Vu Anh Duy

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LinkedIn - GitHub - Portfolio

EDUCATION

Université Claude Bernard Lyon 1 **Lyon, France**
Masters in computer science, specialize in Artificial Intelligence (in progress) Expected August,2026

- **Main courses:** Advanced Machine Learning, Multi-agents' systems, Bio-inspired AI, LLM & LangChain, Argumentation Theory, Fullstack development

INSA Lyon **Lyon, France**
Department of Materials Science and Engineering, Engineering Training 2019 - 2022

High School Specializing in Natural Sciences (HSGS) **Hanoi, Vietnam**
Very good mention, specialization in Mathematics 2016 - 2019

PROFESSIONAL EXPERIENCE

Airmium **Lyon, France**
Student Internship Avril 2024 – Juillet 2024

- Analysis of air quality laboratory data management needs
- Proposal of robust architectures for backup, archiving, and secure access (web & mobile)
- Complete automation and digitalization of processes, reducing reliance on Excel

Mạnh Thái Limited Liability Company **Hanoi, Vietnam**
Student Internship Avril 2024 – Juillet 2024

- Shipping of computer equipment
- Computer assembly for local SMEs and resellers

SELECTED PROJECTS

Inventory Management and Assisted Cooking Application (In Progress)
Development of an intelligent web application for dynamic ingredient management. Implementation of optimization modules using a personalized menu recommendation algorithm based on user preferences and inventory (collaborative filtering). Use of computer vision techniques (object detection with lightweight real-time CNN models) to recognize the cooking status of food via the integrated camera. Integration of a suggestion engine for use

Vision Transformer for Image Restoration
Implemented a 4x4 patch attention pipeline for restoration of noisy images, focusing on enhancing image quality through localized attention mechanisms. Conducted comprehensive performance benchmarking to evaluate and optimize the pipeline's effectiveness. Delivered a detailed technical report and a demonstration presentation over a 5-month development cycle, showcasing practical outcomes and insights.

Practical Applications of Large Language Models
Studied advanced Transformer architectures and implemented fine-tuning and prompt engineering techniques for large language models (LLMs). Completed practical projects involving integration and optimization of LLMs for diverse text-based applications. Conducted analysis on ethical considerations related to the deployment and use of these models.

Deep Learning Model
Implementation of MLP and CNN (LeNet5, ResNet) with PyTorch on MNIST and Fashion MNIST. Optimization of hyperparameters (learning rate, batch size, number of layers) via cross-validation. Detailed analysis of the tested architectures.

Intelligent and Reinforcement Learning (Multi-Agents)
Development of Value Iteration and Q-Learning agents (both tabular and approximate methods) implemented in Python. Conducted simulations on maze environments, crawler robots, lunar landing robot model. Designed feature extractors for approximate reinforcement learning and analyzed policy performance under various parametric variations. Applied reinforcement learning techniques to develop an automatic parking car model, demonstrating practical application of RL in control systems.

End-to-end multi-task models for argumentation
Development of end-to-end multi-task language models for analyzing and evaluating argumentative dialogues. Contributed to the design and implementation of a prototype platform enabling interactive manipulation and visualization of argumentative graphs. This project integrates advanced NLP techniques, such as transformer-based models, to perform multiple tasks including argument component extraction, relation classification, and argument quality assessment within complex discourse structures.

Procedural Generation in Unity 3D
Development of procedural generation engines for 3D terrains and dynamic character movements. Implemented interactive real-time scenes using C# in Unity 3D. Focused on optimizing game mechanics to ensure smoothness and responsiveness during gameplay. Applied procedural algorithms to create diverse and naturalistic environments dynamically, enabling scalable game content creation. The project supports applications in game development, simulation training, and virtual environment design.

TECHNICAL SKILLS

Languages : Python (PyTorch, NumPy, LangChain), Java (Spring Boot, JADE), JavaScript (ES6+, React.js), C++, C#, SQL, HTML/CSS
IA/ML: Deep learning (CNN, Vision Transformer), multi-agent learning (JADE), bio-inspired AI (neural networks, evolutionary algorithms)
Web Developpement: Spring Boot, Node.js, Supabase, API REST, Chart.js, TailwindCSS
Softwares & environnements : Git, GitLab CI/CD, Docker, Jupyter Notebook, Visual Studio, Notion, Vercel, Microsoft Azure AI Studio

CERTIFICATIONS

- IBM Generative AI Engineering (2025)
- Meta Front-End Developer Specialization (2023)
- Google IT Support Certificate (2022)
- Le Cordon Bleu – Art and Science of Multi-Sensory Dining (2025)
- The Science of Gastronomy – University of Hong Kong (2023)

LANGUES

French: fluent (C1)
English: professional (C2)
Vietnamese: mother language