# NGUYEN NGOC KHANH

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## EDUCATION

**Nanyang Technological University, Singapore** **Aug 2017 – Jul 2021 (Expected)**

- **Bachelor of Engineering (Computer Science)**
- Elective Tracks: High-Performance Computing, Artificial Intelligence, Data Science.
- Highest Distinction in: Compiler Techniques, Advanced Topics in Algorithms.

## PROJECTS

**Academic Projects – Nanyang Technological University, Singapore**

**Final Year Project (CZ4079, individual): Cluster Analysis on Dynamic Graphs.**

- Reviewed literature in Graph Clustering:
  - Spectral Clustering
  - Node Embedding
  - Model-based Clustering.
- Extended and Analyzed Gibbs sampling algorithm on distant-dependence Chinese Restaurant Process for graph clustering problem.
- Introduced a novel cluster ensemble that is capable to respond the informative clustering evolution.
- Conducted intensive experiments to benchmark the performance of the new algorithms on both synthesis networks and real dynamic networks.

**Network Science (CZ4071, group-based): Survey and Implementation of NeurIPS'19 "Layer-Dependent Importance Sampling for Training Deep and Large Graph Convolutional Networks"**

- Generated networks based on stochastic block model.
- Summarized the mathematical formulation of the research using Tex.
- Implemented the correct version of code for the research using Pytorch.
- Performed experiments and analyzed the outputs and confirmed the superior results from the research.

## WORK EXPERIENCE / INTERNSHIP

**Shopee, Singapore – Data Science Intern** **Jan 2020 – Present**

Project 1 (Individual): Nebula 2 benchmark

- Convert data into the Nebula 2 using Spark.
- Perform benchmark with different configurations.

**Nanyang Technological University, Singapore – SCALE Lab, Student Assistant for Research** **Dec 2020 – Mar 2021**

Project 1 (Individual): Multi-Robot Patrolling Algorithms

- Reviewed literature for multiple travelling salesman problem (MTSP).
- Designed and proved the soundness and completeness of the MTSP solution for the real-world requirements.
- Designed and implemented relaxed algorithms to approximate MTSP solution based on spectral clustering method.
- Improved the baseline solution by designing and implementing a new heuristic for the multi-objective problem.
- Designed and implement a search algorithm based on Conflict-Based Search to convert the solution of MTSP to real-world requirements.

**Shopee, Singapore – Platform Engineering Intern** **May 2020 – August 2020**

Project 1 (Group-based): Configuration Center Refactor

- Participated in DB Design, API Design
- Developed the Manager layer
- Tested and Fixed the functionalities of the (WIP) code.
- Updated the documentation for the API Design.

Task 1 (Individual): Extended HTTP Gateway for the RPC Agent

- Studied the design and Extended the functionality of the RPC Agent.
- Produced the Technical Requirement Design for review and Proceeded to develop the features according to the chosen design.

Task 2 (Individual): Investigation on a UI bug

- Studied the implementation of the component.
- Discussed with the authors of a third-party library (grpc-gateway)
- Produced the explanation and solution for the issue according to the inconsistency between two specifications. (swagger and proto).

Task 3 (Individual): Investigation on a timeout issue.

- Studied the implementation of the component and its features.
- Produced the explanation and a hotfix for the issue.

- Produced a longer-term solution that helped to improve the code performance

## AWARDS / ACHIEVEMENTS

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|---|---|
| **Citi-Hackathon 2019** | Best Application |
| **NSCC – APAC HPC-AI Competition 2019** | Best HPC Performance Achievement |
| **National Data Science Challenge 2019** | Champion Team |
| **IET Machine Learning Challenge 2018** | Second Runner Up Team |
| **International Physics Olympiad 2015** | Silver Medal |
| **Asian Physics Olympiad 2015** | Gold Medal |
| **Asian Physics Olympiad 2014** | Bronze Medal |

## SKILLS / COMPETENCIES / INTERESTS

| **Technical Skills** | **Programming Skills** |
|---|---|
| Machine Learning | Python, MATLAB |
| Software Engineering | Go, C++, SQL |
| Other | Latex |