NGUYEN VAN BINH

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FULL-STACK MACHINE LEARNING ENGINEER

Final year student at National University of Singapore, specializing in full data science and engineering lifecycle. A self-motivated learner with experience in developing machine learning models and data infrastructure for various startups.

SKILLS

Programming Languages	Python, C/C++, Java, RISC Assembly
AI/ML Domains	Computer Vision, Natural Language Processing, Graph ML, MLOps
AI/ML Tools	Scikit-Learn, PyTorch, TensorFlow, Keras, AWS SageMaker, MLflow
Database/Data Processing	RDBMS, PostgreSQL, Hadoop MapReduce, Spark
Web Development	FastAPI, Django, Django REST Framework, HTML/CSS/JavaScript
Others	Docker, Cloud Services, FPGA Programming, Computer Networks, Airflow, DVC

EDUCATION

National University of Singapore **Aug 2020 – Present (Expected: May 2024)**

Bachelor of Engineering, Computer Engineering, Minors in Management and Data Engineering

- Grade Point Average (GPA): 4.9/5.0 – Dean's List
- NUS Overseas Colleges Program, NOC Paris (2023): participated in entrepreneurship program at Université PSL

EXPERIENCE

Data Science Intern, Science Feedback (Paris, France) **Feb 2023 – Aug 2023**

- Developed web domain credibility ranking models based on connections between domains with label propagation algorithm and graph neural networks, built end-to-end ML pipeline, and deployed models in production using FastAPI
- Established new data infrastructure (data warehouse, computation, orchestration) on Azure Cloud Services, enhanced data security, quality, and integrity, improved team efficiency, and fastened ML life cycle by 40%
- Evaluated data scraping tools for social media platforms to gather insights for scientific fact-checking tasks

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

- Analysed tradeoffs in learning algorithms for spiking fully connected and convolutional neural networks
- Framed architecture and wrote assembly instructions for spiking neural network hardware accelerators on FPGA

Teaching Assistant, School of Computing – National University of Singapore **Aug 2021 – Dec 2022**

- Placed on the Honour List of Student Tutors for Excellence in Teaching, nominated for Teaching Award
- IT5003 Data Structures and Algorithms: conducted classes of ~20 Master students, reviewed DSA concepts and techniques, showcased live coding in Python, provided consultations, graded, and gave feedback to problem sets
- CS2102 Database System: facilitated teaching and discussion of Relational Algebra, ER model, SQL, and Database Normalization techniques, marked and gave feedback on database design and implementation projects

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

- Trained and deployed ML models for scooter parking image classification on AWS SageMaker achieving more than 95% accuracy, detecting bad parking behaviours with 0.9–0.98 precision scores and saving US$200,000 annually
- Proposed and built backend for an in-house annotation platform utilizing Django REST Framework and Docker
- Performed experiments with RK1808 neural processing unit (NPU) for on-chip surface detection task on scooters

PROJECTS

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

- Collected data 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 and ran inference on Avnet Ultra96-V2 board
- Projected architecture; debugged and tested full system and other components (game engine, communications)

ActiveNUS (activenus.up.railway.app – pair project – Orbital 2021: Advanced level of achievement): web application promoting efficient time management techniques and study methods

- Programmed backend with Django and PostgreSQL, frontend with HTML/CSS/JavaScript and VueJS
- 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 integrating light and sound functions based on Keil RTX real-time operating system running on KL25Z microcontroller, broke course's record

- Led team of 4; outlined hardware and software architecture; implemented motor movements and communication protocols (WIFI on ESP32 module and UART); created web controller interface with HTML/CSS/JavaScript
- Managed threads and processes, integrated different components (LEDs, motors, buzzers, autorun) to main module

AWARDS & HACKATHON

- Champions, Vietnam National AWS DeepRacer League, Dec 2019: formulated reward functions and trained reinforcement learning models loaded to a physical autonomous car completing a racing lap in 9.625s
- Bronze Medal, European Physics Olympiad, June 2019

EXTRA-CURRICULAR ACTIVITIES

- NUS School of Computing Project Mentor, 2023: guiding 2 NUS Computer Engineering freshmen, offering advice and guidance on academic and non-academic matters, internship, overseas experiences, and university life navigation