Nguyen Ngoc Khanh

Email	khanh.nguyen.contact@gmail.com	**Location**	Singapore
Mobile Phone	+65 9778 7635	**URL**	khanh-nguyen-code.github.io

Personal Profile

Khanh is currently a research engineer at Institute for Infocomm Research (I2R) - Aural & Language Intelligence - Audio Analytics and Speech Recognition. His topics of interest include Machine Learning, Graph Neural Networks and Randomized Algorithm.

Scholarships and Awards

2015 Silver Medal - International Physics Olympiad

Rank #51 (262 contestants)
Rank #4 in Vietnamese team

2015 Gold Medal - Asian Physics Olympiad

Best theoretical score in Vietnamese team
Rank #2 in Vietnamese team

2014 Bronze Medal - Asian Physics Olympiad

Rank #6 in Vietnamese team

Education

2017-2021 BEng (Hons) in Computer Science - Nanyang Technological University

Final Year Project - *Cluster analysis on dynamic graphs*
Highest Distinction: *Advance Topics in Algorithms, Compiler Techniques*

Experience

May 2022 – Present Institute for Infocomm Research (I2R)
Aural & Language Intelligence, Audio Analytics & Speech Recognition, Research Engineer

Reporting Officer: Dr. Tran Duy Dat

June 2021 – May 2022 Shopee Singapore
Service Governance, Application Infra, Platform Engineer

Reporting Manager: Fang Guojian

Develop and maintain RPC platform

- Resolve platform issues from internal users
- Investigate on abnormal behaviours of the system
- Person in charge of traffic recording feature: improve performance, extend usability.

Jan 2021 Shopee Singapore
May 2021 *Data Science, Anti-Fraud, Intern*

Reporting Manager: Dr. Dong Huang

Project 1: *Evaluate performance of Nebula 2 on medium and large size graphs*

- Generated LDBC SNB SF1000 dataset using Spark ($\sim$ 1.5TB)
- Transformed the dataset into suitable format for Nebula 2 using Spark
- Conducted benchmark on Nebula 2 with different configurations
- Demonstrated the capability of Nebula 2 comparing to previous database system

Project 2: *Named-Entity Recognition (NER) on adversarial attacks*

- Reviewed literature in neural-based techniques for NER and word segmentation
- Implemented LSTM-CRF model for NER task on address data
- Conducted experiment on address data and Surpassed the baseline model (CRF) in f1 score ($0.92 \rightarrow 0.98$)

Dec 2020 Nanyang Technological University
Mar 2021 *Research Assistant*

Principal Investigator: Assoc Prof Tang Xueyan

Study the problem: *Multi-Agent Path Finding*

- Review literature in Multi-Agent Path Finding (MAPF) and Multi-Travelling Salesman Problem (MTSP)
- Designed and Proved a reduction from real-word 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
- Designed and implemented a conflict-based search algorithm to extract mMTSP solution for real-world requirements
- Prepared specification documents and presentations

Feb 2020 Nanyang Technological University
Oct 2020 *Student*

Supervisor: Asst Prof Ke Yipping, Kelly
Final Year Project: *Cluster analysis on dynamic graphs*

- Reviewed literature in Graph Partitioning, Graph Embedding, and Spectral Graph Theory, Graph Neural Networks
- Extended and Analysed Gibbs sampling algorithm on Distance-Dependant Chinese Restaurant Process (ddCRP) for Graph Clustering Problem
- Conducted experiment 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 specification documents and presentations

Computer Skills

- **Programming**

  Go, Python, C++
  MATLAB - Basic

- **Applications**

  CLI Applications
  JetBrains IDEs
  Overleaf (Latex)

- **Platforms**

  Linux - Basic
  HDFS Spark - Basic
  Docker - Basic

Interests

Writing, Hiking, Podcast, Video games

References

Dr. Yipping Ke, Supervisor
School of Computer Science and Engineering, Nanyang Technological University
Contact: ypke@ntu.edu.sg

Dr. Dong Huang, Reporting Manager
Shopee Singapore
Contact: dong.huang@shopee.com