Dake **Zhang**

Natural Language Processing · Data Mining · Software Engineering

Student Dormitory C4, Wuhan University, Wuhan, Hubei, China

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"Behind every beautiful thing, there is some kind of pain."

Education

School of Computer Science, Wuhan University (WHU) *Wuhan, China*
Bachelor of Engineering in **Software Engineering** *Sept. 2016 - June 2020 (Exp.)*
- Overall GPA: **3.85/4.0**, top **10%** out of 297 students
- Major courses: Software Engineering (94/100), Compiler Technology and Application (92/100), Discrete Mathematics (97/100), Computer Organization and Architecture (90/100), System-Level Programming (98/100), Database Systems (91/100)

Academic Projects

Visualization of Student's Activities in Online Courses, University of Alberta *Edmonton, Canada*
Mitacs Globalink Intern supervised by Dr. Carrie Demmans Epp *June 2019 - Sept. 2019*
- Funded by the China Scholarship Council (CSC) and Mitacs Canada.
- Improved the PHP-based online course website in terms of principles of human-computer interaction.
- Used Extractive Summarization from natural language processing (NLP) and the pre-trained language model BERT to automatically select topic sentences of posts and replies in the online forum.

Early Warning System of Stock Markets Using Topological Data Analysis, Wuhan University *Wuhan, China*
Undergraduate Research Assistant supervised by Dr. Bo Han and Dr. Ting Hu *Nov. 2018 - May 2019*
- Converted one-dimensional time series into time-ordered series of point clouds based on Takens' Embedding Theorem.
- Used Persistent Homology in Topological Data Analysis (TDA) to analyze shape changes through time-ordered point clouds.
- Proved this method was sensitive when the regime was entering a chaotic state using Chaotic Time Series.
- Proposed the Dynamic-size Sliding Window to reduce computing complexity and accelerate the algorithm.
- Predicted Chinese stock market crashes both in 2008 and in 2015 two months ahead.

CodeJudger - a LeetCode-like Online Platform for Practicing Coding, Wuhan University *Wuhan, China*
Course Project of Software Engineering *Mar. 2019 - May 2019*
- Used the SSM (Spring + Spring MVC + MyBatis) framework to develop the website.
- Developed user login and registration, user information visualization (via pie charts and heatmaps), code submission, and feedback.
- Followed the principles of Software Engineering, such as high cohesion, low coupling, and systematic security.
- Used the Agile Software Development (6 group meetings) on Teambition, cooperated on GitHub (53 submissions), realized 19 requirements, and fixed 7 product defects.

Causal Discovery on Time Series, Wuhan University *Wuhan, China*
Undergraduate Research Assistant supervised by Dr. Bo Han *July 2018 - Aug. 2018*
- Compared different Causal Discovery algorithms, like the traditional Granger Causality Test, on the economic data of Canada.
- Proved the Causal Inference on Event Sequences (CUTE) algorithm performed better in long sequences with strong noise without the need to set the lag parameter manually.
- Found there was a two-way causal relationship between GDP and New Housing Price Index and between GDP and Consumer Price Index. Found there was a one-way causal relationship from Unemployment Rate to GDP and from GDP to Retail Sales.

Social & Extracurricular Activities

Art Department of Students' Union, School of Computer Science *Wuhan, China*
Vice President *Sept. 2016 - June 2018*
- Collaborated with other departments to organize activities, such as the Welcome Party for Freshmen and the Song Competition.
- Made activity plans, assigned tasks, and coordinated with team members.
- Managed the official social media account of the Art Department.
- In charge of the rehearsal of Snail Chorus during the Golden Autumn Festival Choir Competition at Wuhan University.

Honors & Awards

Academic

2019	**Globalink Internship Scholarship (5700 CAD)**, China Scholarship Council & Mitacs	*Beijing, China*
2018	**2nd Scholarship for Outstanding Student**, Wuhan University	*Wuhan, China*
2017, 2019	**Scholarship for Exemplary Student**, Wuhan University	*Wuhan, China*
2017, 2018, 2019	**Honorary Title of Outstanding Student**, Wuhan University	*Wuhan, China*

Non-academic

2018	**Outstanding Social Practice Project in Winter Vacation**, Wuhan University	*Wuhan, China*
2017, 2018	**Honorary Title of Active Participant in Social Activities**, Wuhan University	*Wuhan, China*

Skills

Programming	**Python**, **Java**, R, C/C++, JavaScript, PHP, C#
Technology	Git, PyTorch, Linux, Machine Learning, Data Mining (Time Series), Natural Language Processing (Text Generation)
Languages	Chinese, English (TOEFL 105/120, GRE 332/340)