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

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   **May 2020 – August 2020**
Intern

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
(Team-based)	
NSCC – APAC HPC-AI Competition 2019	Best HPC Performance
(Team-based)	
National Data Science Challenge 2019	Champion Team
(Team-based)	
IET Machine Learning Challenge 2018	Second Runner Up Team
(Team-based)	
International Physics Olympiad 2015	Silver Medal
(Individual)	
Asian Physics Olympiad 2015	Gold Medal
(Individual)	Best Theoretical Result of Vietnamese Team
Asian Physics Olympiad 2014	Bronze Medal
(Individual)	

SKILLS / COMPETENCIES / INTERESTS

Technical Skills	**Programming Skills**
Machine Learning	Python, MATLAB
Software Engineering	Go, C++, Java, SQL
Others	Latex