Nghia H. H. Nguyen

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EDUCATION

University of Science, VNU-HCM, HCMC, Vietnam (*Top 2* in Vietnam in Computer Science)   Sep. 2017 - Nov. 2021
- Bachelor of Science in Computer Science - Advanced Program in Computer Science. The "Advanced Program in Computer Science" is highly selective in the degree, similar to a Bachelor with Honors program.
- **GPA: 3.97/4.00** (Top 5 out of 92 students in the program)
- Thesis topic: "*Body-part Aware Network* and *Object Affordance Masking* mechanism for *Human-Object Interaction Detection.*" Supervised by Associate Professor Minh-Triet Tran.

EXPERIENCE

FPT AI Center   HCMC, Vietnam
AI Research Resident (Predoctoral Researcher)   Oct. 2021 - Present
- Worked on developing a new type of Neural Ordinary Differential Equations based on acceleration methods in optimization.

VinBrain   HCMC, Vietnam
Applied Scientist Intern   Apr. 2021 - Aug. 2021
- Improved the object detection model mAP@0.5 score over **two times** from a pretrained model when tested on a custom version of the Open Images v6 dataset.

LSIR, École Polytechnique Fédérale de Lausanne   Lausanne, Switzerland (Remote from Vietnam due to COVID-19)
Research Intern   May 2020 - Oct. 2020
- Worked on a Subtree-Reuse-based SQL Query Optimizer using **Graph Neural Network** and **Box Embeddings**.
- Performed experiments on the Attribute Discovery dataset to verify the plausibility of a new Multimodal Feature Fusion method using Graph Neural Network, achieving a **test accuracy** of **96.86%** on this dataset.

Faculty of Information Technology, University of Science, VNU-HCM   HCMC, Vietnam
Research Assistant   Sep. 2019 - Aug. 2020
- Discovered the correlation between forking patterns and software health and risks in software repositories.
- Performed inference in the Software Heritage Dataset to extract forking patterns between 50,000 repositories using PostgreSQL and Neo4J.

Big-O Coding   HCMC, Vietnam
Teaching Assistant, Problem Setter, Front-end Web Developer   Jul. 2018 - Dec. 2020
- Explained Algorithms and Data Structures concepts to students at Big-O Coding weekly and prepared more than 20 programming problems.
- Built version 1 of the Front-end Web Application for Big-O Coding's website: http://bigocoder.com to host programming problems and contests for up to 1,900 users using React JS.
- Reduced page traversing paths for administrators by 50% by implementing a shortcut to problems.

Pathfinder Vietnam   HCMC, Vietnam
Founder, Product Team Leader, Front-end Web Developer   Sep. 2018 - May 2020
- Led product team of 6 in implementing the Minimum Viable Product using React JS and NodeJS.
- Introduced the product's core feature by implementing the programming testing system.

PEER-REVIEWED PUBLICATIONS

Nghia Nguyen*, Tan Nguyen*, Huyen Vo, Stanley Osher, Thieu Vo, "**Nesterov Neural Ordinary Differential Equations**," Accepted at *Neural Information Processing Systems*, 2022. * indicates co-first authors.
- Derive an important theoretical result, implement the method, and run the experiments.

Tuan-Duy H. Nguyen, **Huu-Nghia H. Nguyen**, "**Towards a Robust WiFi-based Fall Detection with Adversarial Data Augmentation**," *IEEE Annual Conference on Information Sciences and Systems*, 2020.

- Implemented the LSTM module for a Zero-shot Learning Fall Detection system that achieves an **accuracy** of **66.03%** on an **out-of-domain test set**. Accepted for presentation at the 54th IEEE Annual Conference on Information Sciences and Systems 2020. Princeton, New Jersey, USA.

Tuan-Duy H. Nguyen, **Huu-Nghia H. Nguyen**, Dao Hieu, "[**Recognizing Families through Images with Pretrained Encoders**](#)," *IEEE International Conference on Automatic Face and Gesture Recognition*, vol. 1, pp. 887-891, 2020.
- Implemented the **Siamese FaceNet Inception-ResNet-v1** model for verifying kinship relationships in a pair of images (**ranked 9/21**) and kinship image retrieval (**ranked 5/9**). Accepted at the 2020 Recognizing Families In the Wild competition, the 15th IEEE International Conference on Automatic Face and Gesture Recognition. Buenos Aires, Argentina.

ACHIEVEMENTS

● Pre-PhD Summer School by VinUni-Illinois Smart Health Center, VinUniversity	2022
○ Among 50 participants chosen from 220 applicants.	
● Advanced Program in Computer Science **Scholarship**	2020
○ Top 5 out of 92 students.	
● **Honorable Mention** in Vietnam National Olympiad for Undergraduates in Informatics	2019
● **2nd place** in University of Science VNU-HCM Olympiad in Informatics	2019
● **Participant** of Vietnam Summer School of Science (VSSS) '07	2019
○ Among 161 participants chosen from 1760 applicants nationwide.	
● **3rd prize** in VSSS Science Hackathon	2019
○ Created metrics for our mini-research about the love for science.	
● **Honorable Mention** in Creative Idea Contest (CIC)	2019
○ Top 6 out of 200 teams.	
● **Top 6** in Generation Unlimited Youth Challenge by UNICEF and Saigon Innovation Hub	2018
○ Top 6 (equal standings) out of 100 applicants.	
● Advanced Program in Computer Science **Scholarship**	2018
○ Top 5 out of 92 students.	
● **2nd prize** in Ho Chi Minh City English Competition for Specialized Students	2017
● **Gold medalist** in Physics in the Southern Vietnamese Regional Olympiad	2016

PROJECTS

What The Food app 2018
- Implemented a Convolution Neural Network to identify 101 types of food using **TensorFlow**.
- Converted the Keras model to a **TensorFlow Lite** model and deployed the model on an Android application using **Firebase ML Kit**.

SKILLS

- Languages: C++ (**3 years**), Python (**4 years**), Javascript, Java, HTML, CSS, SQL.
- Frameworks and Tools: Tensorflow, PyTorch, ReactJS, Redux, Android SDK, Linux, Git.

LANGUAGES

- **IELTS: 8.5** (2021)

EXTRACURRICULAR ACTIVITIES

ICLR, ICML Remote from HCMC, Vietnam
Volunteer Apr. 2020, Apr. 2021, Aug. 2021
- Checked the websites for possible bugs and answered questions from participants.

Google Developers Students Club at University of Science, VNU-HCM   HCMC, Vietnam
Content Staff   Nov. 2019 - Sep. 2020
- Helped to prepare the content and venue for a Git Introduction seminar.

AWS User Group Vietnam   HCMC, Vietnam
Organizer   Sep. 2018
- Helped in the logistics phase of AWS annual event for developers in Vietnam.