Wenhan Wu

Fifth-year PhD. Student

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Education

2015/09-2019/06	**Central South University (CSU), School of Automation** *Bachelor Degree in Engineering GPA: 3.72/4.00 (TOP 0.5%)* *Supervision: Prof. Keke Huang*	Changsha, China
Since 2019/08	**Tsinghua University (THU), Department of Automation** *PhD. student in Control Science and Engineering GPA: 3.85/4.00 (TOP 10%)* *Supervision: Prof. Xiaoping Zheng*	Beijing, China
Since 2023/04	**Humboldt-Universität zu Berlin (HUB), Department of Biology** *Joint PhD. student in Theoretical Biology* *Supervision: Prof. Pawel Romanczuk*	Berlin, Germany

Published Articles

- **Wenhan Wu**#, Maoyin Chen, Jinghai Li, Binglu Liu, Xiaoping Zheng*. An Extended Social Force Model via Pedestrian Heterogeneity Affecting the Self-driven Force. ***IEEE Transactions on Intelligent Transportation Systems***, 2021, 23(7): 7974-7986. (Published, IF = 8.5, JCR Q1, First author)
- **Wenhan Wu**#, Jinghai Li, Wenfeng Yi, Xiaoping Zheng*. Modeling Crowd Evacuation via Behavioral Heterogeneity-Based Social Force Model. ***IEEE Transactions on Intelligent Transportation Systems***, 2022, 23(9): 15476-15486. (Published, IF = 8.5, JCR Q1, First author)
- **Wenhan Wu**#, Xiaoping Zheng*. A Systematic Analysis of Subgroup Research in Pedestrian and Evacuation Dynamics. ***IEEE Transactions on Intelligent Transportation Systems***, 2023, 1-22, Early Access Article. (Published, IF = 8.5, JCR Q1, First author)
- **Wenhan Wu**#, Wenfeng Yi, Xiaolu Wang, Xiaoping Zheng*. A Force-based Model for Adaptively Controlling the Spatial Configuration of Pedestrian Subgroups at Non-extreme Densities. ***Transportation Research Part C: Emerging Technologies***, 2023, 152: 104154. (Published, IF = 8.3, JCR Q1, First author)
- **Wenhan Wu**#, Wenfeng Yi, Jinghai Li, Maoyin Chen, Xiaoping Zheng*. Automatic Identification of Human Subgroups in Time-Dependent Pedestrian Flow Networks. ***IEEE Transactions on Multimedia***, 2023, 1-12, Early Access Article. (Published, IF = 7.3, JCR Q1, First author)
- Xiaoping Zheng#, **Wenhan Wu**#, Wenfeng Deng, Chunhua Yang, Keke Huang*. Reconstruction of Tree Network via Evolutionary Game Data Analysis. ***IEEE Transactions on Cybernetics***, 2020, 52(7): 6083-6094. (Published, IF = 11.8, JCR Q1, Co-first author)
- **Wenhan Wu**#, Wenfeng Yi, Jinghai Li, Maoyin Chen, Xiaoping Zheng*. Simulating the Evacuation Process Involving Multitype Disabled Pedestrians. ***IEEE Transactions on Computational Social Systems***, 2022, 10(5): 2400-2410. (Published, IF = 5.0, JCR Q1, First author)
- **Wenhan Wu**#, Maoyin Chen, Jinghai Li, Binglu Liu, Xiaolu Wang, Xiaoping Zheng*. Visual Information-Based Social Force Model for Crowd Evacuation. ***Tsinghua Science and Technology***, 2021, 27(3): 619-629. (Published, IF = 6.6, JCR Q1, First author)

- Wenfeng Yi#, **Wenhan Wu**, Xiaolu Wang, Xiaoping Zheng*. Modeling the Mutual Anticipation in Human Crowds With Attention Distractions. ***IEEE Transactions on Intelligent Transportation Systems***, 2023, 24(9): 10108-10117. (Published, IF = 8.5, JCR Q1, Second author)
- Wenfeng Yi#, **Wenhan Wu**, Jinghai Li, Xiaolu Wang, Xiaoping Zheng*. An extended queueing model based on vision and morality for crowd evacuation. ***Physica A: Statistical Mechanics and its Applications***, 2022, 604: 127658. (Published, IF = 3.3, JCR Q2, Second author)
- Jinghai Li#, Maoyin Chen, **Wenhan Wu**, Binglu Liu, Xiaoping Zheng*. Height map-based social force model for stairway evacuation. ***Safety Science***, 2021, 133: 105027. (Published, IF = 6.1, JCR Q1, Third author)
- Wenfeng Deng#, Chunhua Yang, Keke Huang*, **Wenhan Wu**. A two-stage reconstruction method for complex networked system with hidden nodes. ***Chaos: An Interdisciplinary Journal of Nonlinear Science***, 2022, 32(5): 053105. (Published, IF = 2.9, JCR Q1, Fourth author)

Research Field

- **Reconstruction of complex networks**: Extracting prior information from complex networks, and reconstructing the structure of networks based on compressed sensing theory.
- **Modeling crowd evacuation**: Determining a more realistic description of crowd evacuation by formulating a mathematical framework of individual heterogeneity in terms of physiology and psychology.
- **Automatic Identifying pedestrian subgroups**: Based on the collected video, developing an algorithm for subgroup identification in dynamic pedestrian flow.
- **Exploring the interaction laws of pedestrian subgroups**: Excavating the interaction laws of pedestrian subgroups from field observations and controlled experiments, and deducing specific expressions by quantitative analysis.

Research Project

- **Winter Olympics Science and Technology Project**: Personnel Evacuation Technology and Assistance Systems for Disabled People in Winter Olympic and Paralympic Games. (Sub-project: Research and application demonstration of human - vehicle - road collaborative governance and control technology)

Computer and Language Skill

Software	MATLAB/Simulink, Eclipse, PyCharm, VS Code
Code	C/C++, Python, R, MATLAB, LaTeX
OS	Windows, Linux
Langages	Chinese (Native language), English (Fluency)