(JIM) ZHIYUAN LI

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EDUCATION

- **Operation Research, Management Science & Engineering, Stanford University** 09/2017-06/2019
M.S. in Management Science & Engineering, **GPA 4.0/4.0**
Coursework with A+/A grades: Numerical Method, Intro to Optimization, Stochastic Modeling, Probability Analysis, Applied Statistics, Data Mining, Operation Management, Decision Analysis, Topics in Social Data.
- Civil Engineering, College of Civil Engineering, **Tongji University** 09/2013-07/2017
B.S. in Civil Engineering, **GPA 92.34/100**
Math & coding courses with A grades: Calculus, Probability, Linear algebra, Math modeling, C++, Matlab
Awarded **'Outstanding Civil Engineering Graduates' (1/565)** by China Civil Engineering Society.

PUBLICATIONS

- Chao Guo, **Zhiyuan Li**, Hehua Zhu, Li Zhao, Zhiguo Yan, Single-channel blowing-in longitudinal ventilation method and its application in the road tunnel, *Tunnelling and Underground Space Technology* (IF=4.45) Volume 108, 2021. (link to published paper)
- Willow Wu, **Zhiyuan Li**, Chuck Eesley, Beyond Word Matching: Measure Framing Strategy Using Machine Learning Methods (draft to be uploaded here)
- **Zhiyuan Li**, Pei Cao, and Junchao Gui. "Research on Micro-geometry of Sea Sands Using Scanning Microscope and Particle Analyzer." GeoShanghai International Conference. Springer, Singapore, 2018.
- Jiang, Mingjing, **Zhiyuan Li**, Hepeng Huang, and Jun Liu. "Experimental study on microstructure and mechanical properties of seabed soft soil from South China Sea". Chinese Journal of Geotechnical Engineering, Vol. 39 (2), 2017.

SOFTWARE PATENTS

- Yan, Zhiguo, **Zhiyuan Li**. "Evaluation System for Quality of Road Tunnel Lining". Software Copyright Number: 2016SR121826.
- Yan, Zhiguo, **Zhiyuan Li**, Li Zhao. "Single Channel Air Supply Type Longitudinal Ventilation Method". Software Copyright Number: 2016SR133527.

TEACHING & WORKING EXPERIENCE

- **Applied Scientist, Amazon 126 Lab** 12/2020-present
— Project 1: **Online Learning for Type-ahead:** according to users' typing history on keyboards and current popular keyword trending, to predict and fill in the rest of word searching using NLP technologies.

- **Research & Development Engineer, Cadence Design Systems** 06/2019-12/2020
— Project 1: **Balanced Graph Partition**: Implemented graph partition algorithms from literature (Kernigan & Lin, spectral clustering, Modularity partition) to improve parallelism of distributed computing, decreased customer designs' imbalance by 70%, reduced runtime from 20hrs to 11hrs and won key contributor award.
— Project 2: **C++ Datastream Enhancement**: support 64bit infrastructure and implemented efficient matrix computation (Strassen method) and datastream compression (Huffman coding), reduced 12% memory cost.

- **Teaching Assistant, CS 229T Statistical Learning Theory, with Prof. Tengyu Ma** 09/2018-01/2019

— CS229T is a theoretical course on machine learning, including uniform convergence, generalization theory for neural networks, kernel methods, theory of GANs and online learning.

- **Teaching Assistant, Computer Aided Design, with Prof. Zhiguo Yan** 02/2016-06/2016

RESEARCH EXPERIENCE

- **Analyzing Framing Strategy from Tweet Texts, with Prof. Chuck Eesley, Stanford MS&E Dept.** 1/2019-present

—Compared performance of TFIDF, word2vec and GloVe word embedding strategies.
—For keyword extraction, proposed a ML method which outperformed TextRank, TFIDF and RAKE.
—Trained BERT, LSTM, CNN, RCNN, SVM, Random Forests models to predict tweet framing strategy, implemented Bayesian Optimization for hyperparameter tuning, F1 score on testing set achieved 84%.
—Designed Difference-in-Difference models and found that for high performing companies, competitive market leads to less distinctness strategy but more collaboration emphasis.

- **KNN Graph for feature selection, with Prof. Chiara Sabatti, Stanford Statistics Dept.** 09/2018-12/2018

—Investigated patterns of KNN graph metrics with different k and data from Gaussian Mixture Model.
—Pinpointed effectiveness of Betweeness Centrality in seeking optimal k.

- **Benchmarking for Statistical Testing, with Prof. Chiara Sabatti** 05/2018-09/2018

—Compared FWER-control, FDR-control, and power of classical global & multiple testing methods.
—Sped up runtime of the new multiple testing algorithm in Chiara's group from 3 min to 15 secs in C++.

- **Tunnel Ventilation Optimization with varying traffic, with Prof. Zhiguo Yan, Tongji CEE Dept.**
  National Traffic Construction Science & Technology Project 04/2015-10/2016

—Optimized the ventilation system of an 8km high-way tunnel, increased 9% air change quantity, decreased 53% energy consumption by jet fans, decreased 5% CO concentration and dust density.
—Independently coded 2 Graphical User Interfaces by C++, received 2 software patents.

HONORS

- 2020 Key Contributor Award at Cadence Design Systems, 'Kudos on Connect Partition' 10/2020
- 2018 Jacobs Engineering Transportation Scholarship ($2500) 03/2018
- 2018 American Galvanizers Association Scholarship ($2500) 03/2018
- Outstanding Civil Engineering Graduates (top 0.2%) 07/2017
- Excellent Case of National Scholarship Winners (top 0.1%) 06/2017
- National Scholarship ($1500, top 2%) 10/2016

SKILLS & LEADERSHIP

- **Coding**: C++, Python, R, Matlab, JavaScript
- **Analytics**: SQL, Spark, ANSYS, ABAQUS
- **Machine Learning**: Tensorflow, Pytorch, Keras
- **Language**: English, Chinese Mandarin
- **Leadership**: I am serving as Vice President of Stanford Chinese Entrepreneur Organization (founded in 2008, cultivated 5+ famous startups with more than $100M market cap, 1k active members, 11k followers) and helped minority group to connect with Venture Capitals and fight with inequality in business development.