
WEIHUA GU

Assistant Professor

Department of Electrical Engineering

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RESEARCH INTERESTS

- Public transportation systems
- Traffic operations
- Queueing systems
- Infrastructure and asset management

EDUCATION

- **University of California at Berkeley, USA** 08/2007-05/2012
 - Ph.D. in Civil and Environmental Engineering 05/2012
 - M.A. in Economics 12/2011
 - M.Sc. in Industrial Engineering and Operations Research 05/2010
- **Tsinghua University, Beijing, China** 08/1998-07/2005
 - M. Eng. in Civil Engineering 07/2005
 - B. Eng. in Civil Engineering 07/2002

ACADEMIC EXPERIENCE

- Assistant Professor, Department of Electrical Engineering, The Hong Kong Polytechnic University 10/2013-present
- Deputy Director, UC Berkeley Center for Future Urban Transport, a VOLVO Center of Excellence 07/2011-08/2013
- Lecturer (part-time), Department of Civil & Environmental Engineering, UC Berkeley 08-12/2012

AWARDS

1. Research Grant Achievement Award, Faculty of Engineering, the Hong Kong Polytechnic University 2016
2. Gordon F. Newell Award for Excellence in Transportation Science, University of California, Berkeley 2012
3. Chinese Government Award for Outstanding Self-Financed Students Abroad 2012
4. Outstanding GSI (Graduate Student Instructor) Honorable Mention Award 2011
5. University of California Transportation Center (UCTC) Dissertation Fellowship 2010
6. Dwight David Eisenhower Transportation Graduate Fellowship 2010

JOURNAL PUBLICATIONS

(Names of research students or staff under my supervision are marked with underline.)

❖ On Traffic Operations and Multimodal Traffic

1. Vikash V. Gayah, S. Ilgin Guler, **Weihua Gu** *. (2016) On the impact of obstructions on the capacity of nearby signalised intersections. *Transportmetrica B: Transport Dynamics* 4(1), 48-67.
2. Michael J. Cassidy, Kwangho Kim, Wei Ni, **Weihua Gu** *. (2015) A problem of limited-access special lanes, part I: Spatiotemporal studies of real freeway traffic. *Transportation Research Part A* 80, 307-319.
3. Michael J. Cassidy, Kwangho Kim, Wei Ni, **Weihua Gu** *. (2015) A problem of limited-access special lanes, part II: Exploring remedies via simulation. *Transportation Research Part A* 80, 320-329.
4. Nathalie Saade, Michael J. Cassidy, **Weihua Gu**. (2015) Effects of segregating buses and cars in a congested, non-steady-state street network. *Transportation Research Circular E-C197*, 310-314.
5. **Weihua Gu** *, Vikash V. Gayah, Michael J. Cassidy, Nathalie Saade. (2014) On the impacts of bus stops near signalized intersections: Models of car and bus delays. *Transportation Research Part B* 68, 123-140.
6. **Weihua Gu** *, Michael J. Cassidy, Vikash V. Gayah, Yanfeng Ouyang. (2013) Mitigating negative impacts of near-side bus stops on cars. *Transportation Research Part B* 47(1), 42-56.
7. **Weihua Gu** *, Michael J. Cassidy, Yuwei Li. (2012) On the capacity of highway checkpoints: Models for unconventional configurations. *Transportation Research Part B* 46(10), 1308-1321.

❖ On Public Transportation Systems

8. Minyu Shen, **Weihua Gu** *, Sangen Hu, Han Cheng. (2019) Capacity approximations for near- and far-side bus stops in dedicated bus lanes. *Transportation Research Part B* 125, 94-120.
9. Wenbo Fan, Yu Mei, **Weihua Gu** *. (2018) Optimal design of intersecting bimodal transit networks in a grid city. *Transportation Research Part B* 111, 203-226.
10. **Weihua Gu** *, Zahra Amini, Michael J. Cassidy. (2016) Exploring alternative service schemes for busy transit corridors. *Transportation Research Part B* 93, 126-145.
11. **Weihua Gu**. (2016) Editorial in Special Issue: Public transit and pedestrian studies. *Journal of Advanced Transportation* 50(1), 3-5.
12. Haoyu Chen *, **Weihua Gu**, Michael J. Cassidy, Carlos F. Daganzo. (2015) Optimal transit service atop ring-radial and grid street networks: A continuum approximation design method and comparisons. In: *Proceeding of the 21st International Symposium on Transportation and Traffic Theory & Transportation Research Part B* 81, 755-774.
13. **Weihua Gu** *, Michael J. Cassidy, Yuwei Li. (2015) Models of bus queueing at curbside stops. *Transportation Science* 49(2), 204-212.
14. **Weihua Gu** *, Michael J. Cassidy. (2013) Maximizing bus discharge flows from multi-berth stops by regulating exit maneuvers. *Transportation Research Part B* 56, 254-264.
15. **Weihua Gu** *, Yuwei Li, Michael J. Cassidy, Julia B. Griswold. (2011) On the capacity of isolated, curbside bus stops. *Transportation Research Part B* 45(4), 714-723.

❖ **On Other Topics**

16. Qiang Zeng, **Weihua Gu**, Xuan Zhang, Huiying Wen, Jinwoo Lee *, Wei Hao. (2019) Analyzing freeway crash severity using a Bayesian spatial generalized ordered logit model with conditional autoregressive priors. *Accident Analysis and Prevention* 127, 87-95.
17. Le Zhang, Liangliang Fu, **Weihua Gu** *, Yanfeng Ouyang, Yaohua Hu. (2017) A general iterative approach for the system-level joint optimization of pavement maintenance, rehabilitation, and reconstruction planning. *Transportation Research Part B* 105, 378-400.
18. Amit Upadhyay *, **Weihua Gu**, Nomesb Bolia. (2017) Optimal loading of double-stack container trains. *Transportation Research Part E* 107, 1-22.
19. Xuejun Feng *, Mingong Wang, Yuwei Li, **Weihua Gu**, Yan Zhang. (2015) Optimal throughput of crude oil terminals with options for infrastructure improvements. *Journal of Coastal Research: Special Issue 73 - Recent Developments of Port and Ocean Engineering*, 628-634.
20. **Weihua Gu** *, Yanfeng Ouyang, Samer M. Madanat. (2012) Joint optimization of pavement maintenance and resurfacing planning. *Transportation Research Part B* 46(4), 511-519.
21. Zhiliang Ma *, Ning Lu, **Weihua Gu**. (2008) A decision support system for construction projects based on standardized exchanged documents. *Tsinghua Science & Technology*, 13, 354-361.

RESEARCH GRANTS**- As Principal Investigator**

1. Research Grant Council (Hong Kong) General Research Fund, 01/2019-12/2021. Optimal Design and Operations of Urban Transit Networks Fed by Customized Demand-Responsive Connectors. With co-Is: Michael J. Cassidy (UC Berkeley), Wenbo Fan (Southwest Jiaotong University). Amount awarded: HK\$ 632,421.
2. Research Grant Council (Hong Kong) General Research Fund, 01/2018-12/2020. Improving bimodal traffic operations at signalized intersections and arterials with pre-signals. With co-Is: Michael J. Cassidy (UC Berkeley), S. Ilgin Guler (Penn State University), Xiaoyu Cai (Chongqing Jiaotong University). Amount awarded: HK\$ 582,000.
3. Research Grant Council (Hong Kong) General Research Fund, 01/2017-12/2019. Development of advanced continuum models for designing scalable integrated public transportation networks. Amount awarded: HK\$ 482,605.
4. Faculty of Engineering (Research Funding Scheme for Supporting Intra-faculty Interdisciplinary Projects), Hong Kong Polytechnic University, 01/2016-12/2017. Next-generation solutions for traffic safety and information security in the era of smart transportation. With co-Is: Man Ho Au, Daniel Xiapu Luo, Ivan W.H. Ho (Hong Kong PolyU). Amount awarded: HK\$ 400,000.
5. Research Grant Council (Hong Kong) General Research Fund, 01/2016-12/2018. On the congestion in bus systems: Queueing dynamics and mitigation strategies. With co-I: Michael J. Cassidy (UC Berkeley). Amount awarded: HK\$ 495,922.

6. Research Grant Council (Hong Kong) Early Career Scheme, 01/2015-12/2017. Design and management of busy bus stops with multiple berths: Analytical models and real-world case studies. Amount awarded: HK\$ 706,737.
7. Hong Kong Polytechnic University, 09/2014-09/2017. Optimal design and operation of public transportation systems in a congested city. Amount awarded: HK\$ 700,000.

- As co-Investigator

1. Research Grant Council (Hong Kong) General Research Fund, 01/2018-12/2020. A data-driven framework for airspace congestion analysis using aircraft tracking data. PI: Lishuai Li (City University of Hong Kong). Amount awarded: HK\$ 582,000.
2. National Natural Science Foundation of China, 01/2017-12/2019. Continuum approximation based transit network and station-area land use integrated strategic planning. PI: Wenbo Fan (Southwest Jiaotong University). Amount awarded: CNY¥ 200,000.

TEACHING

1. ENG307/ENG3004: Society and Engineer (undergraduate), HK PolyU
2. EE528: System Modelling and Optimal Control (graduate), HK PolyU
3. EE2029B: Transportation Engineering Fundamentals (undergraduate), HK PolyU
4. EE3061: Analysis methods for engineers (undergraduate), HK PolyU
5. CE262: Analysis of transportation data (graduate), UC Berkeley

STUDENTS & STAFF

- Research Postgraduate Students

- | | |
|--|----------------|
| 1. Xiao Yang, PhD, HK PolyU (<i>Chief Supervisor</i>) | expected: 2021 |
| 2. Qiaolin Hu, PhD, HK PolyU (<i>Chief Supervisor</i>) | expected: 2021 |
| 3. Ahsan Naqvi, PhD, HK PolyU (<i>co-Supervisor</i>) | expected: 2021 |
| 4. Liyu (Christine) Wu, PhD, HK PolyU (<i>Chief Supervisor</i>) | expected: 2019 |
| 5. Minyu (Samuel) Shen, PhD, HK PolyU (<i>Chief Supervisor</i>) | expected: 2019 |
| 6. Yu (Larry) Mei, PhD, HK PolyU (<i>Chief Supervisor</i>) | 2019 |
| 7. Le (Joy) Zhang, PhD, HK PolyU (<i>Chief Supervisor</i>) | 2019 |
| 8. Nathalie Saade, PhD, UC Berkeley (<i>co-Supervisor</i>) | 2017 |
| 9. Haoyu Chen, PhD, UC Berkeley (<i>Dissertation Committee Member</i>) | 2016 |

- Postdoctoral Fellows

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|------------------|-----------------|
| 1. Liangliang Fu | 09/2015-08/2016 |
| 2. Xin Li | 08/2016-12/2018 |

- Other Research Staff

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|--|-----------------|
| 1. Minyu (Samuel) Shen, Research Assistant | 03-09/2015 |
| 2. Amit Upadhyay, Research Associate | 08/2015-08/2016 |
| 3. Wenbo Fan, Research Associate | 12/2015-01/2017 |
| | 07-09/2017 |
| | 07-08/2018 |
| 4. Fangyi Yang, Research Assistant | 02-08/2016 |
| | 08/2017-03/2018 |
| 5. Yuan Lu, Research Assistant | 07/2016-06/2017 |
| 6. Yiming Bie, Research Assistant | 01-03/2017 |
| 7. Fuliang Li, Research Assistant | 04-08/2017 |

8. Sangen Hu, Research Assistant	12/2016-12/2017
9. Jie Zhang, Research Assistant	06-10/2018
10. Kan Wu, Research Assistant	06-09/2018
11. Qiang Zeng, Research Assistant	07/2018-1/2020
12. Xiaoyu Cai, Research Associate	07-09/2018

EDITORIAL AND REFEREE SERVICE

- Journals

Editorial Board Editor for: Transportation Research Part B, 2019.

Guest Editor for: Special Issue on “Public Transit and Pedestrian Studies” of Journal of Advanced Transportation, 2016.

Reviewer for:

Computers & Industrial Engineering;
 EURO Journal on Transportation and Logistics;
 IEEE Intelligent Transportation Systems Magazine;
 IEEE Systems Journal;
 IEEE Transactions on Intelligent Transportation Systems;
 IET Intelligent Transport Systems;
 International Journal of Transportation Science and Technology;
 Journal of Advanced Transportation;
 Journal of Construction Engineering and Management (ASCE);
 Journal of Intelligent Transportation Systems;
 Journal of Public Transportation;
 Journal of Transportation Engineering (ASCE) Part A and B;
 Networks and Spatial Economics;
 Physica A;
 Transport Policy;
 Transportation Research Part A-E;
 Transportation Research Record;
 Transportation Science;
 Transportmetrica Part A and B;
 Travel Behaviour and Society.

- Conferences

Co-chair for: 23rd International Conference of Hong Kong Society for Transportation Studies, 2018.

Area Editor for: COTA International Conference of Transportation Professionals (CICTP) 2017.

Reviewer for:

COTA International Conference of Transportation Professionals (CICTP and formerly ICCTP) 2011, 2015;
 International Conference of Hong Kong Society for Transportation Studies 2015-2017;
 International Symposium on Transportation and Traffic Theory (ISTTT) 2011;
 IEEE International Conference on Intelligent Transportation Systems (ITSC) 2014-2018;
 Transportation Research Board Annual Meeting 2012-2018;
 World Conference on Transport Research (WCTR) 2016.

ACADEMIC AND PROFESSIONAL COMMITTEE MEMBERSHIP

- | | |
|---|--------------|
| 1. Hong Kong Society for Transportation Studies | 2014-present |
| 2. TRB Committee on Traffic Flow Theory and Characteristics (AHB45) | 2016-present |