
- Developed Python-based GPU testing code for trained model weights and measured approximately 30 FPS during inference.
- Collaborated in a three-member course-project team and prepared the model for deployment evaluation on a Raspberry Pi 5.