Huan Nguyen-Duy

BE - Computer Engineering
Engineer in Automotive industry
Ho Chi Minh City University of Technology and Education,
VietNam

+84-86607 8421
huan2931@gmail.com
Github | facebook | linkedin

Education

Degree/Certificate	Institute/Board	GPA	Year	Reference No
SPK.BE. Computer Engineering	Ho Chi Minh City University of Technology and Education	3.22	2023	2427FD23

Experience

- **Ban Vien Corporation** *June 2022 - Aug 2022*
  Intern Ban Vien Tower, 54-56-58 Street 2, Van Phuc Residences,Thu Duc district, HCM
  – **Project vending machine**
  *Programming: C, Cpp

  [1] Supporting application programing interface of RFID module for STM32F1 chip.
  [2] Supporting application programing interface of UART module which is connected STM32F1 by QT framework.

- **Ban Vien Corporation** *Aug 2022 - Apr 2023*
  Part-time Embedded Engineer Ban Vien Tower, 54-56-58 Street 2, Van Phuc Residences,Thu Duc district, HCM
  – **Training SOC project**
  *Programming: C, Cpp

  [1] Builder tools: Makefile, poky package (Yocto project)
  [2] learning embedded Linux that include Linux kernel, Yocto project, Linux application.
  [3] Building custom image for Raspberry Pi 3 board.
  [4] Expanding GPIO application with PCF8574 module by using device driver.

  – **Advanced Driver Assistance Systems hackathon project**
  *Programming: Cpp

  [1] Integrating peripheral components into Jetson Nano by using device driver.
  [2] Integrating module CAN mcp2510 into Jetson nano by using device driver.
  [3] Integrating module Raspberry camera (imx219) into Jetson nano by using device driver.
  [4] Responsibility for design role to develop CAN service, this was combine between CAN interface and DBUS service, which were supported by Linux kernel.

- **Ban Vien Corporation** *May 2023 - Present*
  Embedded Engineer Ban Vien Tower, 54-56-58 Street 2, Van Phuc Residences,Thu Duc district, HCM
  – **Model base design | QEMU development project**
  *Customer: Renesas Design Vietnam Co., Ltd., Ho Chi Minh City.

  *Bief project: QEMU development project aims the emulation for RCAR chip (development by Renesas Design Vietnam), it creates the emulation fastest platform to reduce the cost and time consumption of the development process. QEMU project was developed by C/Cpp programing and several opensource libraries to emulate RCAR chip series, we implemented all modules in SOC chip (RCAR series) base on hardware specifications which were provided by IC design teams. The ouputs of QEMU project were RCAR chip platform software series that had operations similar to real RCAR chip series (developed by IC design teams). These ouputs can called Virtual-Platform.

  *Fundamental knowledges: modeling techniques, C/Cpp programing, Makefile.

  [1] Model RS-CANFD : Investigating hardware specification of RS-CANFD model, preparing environment and Integrating the design of this model to virtual platform. After that, planning to create test cases to verify all operations.

  – **Model base design | RCAR development project**
  *Customer: Renesas Design Vietnam Co., Ltd., Ho Chi Minh City.

  *Bief project: RCAR development project aims the simulation for RCAR chip (development by Renesas Design Vietnam), it uses mainly systemC framework to simulate accurate operations of RCAR chip base on hardware specifications which were provided by IC design teams. RCAR project objective provide for customer the virtual platform of SOC chip with high accurate.

*Fundamental knowledges: modeling techniques, systemC framework, C/Cpp programing, Makefile.

[1] VSP2 model (Video Signal Processor) : Investigating hardware specification provided by IC design teams and updating some registers which were changed compare with last specification version.
[2] SHIP-M-AES submodel (Security Advanced Encryption Standard): Investigating hardware specification provided by IC design teams, Responsibility for design dummys, preparing environment to verify AES moduel. Creating test cases to verify full opeartion of AES submodel.
[3] CRAC-SM4B submodel (Security Advanced Encryption Standard of china): Investigating hardware specification provided by IC design teams, Responsibility for design dummys, preparing environment to verify SM4 submodel. Creating test cases to verify full opeartion of SM4 submodel.
[4] CRAC-KEYRAM submodel (Memory component): Investigating hardware specification provided by IC design teams, Planning to design KEYRAM model adapt to new version of hardware specification, which include architecture design, unit design, and coding design.

– **Model base design | QEMU integration project**
*Customer: Renesas Design Vietnam Co., Ltd., Ho Chi Minh City.

*Bief project: QEMU integration project objective integrates all models of QEMU development project and RCAR development project, this project creates both emulation and simulation for SOC platform. The goal of project is integration all components from RCAR development team and QEMU development team and verifing operations of system by integration test.

*Fundamental knowledges: modeling techniques, systemC framework, C/Cpp programing, Makefile, CMakeList.

[1] Integrating WCRC model: Preparing environment to integrate WCRC model (recived from RCAR development team), Investigating hardware specification, creating test patterns to verity the SOC system.

Personal Projects

- **VLSI design by Cadence Virtuoso** *Jan. 2022 - Aug. 2022*
  Ho Chi Minh City University of Technology and Education Github | Youtube
  – Subject project | Grade: 10/10.
  – Fundamental knowledges: VLSI design, digital electronic design.
  – Description:
  [1] VLSI design for fundamental gates: design VLSI level for Not, AND, NAND, OR, NOR, XOR, and NXOR gates.
  [2] VLSI design for flip flop: design VLSI level for types of flip flop, analysing timing, delay, voltage gain, and power.
  [3] VLSI design for fundamental electronic cricuts: design VLSI level for counter, types of shift registers, and adder cricuts. Analysing timming, delay, voltage gain, and power.

- **Library manager application** *Sep. 2021 - Dec. 2021*
  Ho Chi Minh City University of Technology and Education Github | Youtube
  – Subject project | Grade: 9/10.
  – Programming: Cpp.
  – Frameworks: QT framework.
  – Description:
  [1] learning C++ programing and Object-oriented programming.
  [2] learning QT framework.
  [2] Planning to design library manager by QT framework.

- **Development Bluetooth low energy (Beacon device)** *Jan. 2022 - May. 2022*
  Ho Chi Minh City University of Technology and Education Github | Youtube
  – Senior project 1 | Grade: 10/10.
  – Programming: C, Cpp.
  – Hardware: ESP32, NRF51822 SOC chip.
  – Fundamental knowledges: Bluetooth low energy, microcontroller programming.
  – Description:
  [1] Investigating about Bluetooth low energy and choosing suitible hardware for this application.
  [2] Developing BLE application for NRF51822 SOC chip by NRF SDK.
  [3] Developing BLE scaner for ESP32 using ardunino framework.

- **Monitor agriculture by Lora application** *Aug. 2022 - Dec. 2022*
  Ho Chi Minh City University of Technology and Education Github
  – Senior project 2 | Grade: 9/10.
  – Programming: C, Cpp.

– Hardware: ESP32, STM32.
– Fundamental knowledges: lora protocol.
– Description:
[1] Investigating Lora protocol, LoraWan and choosing suitible hardware.
[2] Developing Lora node using STM32 and gateway using ESP32
[3] Setting up sleeping time among broadcasting datas from STM32 nodes.

- **Design router 5 port for Network-on-chip** *Nov. 2022 - Feb. 2023*
Ho Chi Minh City University of Technology and Education Github
– Personal project to practice verilog.
– Programming: verilog.
– Tool: Xilinx ISE.
– Fundamental knowledges: SOC architecture, hardware description design, network topology.
– Description:
[1] Design Input block.
[1.1] Design First In First Out block.
[1.2] Design Input flow control block.
[1.3] Design XY routing block base on XY routing algorithm.
[2] Design switch block.
[2.1] Design Crossbar five ports.
[2.1] Design Round Robin block base on Round Robin alogrithm.
[3] Design Output block.

- **Inventory detection based on Computer vision** *Jan. 2023 - May. 2023*
Ho Chi Minh City University of Technology and Education Github
– Thesis project| Grade: 8.3/10.
– Programming: python.
– Hardware: Jetson nano.
– Fundamental knowledges: machine learning, deep learning, computer vision.
– Description:
[1] Investigating about yolov4-tiny architecture.
[2] Design Inventory system for groceries.
[3] Proposing yolov4-tiny-SSP architecture base on yolov4-tiny, it improved the accuracy comparing to yolov4-tiny by applying spatial pyramid pooling architecture.
[4] Proposing yolov4-tiny-G3l architecture base on yolov4-tiny, it improved the performance comparing to yolov4-tiny, we replaced traditional convolutions by group convolutions to reduce computing times.

Skills

- **Programming**: Python, C/C++*
- **Frameworks**: SystemC*, QT framework, QEMU library
- **Operating Systems**: Windows, Linux*
- **Technical domain**: modeling techniques*, front end of IC design*, embedded linux, machine learning, deep learning
- **Non-Technical**: -
- **Tools**: Visual Studio Code*, visual studio*, Latex, Microsoft Office

**strong skill*

Certification

- **Toeic IIG**: listening and reading: 630 (May.2023-May.2025) | speaking and writing: 250 (Aug.2023-Aug.2025)

Achievements

- **Encourage academic scholarship**,HCMC University of Technology and Education *2019-2020*
- **Encourage academic scholarship**,HCMC University of Technology and Education *2020-2021*

Referees

- **Dr.Thien Huynh-The**,Ho Chi Minh University of Technology and Education *thienht@hcmute.edu.vn*
– google scholar | Site | Resume | dblp | ORCID
- **Dr.Khoa Pham-Van**,Ho Chi Minh University of Technology and Education *khoapv@hcmute.edu.vn*
– google scholar | Site