

# NGUYEN NGOC KHANH

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Singapore  
<https://khanh-nguyen-code.github.io>

## EDUCATION

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**BEng** Nanyang Technological University, Computer Science May 2021

- Elective Tracks: High-Performance Computing, Artificial Intelligence
- Highest Distinction: Advanced Topics in Algorithms, Compiler Techniques

## SCHOLARSHIPS AND AWARDS

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**Silver Medal in International Physics Olympiad** 2015  
Rank #51 (262 contestants)  
Rank #4 of the Vietnamese team.

**Gold Medal in Asian Physics Olympiad** 2015  
Best theoretical score of the Vietnamese team.  
Rank #2 of the Vietnamese team.

**Bronze Medal in Asian Physics Olympiad** 2014  
Rank #6 of the Vietnamese team.

## RESEARCH EXPERIENCE

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**Mentee**, Math and Science Summer Program, Online May 2021 to May 2021

**Mentor**: Nguyen Hoang Phuong

Ph.D. in mathematics at Paul Sabatier (Toulouse, France)

- Led a team of 4 people in the project of discovering dataset Rain in Australia including
  - Scheduled meeting time table
  - Reported to mentor on work progress
- Prepared the final report and presentation on the study including
  - Statistical property of dataset
  - Feature engineering
  - Experiment, Comparison, and Discussion
  - Further Improvement

**Data Science Intern**, Shopee Private Limited, Singapore Jan 2021 to May 2021

Anti-Fraud Team, Data Science Department

**Reporting Manager**: Dr Huang Dong

Project 1: (Jan 2021 to Apr 2021)

- Generated LDBC SNB SF1000 dataset using Spark (~1.5TB)
- Transformed the dataset into suitable format for Nebula 2 using Spark
- Performed benchmark on Nebula 2 with different configurations
- Demonstrated the outperformed capability of Nebula 2 as compare to previous database.

Project 2: (Apr 2021 to May 2021)

- Reviewed Literature in neural-based techniques for Named-Entity Recognition and Word Segmentation.
- Implemented LSTM CRF model for NER task on address data
- Conduct experiment on address data and surpassed the baseline model (CRF) in f1 score performance on test data (0.92 to 0.98).

**Research Assistant**, Nanyang Technological University, Singapore Dec 2020 to Mar 2021

Singtel Cognitive and Artificial Intelligence Lab  
Multi-Agent Path Finding

**Advisor:** Assoc Prof Tang Xueyan

- Reviewed Literature in Multi-Agent Path Finding (MAPF) and Multi-Travelling Salesman Problem (MTSP).
- Designed and Proved a reduction from the real-world instance to a multi-objective MTSP (mMTSP) instance
- Designed and Implemented a relaxed optimisation algorithm for MTSP inspired by Spectral Clustering.
- Improved the solution by designing and implementing a new local search method for multi-objective optimisation.
- Designed and implemented a conflict-based search algorithm to extract mMTSP solution for real-world requirements.
- Prepared specification documents and presentations for work progress.
- Prepared follow up presentations after handover of work.

**Final Year Project**, Nanyang Technological University, Singapore  
Cluster Analysis on Dynamic Graphs

Feb 2020 to Oct 2020

**Supervisor:** Asst Prof Ke Yipping, Kelly

- Reviewed Literature in Graph Partitioning, Graph Embedding and Spectral Graph Neural Network.
- Extended and Analysed Gibbs sampling algorithm on Distance-dependent Chinese Restaurant Process (ddCRP) for Graph Clustering Problem
- Conducted intensive experiment for benchmark the performance on power-law cluster size synthesis graphs and real dynamic graphs.
- Surpassed the baseline method of 14.1% in modularity for power-law cluster size synthesis graphs.
- Prepared the specification document and the presentation on the work done.

## LANGUAGES

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**English:** Advanced language

**Vietnamese:** Native language

## COMPUTER SKILLS

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**Programming:** Python, Go, C++ (Intermediate), MATLAB (Beginner)

**Applications:** CLI Applications, JetBrains IDEs, Visual Studio Code.

**Platforms:** Linux/Unix, HDFS Spark.

## OTHER

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Interests/Hobbies: Code, Write, Play (multi-player competitive video games).

Citizenship: Vietnamese