Jianan Zhou

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ABOUT ME

- Name: Jianan Zhou
- Title: Mr
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- Contact number: (+65) 84625459
- Current position: Master Student@NTU & Research Intern at SCALE LAB@NTU

ACADEMIC QUALIFICATIONS

Nanyang Technological University January 2020 - June 2021
Master of Science in AI *Major in Artificial Intelligence*
Cumulative GPA: 4.94/5 (First Class Honours Expected)

Northeastern University (CN) September 2015 - June 2019
Bachelor of Engineering *Major in Software Engineering*
Cumulative GPA: 3.57/5 (85.7/100) Rank: 39/256 (Top 15%)

EMPLOYMENT HISTORY

Research Intern - SCALE@NTU, SG November 2020 - Present
- Lab Name: Singtel Cognitive and Artificial Intelligence Lab for Enterprises
- Research Topics: Combinatorial Optimization Problems; Large Neighborhood Search; Graph Neural Network; Reinforcement Learning.
- Designed and developed a learning-based method to guide large neighborhood search framework in Vehicle Routing Problems. The framework is able to solve large-scale problems with millions of variables and complex constraints within practice time.
- One paper (first-author) is under reviewing by *IEEE Transactions on Systems Man Cybernetics: Systems.*

Research and Development Intern - News Break@Beijing, CN August 2019 - November 2019
- Responsible for the development of the spider system, which provides news services that served in the North American region for the news reading APP - News Break - Top3 in the news app rankings in North America.
- Analyzed the bad cases of web page, and improved policy.

Java Web Intern - Neusoft Corporation@Shenyang, CN June 2018 - August 2018
- Co-developed a commercial education system, *NeuEducation*, intended to provide efficient management for both educational institutions and consumers.
- Utilized SSM and React frameworks to decouple development of system, along with JQuery-Ajax to implement interactions between front and back-end system.

PUBLICATIONS AND PATENTS

- **Publication (2021)**: **Jianan Zhou**, Yaoxin Wu, Zhiguang Cao, Wen Song, and Jie Zhang *"Learning Large Neighborhood Search for Vehicle Routing in Airport Ground Handling"* Under reviewing at *IEEE Transactions on Systems Man Cybernetics: Systems*
- **Patent**: N.A.

HONORS AND AWARDS

- Certificate of Excellence for outstanding academic performance in SEM2 AY19/20 — Assoc Prof Adams Kong, NTU, 2020
- The Third-Prize University Scholarship — NEU, 2017, 2018 and 2019
- The Third Prize in "LanQiao Cup" Collegiate Programming Contest (C/C++) — 2018

RESEARCH INTERESTS

- Planning and Scheduling Problems
- Combinatorial Optimization Problems
- Graph Neural Network
- Reinforcement Learning

PROJECTS

Master Project - Deep Reinforcement Learning for Optimal Resource Allocation February 2020 - October 2020

- Researched large neighborhood search and combinatorial optimization problems, Supervised by Assoc Prof. Jie Zhang and his Ph.D. student Yaoxin Wu.
- Designed and developed a large neighborhood search framework to solve large-scale airport ground handling problems. With the designed destroy heuristic operators, the framework is able to solve real-world instances within practice time.

Course Project - AI-Related Project February 2020 - October 2020

- Kaggle - Mechanisms of Action (MoA) Prediction (TOP 15%): used machine techniques, including feature engineering, normalization, data transformation, dimensionality reduction, feature selection, label smoothing, cross validation and ensemble learning, to determine MOA of a drug.
- Atari-Breakout: developed different DRL algorithms, such as DQN and A3C, to play Breakout game.
- Image Captioning: developed Transformer to generate grammatical correctly and expressional accurately captions for images.
- CelebA Facial Attribute Recognition: identified the attribute label depicted in a facial photograph, and improved the generalization of model by data augmentation and domain adaptation.
- DIV2K Single Image Super-Resolution: improved the results of developed model to increase the resolution of a single image in MMEditing.

Graduation Project - Mineral Grade Information Management System February 2019 - June 2019

- Thesis - *Design and Implementation of Mineral Grade Information Management System Based on Machine Learning*.
- Researched rock identification and grade intelligent detection based on portable spectrometer, directed by Professor Ren.
- Designed and implemented a system using PyQt5 and knowledge of machine learning, including data decomposition and classification, which are used to handle spectral data with the features of high dimensions and high correlation between adjacent bands, to achieve automatic identification of rock grade, data visualization and so on.