

Hoang-Phuc Nguyen

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RESEARCH EXPERIENCE

- **Software Engineering Laboratory – SELab HCMUS** Aug. 2024 – Present
Research Student – Supervised by Assoc. Prof Minh-Triet Tran on Computer Vision
 - Study and participate in many projects focusing on Deep Learning and Computer Vision.
 - Collaborated with a multidisciplinary team to develop innovative solutions for real-world challenges.
 - Conducted experiments, analyzed results, and improved skills in AI model training and optimization.
 - Participated in lab seminars and presentations to share findings and learn from peers' research.
 - Member of Organizing Committee of the “Intelligent 3D Room Design” track of SHREC 2025.

SELECTED PUBLICATIONS

- Taher YACOUB, Nika Zarubina, Camille Depenveiller, **Hoang-Phuc Nguyen**, Vinh-Toan Vong, Minh-Triet Tran, Yuki Kagaya, Tsukasa Nakamura, Daisuke Kihara, Florent Langenfeld, Matthieu Montes. **SHREC 2024: Non-rigid complementary shapes retrieval in protein-protein interactions**. 3DOR 2024, The Eurographics Association, 10.2312/3dor.20241173.
- Duc-Nhuan Le, **Hoang-Phuc Nguyen**, Vinh-Toan Vong, Nguyen-Khoa Luong, Trong-Le Do. **HP×PKD: Progressive Training Pipeline with Knowledge Distillation for Lightweight Backbones in Pedestrian Detection**. MAPR 2024, IEEE, 10.1109/MAPR63514.2024.10660994.
- Duc-Nhuan Le, **Hoang-Phuc Nguyen**, Thanh-Duy Lam, Minh-Nhut Dang, and Minh-Hoang Le. **CESE: A Clip-based Event Search Engine for AI Challenge HCMC 2024**. SOICT 2024, Springer CCIS.
- **Hoang-Phuc Nguyen**, Quoc-Trung Nguyen, Minh-Triet Tran. **Mouse Paw Inflammation Evaluation with Segment Anything and Lightness Classification**. SOICT 2024, Springer CCIS.

EDUCATION

- **University of Science, VNU-HCM (HCMUS), Ho Chi Minh City, Vietnam** Sep. 2022 – Present
Advanced Program in Computer Science; GPA: 9.55/10.0 – 3.99/4.00
 - Honors: Dean's List of the academic year 2022-2023 (**Top 5 GPA**) and year 2023-2024 (**Top 5 GPA**), **Top 1** and **Top 2** GPA of class 22APCS academic year 2022-2023 and 2023-2024.
 - Review coursework: Linear Algebra, Statistics, Data Structures, Discrete Structures, Logical Structures, Calculus, Computer Systems, Database, Scientific Method, Technical Writing, OOP, General Physics, Computer Hardware, Mobile Application Development, Number Theory, Software Engineering, Information Retrieval, Natural Language Processing, Artificial Intelligence.
- **Le Quy Don High School for the Gifted, Quang Tri Province, Vietnam** Sep. 2019 - Jun. 2022
Major in Information Technology

SELECTED PROJECTS

- **Vietnamese Food Recognizer** Aug. 2023 – Sep. 2023
AI Application Developer
 - Created Vietnamese Culinary Explorer, an Android app to promote Vietnamese cuisine, assist tourists in finding restaurants, recognizing dishes, and learning about their cultural significance, enhancing their travel experience.
 - Built a Restaurant Recommender using Java and XML. Integrated Google Maps API, food recognition with a MobileNet model, added ChatGPT for culinary insights, a digital stamps system, and utilized Realm databases.
- **Algoritma – A tool for visualizing algorithms and data structures** Mar. 2023 – Aug. 2023
Desktop Application Developer
 - Developed an interactive visualization tool in C++ to demonstrate the functionality of various algorithms and data structures, enhancing understanding for students and professionals.
 - Implemented and visualized DFS/BFS, Dijkstra, Minimum Spanning Tree, and Connected Components.

- Designed and integrated data structures such as Static/Dynamic Arrays, Singly/Doubly/Circular Linked Lists, Stacks, Queues, Hash Tables, Graph, Tries, Binary Search Trees, Min/Max Heaps, AVL Trees, and 2-3-4 Trees.
- Gained expertise in algorithm analysis and data structure implementation, fostering a strong foundation for solving complex computational problems.

• **Overpass – A “cross the road” game**

Oct. 2023 – Jan. 2024

• *Game Developer*

- Developed a “Road Crossing” game in C/C++ with SFML Framework using Object-Oriented Programming (OOP), focusing on player movement, collision detection, traffic lights, and multi-level gameplay.
- Built a simple OOP framework on top of SFML, inspired by the Android Java framework, integrating various design patterns to ensure efficient and scalable software architecture.
- Applied special motion effects, implemented save/load functionality, and additional features like weather effects and varying vehicles/animals to enhance gameplay.

SELECTED ACHIEVEMENTS AND AWARDS

• **International Collegiate Programming Contest (ICPC) – Regional**

2024

- Competed in a team of three to solve 10–13 algorithmic problems in 5 hours using C++ & Python.
- Ranked **30th (Third Prize)** in the 2024 ICPC Hanoi Regional.

• **International Collegiate Programming Contest (ICPC) – National**

2022, 2023, 2024

- Competed in a team of three to solve 10–13 algorithmic problems in 5 hours using C++ & Python.
- Ranked **25th (Co-Silver)** in 2024, **61th (Co-Bronze)** in 2023, **39th (Co-Silver)** in 2022.

• **National Olympiad in Informatics for High School Students**

2021, 2022

- Competed individually in 2 days to solve 3 algorithmic problems in 3 hours on each day.
- Ranked **12th (Top 1 in Second Prize)** in 2022, **Third Prize** in 2021.

• **AI Challenges**

- Achieved **top 2** overall performance at track Protein shapes docking – SHREC 2024.
- Honorable Mention in the Final Round of Ho Chi Minh City AI Challenge 2024.

ACTIVITIES

• **Le Quy Don Online Judge (LQDOJ)**

Jun. 2022 – Jun. 2024

• *Administrator*

- Designed and authored programming exercises and solutions to enhance problem-solving skills.
- Organized competitive programming contests and teaching sessions for middle and high school students.
- Served as an organizer for two major competitions, each comprising nearly 10 contest rounds, to prepare high school students for the National Olympiad in Informatics.
- Developed expertise in curriculum design, event coordination, and teaching programming to diverse age groups.

• **National Olympiad in Informatics Team – Quang Tri Province, Vietnam**

Jun. 2022 – Present

• *Mentor*

- Participated in training the National Olympiad in Informatics team (10–20 students) at Le Quy Don High School for the Gifted, Quang Tri Province, Vietnam.
- Prepared lectures and algorithms for competitive programming, taught the national team, and organized contests to foster problem-solving in a collaborative environment.
- Improved expertise in competitive programming coaching, curriculum planning, and team development.

SKILLS

Technical Skills:

Scientific Research, Problem Solving, Machine Learning, Computer Vision

Programming Languages:

C/C++, Python, Java, SQL, HTML, JavaScript, CSS, LaTeX, Markdown

Frameworks/Tools:

Pytorch, MMDetection, Flask, Android SDK, Git/GitHub, Docker

Languages:

English (fluent), Vietnamese (native speaker)