Lam Ngo

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Research Interests: Computer Vision, 3D Visualization / Digital Twin, AI for Medical Applications.

RESEARCH EXPERIENCE

Visiting Researcher • 03/2025 - Present

CitAI Research Center • London, UK

Project: Federated Dataset Simulation for Computer Vision Tasks (Supervised by Dr. Giacomo Tarroni)

- Investigating image clustering methods to create non-IID data for federated learning in computer vision tasks: (1) semantic clustering leveraging vision-language models (VLMs), large language models (LLMs), and multimodal LLMs; and (2) manifold-aware clustering utilizing intrinsic dimension estimation to optimize image partitioning in high-dimensional embedding spaces.
- Deployed the pipelines on an HPC cluster for large-scale inference across 100,000+ images.

Research Assistant • 09/2024 - 06/2025

Department of Computer Science, City University London • London, UK

Project: Deep Dynamic Programming based Environment Modelling using Feature Extraction (Supervised by Dr. Chris Child)

- Explored how features embedded in neural networks trained with Deep Q Networks and dynamic programming can be utilized for environment modeling to better train AI agents in noisy setups without externally defined environments.

Research Intern • 02/2019 - 05/2020

American Museum of Natural History • NYC, USA

- Technical assistant for Terrapin Tracker, which was selected as finalist for the Con X Tech Prize 2020.

Undergraduate Research Assistant • 10/2016 - 05/2020

Department of Computer Science & Biology, University of the South • TN, USA

- Conducted data engineering and analysis using R and Python for a transcriptome research project.
- Collaborated with Kashmir World Foundation, Biology Department and Computer Science Department to develop a drone-based wildlife monitoring system.

PUBLICATIONS

- Child, C., **Ngo, L**. (2026). DeeP-Mod: Deep Dynamic Programming Based Environment Modelling Using Feature Extraction. In: Jin, L., Wang, L. (eds) Advances in Neural Networks – ISNN 2025. ISNN 2025. Lecture Notes in Computer Science, vol 15951. Springer, Singapore. https://doi.org/10.1007/978-981-95-1233-1_3. *Preprint: arXiv:2504.20535*
- Balogh, A., **Ngo, L.**, Zigler, K.S. et al. Population genomics in two cave-obligate invertebrates confirms extremely limited dispersal between caves. Sci Rep 10, 17554 (2020). https://doi.org/10.1038/s41598-020-74508-9

EDUCATION

Master of Science in Computer Games Technology (Computer Science)

City, University of London • UK • 09/2023 - 10/2024

GPA: Distinction. Thesis: Feature Extraction from Deep Dynamic Network for Reinforcement Learning

Related course: Reinforcement Learning, Computer Vision, Graphics Programming, Advanced Games Technology (physics simulation, graphics and AI)

Bachelor of Science in Mathematics. Minor in Biology

Sewanee: The University of the South • USA • 08/2016 - 05/2020

GPA: 3.46. *Related courses: Linear Algebra, Multidimensional Calculus, Differential Equation, Partial Differential Equation and Modeling, Discrete Mathematics*

RELATED INDUSTRY EXPERIENCE

C++ Programmer Mentee • 10/2023 - 03/2024

Ubisoft Leamington • Leamington Spa, UK

- Built a modular entity-component architecture using modern C++ and provided API.
- Implemented AI algorithms to anticipate player movements, enhancing gameplay difficulty.

Junior Programmer • 06/2022 - 06/2023

Indi Games Inc. • Ho Chi Minh City, Vietnam

- Developed multiplayer game systems in Unity with real-time websocket integration.
- Collaborated with Japanese teams to deliver 3 commercial products, responsible for core mechanics.

CERTIFICATES

- **Deep Generative Learning**, DeepLearning.AI (2025) | Certificate ID: EOEXLWZN36BW

SKILLS

Programming languages: Python, C#, C/C++, TypeScript

AI/ML: PyTorch, Tensorflow, Deep Learning, Reinforcement Learning, Computer Vision, Hugging Face, VLMs, LLMs, MLLMs

Tools and Tech: HPC, Unity, Unreal Engine, Visual Studio, VS Code, DearImGui, OpenGL, OpenCV

Others: Git, Jira, Communication, Agile Development, Research and Academic Writing

AWARDS

- **Global STEM Leadership Master's Scholarship**: 75% tuition award, given to 10 top applicants (2023, *City St George's University of London*)
- **International Honors Scholarship**: partial tuition award (2016, *Sewanee: University of the South*)