Tran Anh Khoa

+84 815 505 575 | trankhoa130902@gmail.com | Thu Duc, Ho Chi Minh City | September 13th 2002

www.linkedin.com/in/tran-anh-khoa-hcmute | github.com/khoamutou

EMBEDDED SOFTWARE ENGINEER

ABOUT ME

Graduate with a Bachelor's Degree in Computer Engineering with internship experience at Bosch Global Software Technologies Vietnam. Passionate about the embedded software development field, with hands-on experience from academic projects and internships. Eager to apply my technical knowledge and passion in a challenging role to develop and contribute to impactful projects in the embedded systems industry.

EXPERIENCE

11/2024-Present **Ban Vien Corporation**

Position: Embedded Software Engineer

- Training about software development process: CI/CD, V-Model, Scrum, Jira, GitLab.
- Developing driver for Renesas RA board and peripheral device using FSP architecture on e2 studio.
- Configuring RTOS tasks to ensure non-blocking, thread synchronization and prioritizing real-time tasks.

04/2024-10/2024 **Bosch Global Software Technologies Vietnam**

Position: Embedded Developer Intern

- Supporting Innovation team in conducting research and prototyping security solutions for Software-Defined Vehicle system.
- Assisting in coding and testing for CAN-TP based communication between the ECU and Gateway for Intrusion Detection System (IDS) demonstration.
- Participating in debugging the CAN communication between the ECU and Gateway. Experienced with tools such as TRACE32 JTAG debugger, logic analyser and CAN Vector.
- Developing trusted application based on ARM TrustZone technology to enhance security functionalities while doing cryptographic operations.
- Investigating and integrating the security features of the Kuksa Server (VSS Server) into trusted application running on the trusted OS using the Rust programming language.

PROJECTS

11/2024-12/2024 **I2C communication for Renesas RA board using FreeRTOS**

- Developing I2C driver for communication between Renesas RA board and DS3231 module using FSP architecture on e2 studio IDE.
- Utilizing FreeRTOS tasks, queues and semaphores to ensure non-blocking, thread synchronization and prioritizing real-time tasks.
- Implementing error handling and timeout mechanisms to enhance system reliability.

07/2024-09/2024 **Building and developing trusted application for OP-TEE**

- Exploring the document of OP-TEE, architecture of the Trusted OS.
- Developing the trusted applications for security application: creating a key pair, storing keys securely, loading the keys for cryptographic operation in OP-TEE.
- Configuring the Makefile to build the binaries, building the OP-TEE and deploying on Raspberry Pi for prototyping.

04/2024-06/2024 **Intrusion Detection System (IDS) demonstration**

- Socket programming for receiving and sending CAN frames between the Gateway and ECU.
- Developing application for attacking to the CAN network with many attack scenarios
- Following the rules of the AUTOSAR's IDS Protocol document, extracting data from receiving CAN frames and displaying detailed information about IDS protocol frames.

11/2023-12/2023 **Digital Real-time Clock using STM32 Microcontroller**

- Investigating the datasheet of the DS1307 and STM32 Reference Manual.
- Developing the driver for I2C communication between the microcontroller and the DS1307, LCD screen.
- Building the functionalities: adjusting time and date through buttons, setting the alarm when the desired time is reached, storing data when power is lost.

11/2023-12/2023 **Grocery Store Management App using QT/C++**

- Object-oriented design for classes: customer, merchandise and cart.
- Design user interface for the application.
- Developing functionality for customer information management, inventory management, invoices generation for customer' s shopping cart.

09/2023-12/2023 **STM32 Driver Development for Serial Communication Protocols**

Based on the datasheet of the STM32 microcontroller and sensors, developing drivers for STM32 to communicate with peripherals based on serial communication protocols such as UART, I2C, SPI, 1-Wire, CAN.

- Exploring and investigating the STM32 microcontroller, peripheral's datasheet and STM32 Reference Manual.
- Investigating about serial communication protocols: UART, SPI, I2C, 1-WIRE, CAN.

Configuring the registers of STM32 to develop drivers for peripherals and debugging with the logic analyzer.

03/2023-06/2023 **Developing IoT board to automate home and remote control**

- Programming ESP32 microcontroller: auto mode, manual mode, timer.
- Building a web interface to control hardware using HTML/CSS/JavaScript.
- Designing PCB circuit for the board.

EDUCATION

10/2020-07/2024 **Computer Engineering Technology**

HCMC University of Technology and Education

GPA: 7.80 / 10

CERTIFICATE

TOEIC Listening and Reading Certificate

Total score: **725**

08/2023 – 08/2025

SKILL

Programming Language: C/C++.

Microcontroller: STM32, ESP32, 8051, Arduino.

Serial Communication Protocol: UART, I2C, SPI, 1-WIRE, CAN Bus.

Lab Equipment: Logic Analyzer, VectorBox.

OS: RTOS, Linux.

Development Tools: Git, Shell Script, Makefile.

Others: Experience working with Linux environment, knowledge in Object-Oriented Programming, Data Structures and Algorithms.