

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

- Generated LDBC SNB SF1000 dataset using Spark (~1.5TB)
- Transformed the dataset using Spark.
- Performed benchmark on Nebula 2 with different configurations.

Project 2 (Individual): Address NER

- Reviewed literature in Named-Entity Recognition and Classification.
- Implemented Lample et al 's work on two-level LSTM CRF using PyTorch.
- Trained the model that surpassed the previous approach (CRF) in F1 score for a dataset of size 1.6M addresses (achieve 0.98 of F1 score as compared to 0.92 previously).

**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

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++, Java, SQL
Others	Latex