ZEREN TAN

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EDUCATION

Tsinghua University Aug. 2016 - Present
B.S. in Civil Engineering
Minor in Mathematics

COURSES

- **Major**: Calculus A (1): A+ (100), Calculus A (2): A+ (100), Operations Research: A (95+), Probability and Statistics: A, Linear Algebra: A- (90+), Physics for Scientists and Engineers: A, Structural Mechanics: A, Fundamental of Elasticity and Finite Element Method: A, Student Research Training: A
- **Minor**: Ordinary Differential Equation and Dynamic Systems, Abstract Algebra, Differential Geometry, Complex Analysis
- **Coursera**: Series courses of deeplearning.ai; Divide and Conquer, Sorting and Searching, and Randomized Algorithms; Graph Search, Shortest Paths, and Data Structures

RESEARCH EXPERIENCE

Tsinghua University Dec. 2017 - Present
A Dynamic Model for Traffic Flow Prediction Using Updated DRN *Professor Ruimin Li*

· We proposed an updated DRN model based on original DRN.
· We processed 100,000+ of traffic flow data from different sensors using Deep Learning Algorithm.
· Our results on 14 traffic flow detectors showed that our model outperforms LSTM and DRN.
· First-authored paper is going to be submitted.

Tsinghua University Mar. 2018 - Present
Traffic Incidents Duration Prediction Based On Deep Survival Analysis *Professor Ruimin Li*

· We introduced a deep learning model called Deep Survival into traiffc incidents duration prediction.
· We processed 100,000+ of traffic incidents data from different areas using survival analysis method.
· Our results showed that deep survival analysis model is well-suited in predicting traffic incidents duration and outperforms some state-of-the-art models.
· Second-authored paper is being written.

Purdue University Aug. 2018 - Sep. 2018
High-capacity Dynamic Traffic Assignment Algorithms *Professor Satish Ukkusuri*

· We proposed a polynomial graph-based algorithm that can be used in cases where optimal solution is not required.
· We propsed an exact algorithm for dynamic ride-sharing problems including requests integrating and trip-vehicle matching and computed its running time which is $O(1.2312^{|\mathcal{E}|})$, where $\mathcal{E}$ is the number of edges in the graph.
· First-authored paper is being written.

Tsinghua University Jan. 2019 - Present

Addressing the Minimum Automobiles Fleeting Problem *Professor Ruimin Li*

· We are going to address the problem of how many automobiles an urban city need in the future to serve all trip requests. The major work is to design algorithms for ride-sharing, vehicle routing, dynamic traffic assignment, network reduction and related problems. As well as exact or heuristic algorithms, we are going to give online algorithms so that they can be applied in actual mobile platforms.

FELLOWSHIP

- Tsinghua Spark Talent Program Fellowship (since 2018)
  - 46/3600, prestigious college innovation society
  - The only one selected from the Department of Civil Engineering (110 students)

SCHOLARSHIPS & AWARDS

- Award for Excellence in Comprehensive Performance, 2018
- Award for Excellence in Scientific and Technological Innovations, 2018
- National Encouragment Scholarship, 2018
- Jian Luo Scholarship, 2018
- Meritorious Winner in Interdisciplinary Contest In Modeling (group leader), 2018
- 2nd prize in Tsinghua Mathematical Modeling Contest, 2018
- National Encouragment Scholarship, 2017
- 1st place in Tsinghua Undergraduate Mathematics Competition (Group of Calculus), 2017
- 1st prize in Chinese Undergraduate National Mathematics Competition, 2017

TECHNICAL SKILLS

Computer Languages	Python, Java, MATLAB, C/C++, CPLEX
Tools	LaTeX, Git, Linux, Keras