ZHENGFEI ZHENG （郑正非）

THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY

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"博学慎思 困知勉行"

RESEARCH INTEREST

- Smart Mobility (Ridesourcing, taxi, food delivery, bike sharing)
- Network Analysis
- AI in Transportation
- Traffic Flow Theory
- Control Theory and Operations Research

RESEARCH TOOLKITS

Programming and Software	Python, Matlab, Vissim, TransCAD, CAD, LaTex
Language	Chinese (native), English (proficient), Hebrew (very limited)
Knowledge	Combinatorial optimization, Optimal Control, Machine learning

EDUCATION

The Hong Kong University of Science and Technology (HKUST) — Hong Kong
Ph.D. in Transportation Engineering — *2018-2022*

Supervised by Chair Prof. Hai Yang (http://cehyang.people.ust.hk), I built up my interest in the analysis of emerging smart mobility by delving into modelling and analytical skills. Most of my PhD works are about the emerging ride-sourcing market, such as big data analytics of matching mechanism between vehicle and passengers, ride-pooling between passengers and passengers, pricing strategies under different market regulations, etc.

Technion-Israel Institute of Technology (Technion) — Haifa, Israel
Master's degree with thesis in Transportation Engineering — *2015-2018*

Advised by Prof. Jack Haddad (https://haddad.net.technion.ac.il/), I was lucky to open up a state-of-the-art research avenue and contribute to advancing the research frontier of Macroscopic Fundamental Diagram (MFD). One of my relevant papers received more than 70 citations in recent two years. Overall GPA: 89.3/100, Top 10%.

Zhejiang University (ZJU) — Hangzhou, China
Research Assistant — *2013-2015*

Mentored by Prof. Dianhai Wang (https://person.zju.edu.cn/0010034).

Harbin Institute of Technology (HIT) — Harbin, China
Bachelor's degree in Traffic Control Engineering — *2009-2013*

Overall GPA: 90 /100, Major GPA: 92.2/100, ranking 2/117.

Summer school — Beijing, China, *2012*

"Latest Achievement in Transportation Planning and Traffic Control" from July 16 – 27, 2012 at Tsinghua University, Beijing, China. Only 25-30 students were accepted in China. Sponsored by DAAD, Technische Universität München and Tsinghua University.

PUBLICATIONS

- **Smart Mobility**

1. **Zheng Z**, Wang J, Liu W, Yang H. Competition in complementary transport services: integrating bike sharing service with existing public transit systems. 2022. (Submitted to Transportation Research-Part B: Methodological)
2. **Zheng Z**, Ke J, Wang H, Yang H. Ridesourcing markets with a bundled service option. 2022. (Submitted to Transportation Research-Part C: Emerging Technologies)
3. **Zheng Z**, Ke J, Yang H. Ridesourcing markets with a bundled service option in presence of detour and matching probability. 2022. (working paper)
4. Ke J, Yang H, **Zheng Z**. On ride-pooling and traffic congestion. Transportation Research Part B: Methodological, 2020, 142: 213-231.
5. Zhu Z, Qin X, Ke J, **Zheng Z**, Yang H. Analysis of multi-modal commute behavior with feeding and competing ridesplitting services. Transportation Research Part A: Policy and Practice, 2020, 132: 713-727.
6. Zhu Z, Zhu S, **Zheng Z**, et al. A generalized Bayesian traffic model. Transportation Research Part C: Emerging Technologies, 2019, 108: 182-206.

- **AI and Data-driven study in Transportation**

7. Geng X, Jin Y, **Zheng Z**, Yang Y, et al. CityNet: A Multi-city Multi-modal Dataset for Smart City Applications. 2021. https://arxiv.org/abs/2106.15802.
8. Ke J, **Zheng Z** (Corresponding author), Yang H, et al. Data-driven analysis on matching probability, routing distance and detour distance in ride-pooling services. Transportation Research Part C: Emerging Technologies, 2021, 124: 102922.
9. Ke J, Qin X, **Zheng Z**, Yang H, et al. Predicting origin-destination ride-sourcing demand with a spatio-temporal encoder-decoder residual multi-graph convolutional network. Transportation Research Part C: Emerging Technologies, 2021, 122: 102858.

- **Control theory in MFD**

10. Haddad J, **Zheng Z.** Adaptive perimeter control for multi-region accumulation-based models with state delays. Transportation Research Part B: Methodological, 2020, 137: 133-153.
11. **Zheng Z**, Haddad J. Distributed adaptive perimeter control for large-scale urban road networks with delayed state interconnections. IFAC-PapersOnLine, 2017, 50(1): 5295-5300.
12. Haddad J, **Zheng Z**. Adaptive perimeter control with state delays in two urban regions. No. 17-02018. 2017.

PRESENTATIONS

1. **Zheng Z.** On ride-pooling and traffic congestion. Online workshop, organized by Dr. Simon Hu at Zhejiang University and Professor Michael GH Bell at University of Sydney, Dec 11, 2020.
2. **Zheng Z**, Yang, H. The effect of bundled option in ride-sourcing markets on travel behavior. the 3rd International Symposium on Multimodal Transportation (ISMT 2019), National University of Singapore. Dec 6-7, 2019.
3. Ke, J., **Zheng, Z**., Yang, H. Can ride-sharing alleviate traffic congestion ? INFORMS TSL workshop, Vienna, Austria. July 15 - 18, 2019.
4. **Z. Zheng**, J. Haddad. Distributed adaptive perimeter control for large-scale urban road networks with delayed state interconnections. The 20th World Congress of the International Federation of Automatic Control, Toulouse, France, July 7-15, 2017.
5. J. Haddad, **Z. Zheng**. Adaptive perimeter control with state delays in two urban regions. The 97th Annual Meeting of the Transportation Research Board (TRB 2017), Washington, DC, USA, January 7-11, 2017.

EXPERIENCES

- **Teaching Experience**

1. Teaching Assistant.

   Undergraduate: CIVL2170-Infrastructure Systems Engineering and Management; CIVL3610-Traffic and

Transportation Engineering; CIVL4620-Transportation System Operations.

Postgraduate: CIEM5620-Travel Demand Analysis; CIVL5610-Urban Transportation Networks Analysis.

2. Assisting my supervisor in student mentoring

Undergraduate final year project:

2021: Chan Ho Ming, Lau Cheuk Kan Kevin, Leon Liang Vannesa, Leung Tsz Chung

2020: Cheung Tsz Kit, Choy Cheuk Wing

Master thesis:

2022: Lai Tsz Fung, Ng Pan Ho, Yeung Cho Pan, Zhou Junhong

2021: Zheng Jinfan, Wang Jie, Chang Cheuk Him

▪ **Intern and project experience**

3. Intern in DiDi Chuxing, working on big data analytics, Aug-Dec 2019, Beijing.

4. Involvement in a theme-based project (TRS T41-603/20-R) to develop a visualization system for large scale ride-sourcing system, 2020-present, HKUST.

5. Algorithm Engineer in WayCare (an Israeli Start-up), Dec 2016- Mar 2017, Tel Aviv, Israel.

▪ **Conference organization**

6. Helper, ISTTT24, 2022.

7. Helper, HKSTS 23rd (2018), 24th (2019), 25th (2021).

8. Helper, the International Symposium on the Recent Advances in Intelligent Transportation Systems and Traffic Flow Theory: The Frontier and Challenges, 2014, Zhejiang University.

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SCHOLARSHIP

Hong Kong PhD Fellowship Scheme	2018-2022, HKUST
Full Scholarship from Israel Government	2015-2017, Technion
Traffic elite Scholarship, 5% qualified	2012, 2013, HIT
National Scholarship	2010, HIT
People's Scholarship, 7 out of 8 semesters	2009-2013, HIT

OTHER HONORS & AWARDS

Outstanding student cadres, 1% qualified	2014, ZJU
3rd prize, 8th National Competition of Transport Science and Technology for College Students	2013, HIT
Outstanding graduate in Heilongjiang Province, 1% qualified	2013, HIT
Excellent Student, 5% qualified	2010, 2011, 2012, 2013, HIT
The diligent superstar of HIT, 1‰	2012, HIT
Honorable Mention, Mathematical Contest in Modeling.	2011, HIT
Excellent Intern in China telecom company	2011, Harbin
Outstanding student cadres, 3% qualified	2009, 2010, HIT

REFEREE

Chair Prof. Hai Yang, cehyang@ust.hk
Chair Prof. Hong Kam LO, cehklo@ust.hk