ZHANG Yupeng

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EDUCATION:

HKUST, Hong Kong

Department of Mathematics, Master

Related courses: Statistical Machine Learning, Scientific Programming and Visualization, Computer Visualization

Technion, Haifa (Israel)

Visiting student of Machine learning

（Funded by CSC and the Israel Higher Education Commission）

Central South University, Changsha

Mathematics and Applied Mathematics, Bachelor

• Challenging CS programming project course taken such as: Computer Primary/Advanced Programming Practice (A : Top 10%)

• Good background of mathematics and machine learning, has taken data mining, statistics, functional analysis, etc. (all for math majored students, most of these courses get more than 90 points. Top 10%)

WORK EXPERIENCE:

Centre for Advances in Reliability and Safety, Hong Kong   **2020.8-2021.3**
Research Assistant

Public Finance Department of China Merchant Bank   **2019.11-2020.2**
Fintech Intern

RESEARCH PROJECTS:

Advanced interactive exploration in complex networks and text data   **2020**

• Combine spectral clustering for k many clusters method as well as community detection to deal with 'NIPS 1-17' dataset by MATLAB.

(This dataset contains the distribution of words in all NIPS papers from 1988 to 2003. Including joint distribution of words and authors)

• When calculate the reachable matrix of A, we need to calculate $(I + A)^n$, where n equals to the dimension of A. It's too difficult to calculate n^{th} power of matrix A when n is too large. I develop a new method to do some optimization of this calculation and finished it by MATLAB.

Dynamic Analysis for the network of Stocks Listed in HKEX   **2020**

• Analysis the network structure, the average correlation coefficient and the degree distribution over a long period of 13 years from January 1,2006 to December 31, 2018.

• Find how the network is affected by some important events during this period.

• A clustering-based portfolio strategy.

Numerical Simulation of Compound Pendulum System   **2020**

Derived the Lagrange equation of the mechanical system.

• Applied Runge-Kutta method to solve the system of differential equations numerically.

• Visualize the motion of the system by programming.

Dynamic and sensitivity analysis prediction considering advanced AIDS Model

2019

• Develop a new type of infectious disease dynamics equation, which distinguish the patient from early, mid-term and late-stage.

• Prove the stability and sensitivity of the model.

PROJECTS:

Hybrid strategies for AI-based safety assurance, optimization on surrogate model. (Funded by Hong Kong Research Talent Hub)   **2021**

Honors and Awards:

• Third Prize of Olympic Mathematical Contest   **2014**
• Annual Academic Scholarship(Top 20% in the program)   **2016**
• First Prize of the 12th Central South University
Mathematical Modeling Competition(Top 5% in candidates)   **2017**
• Honorable Mention of 2018 American
Mathematical Modeling Competition   **2018**
• Annual Academic Scholarship(Top 20% in the program)   **2018**
• Merit Student of Central South University   **2018**

Skills:

• **Mainly used:** Python, MATLAB
• **Interested in:** Statistical Machine Learning, Algorithm

Language Skills:

GRE test: 315pt (Verbal: 148, Quantitative: 167)