

Ngoc Nhu Hoang

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EDUCATION

Université Libre de Bruxelles

Master of Science in Computer Science and Engineering

Brussels, Belgium

Since 09/2024

- Awarded a full ride scholarship to pursue the Erasmus Mundus Joint Master in Big Data Management and Analytics.

New York University Abu Dhabi

Bachelor of Science

Abu Dhabi, United Arab Emirates

08/2019 – 05/2023

- Major in Computer Science, minors in Applied Mathematics and Interactive Media.
- GPA: 3.906/4.0
- Named University Honors Scholar and awarded the NYU Founders' Day Award for top-ranking Baccalaureate candidates and graduates.
- Relevant coursework: Discrete Math, Data Structures, Algorithms, Computer Systems Organization, Software Engineering, Operating Systems, Introduction to Machine Learning, Computational Social Science, Multivariable Calculus, Linear Algebra, Probability and Statistics.
- Bachelor thesis: *Anomaly Detection Using AutoEncoders: the Advanced Persistent Threats Case*.
 - Advised by Professor Talal Rahwan, Department of Computer Science
 - Researched and implemented AutoEncoder-based methods to detect advanced persistent threats by reconstructing system-level provenance data.
 - Developed models highlighting anomalous system activities within highly imbalanced data, showcasing strong capabilities to detect anomalies outperforming various baseline algorithms.

PROFESSIONAL & RESEARCH EXPERIENCES

Software Engineer

LG Electronics Development Vietnam

10/2023 – 08/2024

Da Nang City, Vietnam

- Developed and maintained C++ modules for over-the-air (OTA) firmware updates in in-vehicle infotainment (IVI) systems, conducting sanity testing and debugging to ensure compliance with requirements.
- Designed and implemented a software update module that integrated a third-party OTA solution, handling package management, update execution, and status reporting.
- Collaborated with fellow engineers to design system architecture and APIs, and contributed to cross-functional debugging across multiple update modules.
- Automated internal processes by creating tools to generate test packages, improving efficiency in testing and validation workflows.
- Passed the company-wide Software Programming Competency Test (SWPCT), a competitive internal exam assessing programming and algorithmic skills.

Research Assistant

Center for Quantum and Topological Systems, NYU Abu Dhabi

05/2023 – 07/2023

Abu Dhabi, United Arab Emirates

- Conducted preliminary research and experiments in formalizing braid groups as automorphisms of free groups using the dependently typed functional programming language Agda.

Application Security Intern

Wio Bank P.J.S.C.

02/2023 – 05/2023

Abu Dhabi, United Arab Emirates

- Conducted static analysis of Android and iOS apps to ensure security standards and detect vulnerabilities.

Research Assistant

Department of Civil and Urban Engineering, NYU Tandon

06/2022 – 08/2022

New York, NY, United States

- Joined the Behavioral Urban Informatics, Logistics, and Transport Laboratory researching urban mobility.
- Conducted analysis using BigQuery to process and validate big datasets (each containing over 200 million records), visualized findings with various maps and data dashboards.
- Optimized an algorithm for the capacitated user equilibrium problem by 90%, reducing runtime from 24 to 1.5 minutes by conducting extensive code review to identify bottlenecks and applying vectorization.
- Designed, ran, analyzed a program running genetic algorithm for parameter estimation for project on stochastic user equilibrium.

Research Assistant

05/2021 – 07/2021

Center for Global Sea Level Change, NYU Abu Dhabi

Abu Dhabi, United Arab Emirates

- Implemented and evaluated a probabilistic model for predicting long-term shoreline changes given geomorphological and geologic settings under different sea level rise scenarios.
- Conducted processing, interpolation, projection on geospatial datasets of Abu Dhabi shoreline.
- Wrote customized Python scripts for maps intersection and model prediction that shortened run time from over 6 hours to under 20 minutes.

PUBLICATIONS

Sidahmed Benabderrahmane, **Ngoc Hoang**, Petko Valtchev, James Cheney, Talal Rahwan, "Hack me if you can: Aggregating autoencoders for countering persistent access threats within highly imbalanced data", *Future Generation Computer Systems*, 2024. DOI: [10.1016/j.future.2024.06.050](https://doi.org/10.1016/j.future.2024.06.050).

Joseph Y J Chow, Xiyuan Ren, and **Ngoc Hoang**. "NY Statewide Behavioral Equity Impact Decision Support Tool with Replica", *Connected Communities for Smart Mobility Toward Accessible and Resilient Transportation for Equitably Reducing Congestion* (C2SMARTER) Tier-1 University Transportation Center (UTC), 1 July 2023, rosap.ntl.bts.gov/view/dot/72373.

Ngoc Nhu Hoang. "A Vietnamese Named Entity Recognition System for COVID-19 Articles". *2022 IEEE MIT Undergraduate Research Technology Conference* (URTC), IEEE, 30 September 2022. DOI: [10.1109/URTC56832.2022.10002170](https://doi.org/10.1109/URTC56832.2022.10002170).

CONFERENCE PRESENTATION

"A Vietnamese Named Entity Recognition System for COVID-19 Articles", *2022 IEEE MIT Undergraduate Research Technology Conference*, Cambridge, MA, United States. October 2022 (virtual paper presentation).

COMPETITION

NYU Abu Dhabi Hackathon

04/2022

qSa'id - Quantum-ML-Assisted Diagnostic Treatment Access Platform for Autism

- Created for NYUAD Hackathon for Social Good in the Arab World 2022 focusing on Quantum Computing.
- Team won Best social good applied to the region.
- Built a screening tool for Autistic Spectrum Disorder using neural network that achieved 95.1% accuracy on test data and demo platform using Flask for back-end and Bootstrap for front-end design.

SKILLS

Programming languages: Python, C, C++, JavaScript, Swift

Web development: HTML, CSS, Express, NodeJS, Flask

Other software proficiency: Figma, Adobe Photoshop, DaVinci Resolve

Languages: Vietnamese (native proficiency), English (full professional proficiency)