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Trung Dang

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EDUCATION

University of Massachusetts Amherst — Expected May 2026
B.S. in Computer Science and Mathematics — GPA: 4.0 / 4.0 (Dean's List)

Relevant Courses: Machine Learning, Search Engines, Object-Oriented Programming, Data Structures, Reasoning Under Uncertainty, Computation Theory, Abstract Algebra, Linear Algebra.

SKILLS

Languages: Python, Java, C++, Julia, JavaScript, SQL.
Tools / Packages / Framework: PyTorch, TensorFlow, Keras, OpenCV, Docker, FastAPI, Git, Microsoft Azure, Google Cloud Platform, MongoDB, ExpressJS, React/React Native, NodeJS.

EXPERIENCES

VinBigData, VinGroup JSC — Hanoi, Vietnam
Machine Learning Developer Intern — May - Sep 2023

- Developed YOLOv5 neural network using CSPDarknet53 for 95%+ real-time object detection from cameras for L3 conditional driving autopilot.
- Fused lidar, radar and camera input training sensor models achieving 20% longer detection range compared to single sensor, improving safety at highway speeds.
- Programmed rapid random tree planner using model predictive control for dynamic rerouting in dense traffic, with over 90% scenario success maintaining lane boundaries up to 50kph.
- Integrated perception, planning and control using ROS achieving unattended intersection navigation and lane changes in extensive closed track testing.

FPT Smart Cloud — Hanoi, Vietnam
Software Engineer Intern — Jan - May 2023

- Built generative Text-To-Speech models to improve mean opinion score by 10% by transfer learning with VITs and FastPitch2 algorithms using PyTorch, NVIDIA NeMo library, and LJSpeech dataset.
- Implemented zero-shot multi-speaker models to synthesize up to 60 seconds of speech on the VCTK datasets.
- Integrated model into CSAT voice-bot service to make 20,000+ daily customer service calls.

University of Massachusetts Amherst — Amherst, MA
Teaching Assistant — Dec 2022 – Present

- Coordinated lab sections, graded assignments, and hosted weekly office hours to assist 200+ students in Object-Oriented Programming, Reasoning Under Uncertainty, and Computer System Principles.

PROJECTS

MuZero O An Quan

- Developed a PyTorch implementation of Google DeepMind's MuZero for O An Quan using a 34-layer residual network with options to train in fully connected networks. Achieved 96%-win rate versus baseline model in under 1000 self-plays.
- Augmented Batch-MCTS with novel CPU prioritization to jointly evaluate up to 64k positions per second during planning.
- Leveraged hyperparameter grid search to automate fine-tuning of hyperparameters, which resulted in a 5% increase in win rate compared to manually selected weights.

MIT Battlecode 2024

- Led a four-person team to a peak rating of 1749, the longest ranked win streak in the tournament, and a 7/100 international ranking in MIT Battlecode, a tower-defense-style machine learning challenge using Java and Gradle.
- Applied Bellman-Ford algorithm for vision-based pathfinding to find optimal paths for 10 units per turn in game map sizes up to 60x60 units, outperforming competitors' A* and Dijkstra through 12% faster route calculation on average.
- Implemented weighted quadratic scoring based on Lanchester Laws of Attrition to evaluate over 80 unit engagements per move, selecting highest probability engagements and reducing losses by 24% compared to baseline heuristics.
- Optimized low-level bytecode calculations by replacing data structures with string operations, enabling up to 100% increase in analytical depth per turn for individual agents.

Aldio Sign Language Translator

- Conceived a joint-tracking model that recognizes sign language with 97% accuracy using TensorFlow and Keras.
- Enhanced space complexity 60x and time complexity 1000x by vectorizing input data using OpenCV.

AWARDS & HONORS

2023 **UMass CICS Dean's International Scholarship,** awarded to top international student in computer science.

2022 **Vietnam Mathematical Olympiad**, Second Prize.

2021 **Vietnam Mathematical Olympiad**, Second Prize.
Placed top 25 nationwide and invited to compete in the team selection test for the International Mathematics Olympiad.