Lu Zhang

Email: lu.zhang@u.nus.edu | Github: https://github.com/LuZZhang
Mobile: 83752366 | Address: College Green Hostel, 299723, Singapore.

EDUCATION BACKGROUND

National University Singapore (NUS), School of Computing Singapore

- Master of Computing (**Computer Science**) 8.2020-Present
- Expected Date of Graduation: Dec 2021

Beihang University, School of Computer Science and Engineering Beijing, China

- Bachelor of Engineering (**Computer Science and Technology**) 9.2016-6.2020
- Academic Honors: The First-class Scholarship of Discipline Competition, The First-class Scholarship of Excellence in 2019.

TECHNICAL SKILLS & INTERESTS

- Familiar with Linux system, good knowledge in data structure and algorithm, experience in ML/DL/RL projects.
- Programming Languages: Python (★★★) , Java (★★☆), C (★★☆), Tableau (★★☆), SQL/Spark/Hadoop(★☆☆).
- Scientific Interests: Deep Learning, Data Mining, Machine Learning, Mathematical Modeling & Simulation, Visualization

COMPETITION EXPERIENCES

Deep Learning Competitions

Video Captioning based on Deep Learning Singapore

NUS course 2.2021 – 5.2021

- Extracted video features from image sequence, used the pre-trained ResNet network to get the feature vector of each video.
- Inputted extracted feature vectors into the GRU network, introduced the attention mechanism to achieve targeted semantic understanding of the video.

Human Image Reconstruction Based on fMRI and GANs Beijing, China

***The Second Prize**, 2019 29th "Feng Ru Cup" Competition of Academic and Technological Works.* 3.2019 - 3.2020

- Processed face images/videos used for training, collected the fMRI signals of the subject person, realized facial image and video reconstruction based on brain signals and GANs (Generative Adversarial Networks).
- Used PCA to get one-dimensional feature vectors from real human images first, then train and predict one-dimensional feature vectors from fMRI brain signals.
- Used One-dimensional feature vectors as Generator training input and generate fake human images, while Discriminator evaluate the output from Generator with real human images, finally the generator can reconstruct almost real facial images.

Data Mining Competitions

Smart Package Personalized Matching Model for Stock Users in the Telecom Industry Beijing, China

*Second Author, **ranking 45/2546** in 2018 CCF BDCI (CCF Big Data & Computational Intelligence Contest)* 9.2018 - 12.2018

- Used data mining technology to analyze the user's consumption habits and preferences according to the results of user business behaviors, built a personalized recommendation model for telecom packages.
- Improved evaluation function F1_score to match the contest, processed data with feature engineering.
- Used K-fold Cross Validation, and Gradient Boosting Decision Tree (GBDT) algorithm, based on data such as user portrait attributes, obtained the best matching package model for users.

Mathematical Modelling Competitions

Pedestrian evacuation simulation using cellular automaton (CA) considering continuous exit width Beijing, China

Honorable Mention, 2019 ICM (Interdisciplinary Contest in Modeling), World Class 2.2019 – 3.2019

- Proposed an accurate and efficient pedestrian evacuation model based on CA model and simulate the process in Eclipse.
- Divided all areas into Normal Area and Gate Area. We had Export strategy, two-people game and three-people game in Gate Areas, simultaneously multi-people game and Path Planning Algorithm in Normal Area.

The Second Prize, 2018 CUMCM (Contemporary Undergraduate Mathematical Contest in Modeling), Beijing Area.

The Second Prize, 2018 Mathematical Contest in Modeling of Beihang University.

Programming Competitions

The Third Prize, 2019 10th "Lan Qiao Cup" C/C++ Programming Contest Group A, Beijing Area.

ACADEMIC COURSES

- **AI Planning and Decision Making:** Discussed rational agent, classic planning problem and implemented algorithms like A*, MDP, Reinforcement Learning.
- **Advanced Data Mining:** Looked deep into data mining topics like classification, Clustering, Association rule mining, and did a project on classification problem.
- **Neural Network and Deep Learning:** Developed perceptrons, MLPs, CNNs and other deep learning related structures using Python, performed video captioning on a dataset of video files.