

# Pham Ngoc Dung

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

## EDUCATION

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### University of Science, VNU-HCM

*Bachelor of Information Technology, CGPA: 3.95/4.0*

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

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**Generative Modeling:** Diffusion models for environment simulation and trajectory generation, diffusion-based approach for few-shot generation and style-content disentanglement.

**Large Language Models:** Looped language models, diffusion-based large language models (LLaDA).

**Reinforcement Learning:** Sample efficiency, exploration-exploitation trade-offs, diffusion-based approach for policy learning and trajectory optimizations in model-based reinforcement learning.

## EXPERIENCE

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### 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 3.95/4.0 CGPA curriculum.

## DEDICATED PROJECTS

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### 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 (DFT) to effectively decouple content features from style features.
- Designed and implemented a novel loss function (identity mapping) to bolster content-invariance, 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, Git, 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, Git, PyTorch, Stable Baselines 3, Gymnasium, NumPy, Numba* **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

- Architected and maintained a professional technical portfolio using Ruby and the Beautiful Jekyll framework to showcase personal achievements.
- Authored several technical blog posts for documenting learning journeys and sharing personal experience when working with deep learning projects.

## ACHIEVEMENTS

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**Flextrack Challenge 2025 (University of Wollongong)** | *Rank 33rd Overall* Oct 2025

Developed a classification model (track 1) and regression model (track 2) for Detecting Energy Flexibility in Buildings; hosted on AICrowd (Username: **zoltraak**).

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

**Odon Vallet Scholarship (Rencontres du Vietnam)** | *Recipient* 2022, 2023

Awarded for exceptional academic performance; recognized as top 0.05% among students of the same grade in the school.

**Vietnam National Physics Olympiad** | *Third Prize & Honor Prize* 2022, 2023

Nationwide competition for theoretical physics knowledge and understanding.

**30/4 Traditional Olympiad on Physics** | *Gold Medal (Rank 4th)* Apr 2021

Achieved 4th place among elite students of the same grade in Physics from Southern Vietnam.

## TECHNICAL SKILLS

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

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

**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)