

# MINH PHAM

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## EDUCATION

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**École Polytechnique**, Palaiseau, France Sep 2021 - Jun 2024

*BSc in Mathematics and Computer Science (summa cum laude)*

Relevant Coursework: Object-oriented Programming (C++), Computer Architecture, Machine Learning, Computer Networks, Concurrent and Distributed Computing, Computer Graphics

**University of California San Diego**, CA, U.S.A Sep 2023 - Dec 2023

*Exchange Semester, Department of Computer Science and Engineering (GPA: 4.0/4.0)*

Relevant Coursework: Operating Systems, Computer Security, Wireless Embedded Systems

## EXPERIENCE

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**Computer Science and Systems Engineering Laboratory (U2IS)**, ENSTA Paris Palaiseau, France

*Research Intern - Bachelor Thesis ([report](#))* Jan 2024 - Mar 2024

- Applied Reinforcement Learning to UAVs for search and rescue operations within a simulated environment.
- Developed SwarmRL, an RL interface for the Swarm Rescue environment. Compatible with popular RL libraries such as StableBaselines3 and CleanRL. GitHub: [minhpham160603/SwarmRL](https://github.com/minhpham160603/SwarmRL).
- Developed pipelines to train and fine-tune state-of-the-art models including PPO, SAC, and TD3.

**Barclays Execution Services Limited** Knutsford, UK

*Technology Analyst* Jun 2023 - Aug 2023

- Worked under the Customer Digital & Data team to analyze incident data for detecting fast-emerging incidents of the Full-serve service. Collaborated with technicians to identify root causes and propose incident resolutions.
- Built a prototype model to prioritize strategic-level backlog items to ensure consistent and optimal backlog planning across departments in Barclays UK Tech.

## TECHNICAL PROJECTS

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**Ray Tracing with GPU** Sep 2023 - Dec 2023

- Implemented ray tracing to render 3D images using NVIDIA CUDA programming interface.
- Experimented with various optimization techniques (shared memory, single precision arithmetic) and benchmark computation time.

**Computer Security** Sep 2023 - Dec 2023

- Implemented classical attacks on experimental targets to gain a deep understanding of computer systems and networking security: buffer-overflow (including Return-oriented Programming), SQL injection, Cross-Site Request Forgery (CSRF), and Cross-Site Scripting (XSS).

**Liquidity Protocol - Automatic Market Maker Simulator** Oct 2022 - Jan 2023

*Playground Team Lead - Developer*

- Developed the playground that allows users to create liquidity pools (Uniswap, Balancer, Curve, etc.) and tokens, experiment with various trading strategies, and see a graphical representation of the price ratios.
- Implemented stochastic arbitrage strategies and developed a simulator that enables users to run experiments in arbitrary timesteps. Tech stack: C++, Qt Library.

## SKILLS

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- **Programming:** C (proficient), C++ (proficient), Python (proficient), Java, JavaScript, Bash script, Assembly x86.
- **Software & Framework:** ReactJS, Node.js, Express, MongoDB, Git, PyTorch, Tensorflow, Postman.
- **Certificates:** [Neural Networks and Deep Learning](#), [Convolutional Neural Networks](#)
- **Languages:** English (C1), French (B2), Vietnamese (Native).

## ACHIEVEMENTS

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- **Excellence Scholarship** (Fondation de l'X), 2022 - 2024: Awarded to top students with outstanding academic results and contributions to student life on campus.