Dingyi ZHUANG

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EDUCATION

McGill University
Montreal, Canada
Master (Thesis) in Transportation Engineering *Sep. 2019- Present*

- **Instructor:** Prof. Lijun Sun
- **Research interest:** Urban Computing, Adversarial Attack, Graph Embedding

Shanghai Jiao Tong University
Shanghai, China
Bachelor of Mechanical Engineering *Sep. 2015 - July. 2019*

- **Tsien Hsue-Shen Class:** Honors Program in Shanghai Jiao Tong University (top **5%**).
- **Overall GPA: 3.55**/4 (**85.67**/100), **Ranking: 3**/8

Selected Honors & Awards:

- Graduate Excellence Fellowship, McGill University
- First Prize (1/130), Chinese University Students Big Data Innovation Application and Modeling Contest
- Chungtsung Scholarship (10%), Hui-Chun Chin and Tsung Dao Lee Endowment Program Commission
- Eleme Scholarship (5%, twice), Shanghai Jiao Tong University
- Excellent Student (5%), Shanghai Jiao Tong University

PUBLICATIONS

- **D.Y. Zhuang**, J.G. Jin, Y.F Shen, W. Jiang, An empirical study on cycle lane network using bike sharing data: the case of Shanghai, *2018 International Conference on Transportation and Space-time Economics*. **(Presentation)**
- **D.Y. Zhuang**, J.G. Jin, Y.F Shen, W. Jiang, Understanding the bike sharing travel demand and cycle lane network: the case of Shanghai, *International Journal of Sustainable Transportation* **(Under review)**
- **D.Y. Zhuang**, S. Hao, D.H. Lee, J.G Jin, From compound word to metropolitan station: Semantic similarity analysis using smart card data, *Transportation Research Part C: Emerging Technologies* **(Under Revision)**
- Siyu Hao, **Dingyi Zhuang**, De Zhao, Der-Horng Lee, A Pseudo-3D Convolutional Neural Network based Framework for Short-term Mixed Passenger Flow Prediction in Large-scale Public Transit, *Transportation Research Board 2020* **(Presentation)**

RESEARCH EXPERIENCE

Understanding Semantic Similarity among Subway Stations Using Smart Card Data ***Singapore***
Research Student, National University of Singapore *Jul. 2018 - Sep. 2018*
Advisor: Lee Der-Horng, Elected Fellow, Academy of Engineering Singapore

- Designed a station2vec approach using word2vec model in natural language processing and proposed to interpret station vectors as compound words to comprehend their mobility and service semantics
- Applied stacked autoencoder on smart card data and topic modeling on Point of Interest data to discover the mobility and service semantics respectively to obtain a deeper similarity between subway stations
- Completed all modeling and coding work independently, and then proposed several urban planning and commercial suggestions based on similarity analysis

Empirical Study on Cycle Lane Network of Shanghai Using Bike Sharing Data ***Shanghai, China***

Team Leader, Chuntsung Program of Shanghai Jiao Tong University *Mar. 2017 - Jun. 2018*

Advisor: Jiangang Jin, Associate Professor at School of Civil Engineering, Shanghai Jiao Tong University

- Designed procedures to scrape data automatically from the bike-sharing application and applied graphic clustering to mine the insight of four different bike-sharing mobility patterns
- Suggested a method to explore cycle lane network based on bike-sharing mobility configurations and proposed policy recommendations accordingly
- Presented paper on T-LOG 2018 and TSTE 2018, and then received strong recommendation to publish it in *Transportation Research Part E: Logistics and Transportation Review*

Robotic Censor Data Capturing and Analysis ***Shanghai, China***

Research Assistant, Robotics Institute of Shanghai Jiao Tong University *Sep. 2015 - Aug. 2016*

Advisor: Peter Bradley Shull, Associate Professor at School of Mechanical Engineering, Shanghai Jiao Tong University

- Assisted in designing and fabricating sensor circuit boards to capture and analyze the gait data of patients
- Captured gait data with VICON system and then processed them with MATLAB to detect gait patterns

Meteorological Data Mining and Solar Radiation Prediction ***Shanghai, China***

Research Assistant, Institute of Refrigeration and Cryogenic Engineering *Oct. 2017 - Nov. 2017*

Advisor: Ruzhu Wang, Professor at School of Mechanical Engineering, Shanghai Jiao Tong University

- Applied machine learning method to predict solar radiation using meteorological data in campus
- Discovered the regular patterns of solar radiation with Support Vector Regression

SELECTED PROJECTS

Chinese University Students Big Data Innovation Application and Modeling Contest *June 2017*

National Level *Shanghai Internet Big Data Engineering Technology Research Center*

- Realized precise portrayal (social behavior and internet habit) of the mobile phone users' portrait
- Extracted 8 million mobile phone users' features from more than 150TB China Telecom data with Hadoop and Spark, and then scraped Points of Interest data around telecom base stations with Python
- Processed Points of Interest data with MapReduce functions in MATLAB to label the service features of base stations

2017 Mathematical Contest in Modeling *Apr. 2017*

International Level *COMAP (Consortium for Mathematics and Its Application)*

- Led a team of three to analyze, modelling and planning on traffic lane network for autonomous vehicles
- Completed modeling, writing and typography with Latex and visualized data with Visio, Python and R

Health Cloud Services of Heart-Watchdog *Apr. 2016 – Apr. 2017*

Campus Level *Shanghai Jiao Tong University*

- Built commercial website of healthcare equipment Heart-Watchdog with HTML5 and CSS
- Launched commercial website on May 1, 2017 (http://heart-watchdog.com/)

SKILLS

- Programming: Python, R, C/C++, HTML
- Tools: MATLAB, Visio, Latex, MySQL, Hadoop, Origin
- Languages: TOEFL: 99/120 (Speaking: 22); GRE: 321+3 (AW)

MISCELLANEOUS

Vice President, Center of Quality Development, Student Union *May 2016-Sept. 2017*
Volunteer, UAES-SJTU Collaboration Agreement Signing Ceremony *Aug. 2017*
Outstanding Volunteer, 122nd Anniversary of Shanghai Jiao Tong University *Apr. 2018*
Hobbies: Reading (history, technology, psychology), Sports (basketball, running)