

# HOÀNG NHƯ NGỌC

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## EDUCATION

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### 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, Interactive Media.
- GPA: 3.906/4.0
- Named University Honors Scholar and awarded NYU Founders' Day Award for top-ranking graduating seniors.
- Relevant Computer Science coursework: Discrete Math, Data Structures, Algorithms, Computer Systems Organization, Software Engineering, Computer Networks, Operating Systems, Introduction to Machine Learning, Artificial Intelligence, Natural Language Processing, Processing Big Data for Analytics Applications.
- Relevant Mathematics coursework: Calculus, Multivariable Calculus, Linear Algebra, Probability and Statistics.

### Le Hong Phong High School for the Gifted

Ho Chi Minh City, Vietnam

English specialized class

08/2016 – 07/2019

- Gold medal in Ho Chi Minh City's Olympic of April in Computer Science.

## EXPERIENCES

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### Research Assistant

05/2023 – 07/2023

Center for Quantum and Topological Systems, NYU Abu Dhabi

Abu Dhabi, United Arab Emirates

- Formalized 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

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

### 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.

### Research Assistant

06/2022 – 08/2022

Behavioral Urban Informatics, Logistics, and Transport Laboratory,

Department of Civil and Urban Engineering, NYU Tandon

New York City, United States

- Conducted analysis using BigQuery to process and validate big datasets (containing over 200 million records), visualized findings with various maps and data dashboards [[link to poster](#)].
- 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 [[link to GitHub repository](#)].

### 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, etc. 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.
- [[Link to project report](#)].

## SELECTED PROJECTS

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### Bachelor Thesis in Computer Science

02/2022 – 05/2023

Advisor: Prof. Talal Rahwan, Department of Computer Science, NYU Abu Dhabi

- Project: Anomaly Detection Using AutoEncoders: the Advanced Persistent Threats Case.
- Assessed the use of AutoEncoders as an anomaly detection method by reconstructing system-level provenance data to identify anomalous patterns in system activities, which can be indicative of underlying stealthy and sophisticated advanced persistent threats.
- Tools/languages: Python, TensorFlow
- [[Link to poster](#)] [[Link to GitHub repository](#)].

### New York City Vehicle Collisions Analytics

09/2021 – 12/2021

Tools/languages: Java, Scala, Spark SQL, Spark MLlib

- Wrote MapReduce code in Java for data cleaning and profiling.
- Used Spark SQL and Spark MLlib for fitting a Logistic Regression model and exploratory data analysis.
- [[Link to Medium post](#)] [[Link to GitHub repository](#)].

### MyMovies

11/2021 – 12/2021

Tools/languages: Swift

- Built an iOS app for searching and keeping movies in collections using TMDB API.
- Implemented a collection system allowing logged in users to browse, search, and add movies to personal collections and to browse other people's collections.
- Designed a clean UI, created high fidelity wireframes using Figma, and implemented the UI accordingly.
- [[Link to GitHub repository](#)].

## PUBLICATION

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**A Vietnamese Named Entity Recognition System for COVID-19 Articles**, 2022 IEEE MIT Undergraduate Research Technology Conference (URTC), 2022, pp. 1-5, DOI: [10.1109/URTC56832.2022.10002170](https://doi.org/10.1109/URTC56832.2022.10002170).

## PRESENTATION

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### 2022 IEEE MIT Undergraduate Research Technology Conference

09/2022

Massachusetts, United States (presented virtually)

- Presented my research paper, *A Vietnamese Named Entity Recognition System for COVID-19 Articles*, for the Machine Learning/Artificial Intelligence track.
- [[Link to pre-recorded presentation](#)]

## COMPETITION

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### 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 a hybrid quantum-classical neural network via the qBraid platform; achieved 95.1% accuracy on test data.
- Built a demo platform using Flask for back-end and Bootstrap for front-end design.

## SKILLS

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

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

**Other software proficiency:** Figma, Adobe Photoshop, DaVinci Resolve

**Languages:** Vietnamese (native), English (fluent, TOEFL iBT: 118/120)