NGUYEN VAN BINH

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EDUCATION

National University of Singapore **Aug 2020 – Present**
Bachelor of Engineering, Computer Engineering, Minors in Management and Data Engineering

- Cumulative Average Point (CAP): 4.9/5.0 – Dean's List
- Expected Graduation Date: May 2024

SKILLS

Programming Languages	Python, C/C++, Java, RISC Assembly
Web Development	Django, Django REST Framework, HTML/CSS/JavaScript, VueJS
Database/Data Processing	RDBMS, PostgreSQL, Hadoop, Spark
Hardware	FPGA Programming (Verilog, HLS), ARM-based MCU, Raspberry Pi, Arduino
AI/Machine Learning	Scikit-Learn, PyTorch, TensorFlow, Keras, AWS SageMaker
Others	Git, GitHub, Docker, AWS Cloud Services

EXPERIENCE

Machine Learning Engineer Intern, Neuron Mobility **May 2022 – Aug 2022**

- Trained and deployed machine learning models for scooter parking image classification on AWS SageMaker that achieve > 95% accuracy, detect bad parking behaviors with 0.9–0.98 precision scores and save US$200,000 annually
- Built and dockerized a RESTful backend for an in-house annotation platform using Django REST Framework
- Performed experiments with RK1808 neural processing unit (NPU) for on-chip surface detection task on scooters

Research Assistant, SEEDER Group – National University of Singapore **Jan 2022 – Present**

- Analyze the tradeoffs in learning algorithms for spiking fully connected and convolutional neural networks
- Design architecture and write assembly instructions for hardware accelerators for spiking neural networks on FPGA

Teaching Assistant, School of Computing – National University of Singapore **Aug 2021 – Present**

Teaching Assistant for IT5003 Data Structures and Algorithms for AY21/22 and AY22/23

- Teaching feedback: 4.8/5.0 (faculty average: 4.2); nominated for teaching award
- Conduct classes of ~20 Master students, review related concepts and techniques, and showcase live coding in Python
- Provide consultations, grade, and give feedback to weekly problem sets

Teaching Assistant for CS2102 Database System for AY22/23 Semester 1

- Facilitated teaching and discussion of Relational Algebra, ER model, SQL, and Database Normalization techniques
- Marked and gave feedback on database design and implementation project and weekly assignments

PROJECTS

Laser Tag (github.com/CG4002-B3/hardware-ai – team of 5 – capstone project): Augmented Reality shooting game

- Collected data, built, and trained a model classifying users' actions based on IMU data mounted on users' hands with 96.14% accuracy on test set using Pytorch; translated model to HLS code and deployed it on Avnet Ultra96-V2 board
- Designed architecture; debugged and tested full system and other components (game engine, communications)

ActiveNUS (activenus.up.railway.app – pair project – Orbital 2022: Advanced level of achievement): web application promoting efficient time management techniques and study methods

- Designed and built backend using Django and PostgreSQL, frontend using VueJS and AJAX
- Complied to standard Software Development Life Cycle (planning, designing, developing, testing, and deploying)

RTOS Project (github.com/nvbinh15/cg2271-rtos-project – team of 4): semi-automated car with light and sound functions based on Keil RTX real-time operating system running on KL25Z board, breaks course's running time record

- Designed hardware and software high level architecture; implemented motor movements and communication protocols (WIFI using ESP32 module and UART); developed web controller interface using HTML/CSS/JavaScript
- Managed threads and processes, integrated components (LEDs, motors, buzzers, autorun) to the main module

AWARDS & HACKATHON

- Hack&Roll, Jan 2022 (devpost.com/software/disneylang - team of 3): developed and deployed a fun and annoying Discord bot that censors profanity and replies to user's message using Natural Language Toolkit
- Champions, Vietnam National AWS DeepRacer League, Dec 2019: developed reward functions and trained reinforcement learning models loaded to a physical autonomous car that completed a racing lap in 9.625s
- Bronze Medal, European Physics Olympiad, June 2019

EXTRA CURRICULAR ACTIVITIES

President, Phan Debate Club **Aug 2017 - Aug 2018**

- Led high school debate club of 20+ members, organized events, sharing sessions, trainings, and debate competitions
- Collaborated with debate clubs nationwide and reached 1000+ followers on club's social media platforms