

## PERSONAL DETAILS

---

*Address* Department of Computer Science of Aalto University  
Konemiehentie 2, 02150 Espoo, Finland  
*E-Mail* [zhiren.huang.cn@gmail.com](mailto:zhiren.huang.cn@gmail.com) & [zhiren.huang@aalto.fi](mailto:zhiren.huang@aalto.fi)  
*Website* <http://www.zhirenhuang.com/>

## EXPERIENCE

---

**Postdoctoral researcher** Oct. 2020 - present  
*Department of Computer Science, School of Science, Aalto University, Finland*

Advisor: Prof. [Jari Saramäki](#)

**Research Intern** Apr. 2020 - Jun. 2020  
*Noah's Ark Lab, Huawei Technologies, China*

Enterprise Intelligence Group, Decision Making & Reasoning Lab

## EDUCATION

---

**Ph.D. in Transportation Engineering** Sep. 2014 - Jun. 2020  
*School of Traffic and Transportation Engineering, Central South University, China*

Dissertation: Identifying and anticipating large crowd gatherings with big transportation data

Advisor: Prof. [Pu Wang](#)

**B.E. in Software Engineering** Sep. 2010 - Jun. 2014  
*School of Computer Science and Engineering, Central South University, China*

Thesis: Driver source prediction and visualization system based on mobile phone data ([Demo](#))

## PUBLICATIONS

---

- Huang, Z.**, Wang, P., Zhang, F., Gao, J., Schich, M., 2018. **A mobility network approach to identify and anticipate large crowd gatherings**. *Transp. Res. Part B Methodol.* 114, 147–170. [10.1016/j.trb.2018.05.016](https://doi.org/10.1016/j.trb.2018.05.016)
- Huang, Z.**, Ling, X., Wang, P., Zhang, F., Mao, Y., Lin, T., Wang, F., 2018. **Modeling real-time human mobility based on mobile phone and transportation data fusion**. *Transp. Res. Part C Emerg. Technol.* 96, 251–269. [10.1016/j.trc.2018.09.016](https://doi.org/10.1016/j.trc.2018.09.016)
- Huang, Z.**, Wang, P., Liu, Y., 2020. Statistical characteristics and transportation mode identification of individual trajectories. *Int. J. Mod. Phys. B* 34(10), p.2050092. [10.1142/S0217979220500927](https://doi.org/10.1142/S0217979220500927)
- Zheng, Z., **Huang, Z.**, Zhang, F., Wang, P., 2018. Understanding coupling dynamics of public transportation networks. *EPJ Data Sci.* 7, 23. [10.1140/epjds/s13688-018-0148-6](https://doi.org/10.1140/epjds/s13688-018-0148-6)
- Ling, X., **Huang, Z.**, Wang, C., Zhang, F., Wang, P., 2018. Predicting subway passenger flows under different traffic conditions. *PLoS One* 13, 1–23. [10.1371/journal.pone.0202707](https://doi.org/10.1371/journal.pone.0202707)
- Wang, P., Wang, C., Lai, J., **Huang, Z.**, Ma, J., Mao, Y., 2019. A traffic control approach based on multi-source data fusion. *IET Intell. Transp. Syst.* 13, 764–772. [10.1049/iet-its.2018.5149](https://doi.org/10.1049/iet-its.2018.5149)
- Wang, P., Lai, J., **Huang, Z.**, Tan, Q., Lin, T., 2020. Estimating traffic flow in large road networks based on multi-source traffic data. *IEEE Trans. Intell. Transp. Syst.* [10.1109/TITS.2020.2988801](https://doi.org/10.1109/TITS.2020.2988801)

**Manuscripts under review and preparation:**

1. Wang, P., **Huang, Z.**, Lai, J., Liu, Y., Lin, T., 2019. **A data fusion framework to improve traffic speed estimation in urban road networks**. Submitted to IEEE Trans. Intell. Transp. Syst. (2nd round under review)
2. Wang, P., Wang, K., **Huang, Z.**, Ling, X., Zhang, F., Chen A., 2020. A passenger travel demand prediction model for expanding urban metros. Submitted to IEEE Trans. Intell. Transp. Syst.
3. Guo, B., **Huang, Z.**, Zheng, Z., Zhang, F., Wang, P., 2020. Predictability of path flow distribution in urban road networks. Submitted to Int. J. Mod. Phys. B
4. Zhou, H., Zheng, Z., Cen, X., **Huang, Z.**, Wang, P., 2020. A Data-Driven Urban Metro Management Approach for Crowd Density Control. Submitted to J. Adv. Transport.

## PATENTS

---

1. Wang, P., Guo, B., **Huang, Z.**, Zheng, Z., 2020. Method, system, medium and device for predicting urban traffic network path selection behavior based on language model. CN111524354A. China. Published.
2. Wang, P., Wang, K., **Huang, Z.**, 2020. Method and device for extracting peripheral features of subway station and estimating traffic demand. CN111414719A. China. Published.
3. Wang, P., **Huang, Z.**, Liu Y., 2020. Traffic mode division method based on spatiotemporal statistical features of trajectory. CN109410586A. China. Published.
4. Wang, P., **Huang, Z.**, Liu Y., 2020. A global dynamic travel demand estimation method based on multi-source traffic data. CN109886724B. China. Granted.
5. Wang, P., **Huang, Z.**, Liu Y., 2020. Traffic state detection method based on multi-source traffic data fusion. CN108877227B. China. Granted.
6. Wang, P., **Huang, Z.**, 2019. Global dynamic travel demand estimation method based on multi-source traffic data. 2019100989. Australian. Granted.
7. Wang, P., **Huang, Z.**, 2018. Urban population density dynamic prediction method and system. CN107515842B. China. Granted.

## HONORS & AWARDS

---

- **Excellent president scholarship**<sup>1</sup>, Central South University (2018-2019)
- Best paper award, Doctoral Forum for Geospatial Modeling and Visualization (2019)
- **National scholarship for PhD student**, Ministry of Education of China (2018)
- Best student paper award, the 14th Chinese Conference on Complex Network (2018)
- Best paper award, the 7th Chinese Conference on Social Computing (2015)
- Best visualization award, the 10th Chinese Conference on Complex Network (2014)
- **Outstanding Undergraduate Thesis**, School of Software Engineering, Central South University (2014)
- **First prize**, the 4th China Students Service Outsourcing Innovation and Entrepreneurship Competition<sup>2</sup>, Ministry of Commerce of China & Ministry of Education of China (2013)

---

<sup>1</sup>Highest honor scholarship in Central South University

<sup>2</sup>Prestigious competition for software engineering students in China

## CONFERENCE TALKS

---

- A mobility network approach to identify and anticipate large crowd gatherings - SRES@WHU - Wuhan, China - 2019
- Anticipating large crowd gatherings based on multi-source social signals - ITSC2018 - Lahaina, Hawaii, USA - 2018
- Predicting large crowd gatherings using a mobility network approach - CCCN2018 - Chongqing, China - 2018