

# VAN VU TRUONG

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## Education

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**Danang University of Science and Technology (DUT)**, Da Nang, Vietnam

2019 – 2023

- Major: [Bachelor of Engineering in Mechatronics Engineering](#)

## Professional Interests

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- Embedded Software & Firmware Development: Bare metal and Event-Driven programming.
- Microcontrollers (ARM Cortex-M, ESP32, STM32, Renesas).
- Embedded Software Testing: unit, integration, comprehensive and system test.
- Embedded Software Design: System, basic and architecture design.
- Automation: scripting and tooling to improve development efficiency.

## Professional Experiences

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**Embedded Software: ASTI Research and Development Vietnam (On-Site)**

09/2023 – present

### Project 1: AGV – Automated Guided Vehicle

- Responsibilities:
  - Tune and optimize line following algorithm for factory environment
  - Calibrate sensors to improve path detection accuracy
  - Debug and validate system performance during real operation
- Achievements:
  - Improved path detection accuracy

### Project 2: Ebike – Vehicle Control Unit for Electric Bike

- Responsibilities:
  - Analyzed system requirements and performed basic to detailed software design.
  - Designed layered embedded software architecture (HAL / Middleware / Application).
  - Developed firmware modules for vehicle control and safety logic.
  - Create and implement units, integration, comprehensive, and system tests.
  - Debug and validate system performance during operation.
  - Design mechanisms to protect and synchronize data.
  - Design and develop firmware update mechanisms.
- Achievements:
  - Delivered stable and production-ready VCU firmware for electric bike.
  - Successfully validated VCU firmware with stable real-world vehicle operation.

### Project 3: NMEA 2000 IOT – Marine controller.

- Responsibilities:
  - Implement NMEA 2000 parameters such as fuel level, engine data, and navigation information
  - Render real-time vessel data on the onboard display
  - Develop communication with backend server to monitor via web.
  - Develop BLE communication to monitor via mobile app.
  - Research and integrate GNSS positioning using SIM module
- Achievements:
  - Delivered a marine IoT controller compliant with NMEA 2000 standard.
  - Enable real-time monitoring onboard display and remote application.
  - Increase accuracy in tracking.

### Project 4: MPP Charger System.

- Responsibilities:
  - Analyzed system requirements.
  - Solely responsible for the end-to-end firmware development of the MPP Charger System.
  - Develop communication with MPP and Bidirectional Converter to synchronous data and control.
  - Designed and implemented system state management and safety mechanisms.

- Debugged and validated system behavior during charging and discharging modes.
- Developed Python-based simulation and monitoring tools for debugging and evaluation.
- Implemented data logging mechanisms to record system data during error conditions in released products.
- Implemented user interface display for system status and operational information.
- Achievements:
  - Released a stable firmware version, currently undergoing long-term system testing and logging for evaluation prior to production release.
  - Domain: Power Electronics, Energy Management

#### **Project 5: MPP Charger.**

- Responsibilities:
  - Study and understand existing hardware and software architecture.
  - Read and analyze hardware schematics.
  - Debug firmware to understand system behavior.
  - Implement new features based on customer requirements.
  - Perform functional testing before release
- Achievements:
  - Released a new feature to customers.

#### **Internship: Tan Long F&B Da Nang**

04/2023 – 9/2023

##### **Project: Dish-Washer machine**

- Responsibilities: Designed and implemented the full pipeline from scratch: data analysis, data engineering workflows, computation, system design, and software and hardware development.

## Skills

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### Programming Languages

- C, C++, Python

### Embedded Systems

- MCU: STM32, ESP32, Renesas, Arduino
- RTOS: FreeRTOS
- GUI: LVGL

### Communication & Protocols

- CAN, NMEA 2000
- UART, SPI, I2C, RS485
- HTTP, MQTT
- BLE, Wi-Fi
- NCI

### IoT & Connectivity

- GNSS positioning (AssistNow Online / Offline, Cloud-Locate, Cell-Locate)
- SIM-based cellular communication

### Testing & Debugging

- Unit testing: Ceedlings
- Debugging: JTAG, SWD, OpenOCD.
- Tools: Logic Analyzer, Oscilloscope
- CAN tools: Vector CAN, Kvaser.

### Source control

- Git

### Build & Development Tools

- CMake, Makefile, Docker
- OTA & Bootloader (OTA HTTPS)

### Domains

- Electric Vehicle (VCU)
- Marine Systems (NMEA 2000)
- Power Electronics & Energy Management
- Robotics (AGV)

**Others:** Problem Solving, Teamwork, Time Management, GUI Design, Communication.

## Professional Certificates

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- [Level-Up C](#)
- [Mastering Micro Controller and Embedded Driver Development](#)
- [C Programming for Embedded Applications](#)
- [Test-Driven Development in C++](#)