

Ngoc Nhu Hoang

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EDUCATION

New York University Abu Dhabi

Abu Dhabi, United Arab Emirates

Bachelor of Science

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*.
 - 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.

New York University

New York, NY, United States

Study away program

08/2021 – 12/2021

- Coursework: Artificial Intelligence, Natural Language Processing, Computer Networks, Processing Big Data for Analytics Applications.

PROFESSIONAL & RESEARCH EXPERIENCES

Software Engineer

10/2023 – Present

LG Electronics Development Vietnam

Da Nang City, Vietnam

- Researching and developing automotive connectivity solutions for in-vehicle infotainment (IVI) with a focus on modules for over-the-air firmware update.

Research Assistant

05/2023 – 07/2023

Center for Quantum and Topological Systems, NYU Abu Dhabi

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

02/2023 – 05/2023

Wio Bank P.J.S.C.

Abu Dhabi, United Arab Emirates

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

Research Assistant

06/2022 – 08/2022

Department of Civil and Urban Engineering, NYU Tandon

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, and Talal Rahwan. "Hack Me If You Can: Using Auto-encoders for Countering Deep Persistent Access Threats Within Highly Imbalanced Learning Data". To appear, *Future Generation Computer Systems*. 2024.

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.nhtl.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.

ADDITIONAL EXPERIENCES

Computer Science Peer Tutor

02/2022 – 05/2023

Unix Lab, NYU Abu Dhabi

Abu Dhabi, United Arab Emirates

- Assisted 10+ students every week with Computer Science and programming-related coursework and projects.

Global Education Officer

02/2022 – 05/2023

Office of Global Education, NYU Abu Dhabi

Abu Dhabi, United Arab Emirates

- Advised first-year students on global education policies and opportunities related to semester and short-term study away program.

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, TOEFL iBT 118)