

Pham Ngoc Dung

0792667152 | [Education Contact](#) | [LinkedIn](#) | [Portfolio](#) | [GitHub](#)

EDUCATION

University of Science, VNU-HCM

Bachelor of Information Technology, CGPA: 3.8/4.0

Ho Chi Minh City, Vietnam

Sep. 2023 – Present

Thoai Ngoc Hau High School for the Gifted

Physics Specialized, GPA: 9.8/10.0

An Giang

Sep. 2020 – May 2023

RESEARCH INTERESTS

My research interest lies at the intersection of representation learning, generative world modeling, and reinforcement learning for building efficient and scalable intelligent systems. I am particularly interested in learning structured latent representations for reasoning and control, diffusion-based simulation and trajectory generation for robust policy learning, and model-based reinforcement learning methods that enable sample-efficient decision-making and reliable sim-to-real transfer without costly real-world interaction.

EXPERIENCE

Undergraduate Research Assistant

VNUHCM - University of Science, Computational Linguistics Center

Oct 2025 – Present

Ho Chi Minh City, Vietnam

- Present technical research progress and proposed methodological advancements during weekly seminars with the Principal Professor.
- Collaborate with faculty and graduate researchers to brainstorm and refine architectural optimizations.
- Maintain a dedicated research commitment of 20+ hours per week, balancing high-level assistantship responsibilities with a 3.8/4.0 CGPA curriculum.

DEDICATED PROJECTS

Font Diffusion | *Python, Git, PyTorch, diffusers, Wandb*

Code | Oct 2025 – Present

- Engineered an end-to-end machine learning pipeline for high-fidelity dataset generation and model training, utilizing Weights and Biases for granular experiment tracking and reproducibility.
- Integrated FSTDiff innovations and developed custom modules using Discrete Fourier Transform to effectively decouple content features from style features.
- Designed and implemented a novel loss function to bolster content-invariant transformation capabilities, which significantly streamlined the style transformation learning process.
- Streamlined research collaboration and version control by publishing curated datasets and model checkpoints to the Hugging Face ecosystem.

Ouro Trace | *Python, PyTorch, transformers, Wandb, lm-evaluation-harness*

Code | Oct 2025 – Dec 2025

- Benchmarked the performance and behavioral dynamics of Ouro Looped Language Models based on recent ByteDance research using reasoning tasks, **lm-evaluation-harness** and experimental tracking with **Wandb**.
- Engineered dedicated generation controls by implementing custom system prompts, strict stop sequences, and parameter tuning to ensure consistent and accurate answer extraction via regular expression parsing.
- Conducted comparative analysis between looped architectures and traditional language models, evaluating them via perplexity benchmarks and reasoning-intensive datasets.
- Discovered critical insights into the relationship between recurrent steps and reasoning performance, identifying the optimal recurrent steps value to maximize model performance on reasoning tasks while using resources efficiently.

Energy RL | *Python, PyTorch, Stable Baselines 3, Gymnasium, NumPy*

Code | Sep 2025 – Nov 2025

- Developed a Reinforcement Learning agent to optimize network resource management under non-stationary energy demands.
- Architected a custom environment simulator using Gymnasium and NumPy, later implementing Numba to accelerate processing speeds for high-performance experience collection.
- Evaluated the efficacy of PPO and SAC algorithms by implementing custom callbacks for real-time metric logging, automated evaluation, and checkpointing.

- Achieved significant improvement in performance with SAC training compared to random baseline, demonstrating significant improvements against random baselines even when operating under significant computational and hardware constraints.

Personal Portfolio | *Ruby, Beautiful Jekyll*

Link | Apr 2025 – Present

- Developed and maintained a technical portfolio website using Beautiful Jekyll template to present projects, research interests, and academic achievements.
- Published technical writings on representation learning, diffusion models, and reinforcement learning, focusing on mathematical intuition, implementation details, and research insights.

ACHIEVEMENTS

Viettel Digital Talent Program | *Selected Participant*

April 2026 - Present

Selected from over 1200 participants in the same application track through a competitive three-stage technical evaluation process with an acceptance rate of 12.5%.

Thach Thuc Academic Competition | *2nd Place Finalist*

2026

Achieved 2nd place in the final round on the first time of participation; demonstrated strong foundational knowledge and technical skills, and collaborative problem-solving.

FlexTrack Challenge 2025 (University of Wollongong) | *Ranked 33rd Overall*

Oct 2025

Developed machine learning models for energy flexibility prediction in buildings across classification and regression tracks on AICrowd.

Leaderboard: <https://www.aicrowd.com/challenges/flextrack-challenge-2025/leaderboards>

Odon Vallet Scholarship (Rencontres du Vietnam) | *Recipient*

2022, 2023

Awarded for outstanding academic achievement; recognized among the top 0.05% of students in the school cohort.

Vietnam National Physics Olympiad | *Third Prize & Honor Prize*

2022, 2023

National-level competition recognizing excellence in theoretical physics and analytical problem-solving.

30/4 Traditional Physics Olympiad | *Gold Medalist (Ranked 4th)*

Apr 2021

Placed 4th among top high school physics students across Southern Vietnam.

TECHNICAL SKILLS

Deep Learning: PyTorch, Hugging Face ecosystem, transformers, diffusers, accelerate, Stable Baselines 3, Farama Foundation Gymnasium

Data Science & Numerical Computing: NumPy, Pandas, Numba, Einops, Jax

MLOps: Weights and Biases (Wandb)

Programming: Python, C++, Git, GitHub, Docker, VS Code, Visual Studio

Mathematics Background: Linear Algebra, Calculus I & II, Probability & Statistics

Languages: Vietnamese (Native), English (Fluent), German (Beginner)