

**Hongchao Liu, Ph.D.**  
**Texas Tech University**  
**Department of Civil and Environmental Engineering**  
**Lubbock, TX 79409-1023**  
**E-mail: hongchao.liu@ttu.edu**  
**Phone: (806) 742-2801 ext.229, Fax: (806) 742-3488**

### **Academic and Research Experience**

Assistant Professor, Texas Tech University	2004 - Present
Staff Postdoctoral Researcher, University of California, Berkeley, CA	2001 - 2004
Postdoctoral Research Fellow, University of Tokyo, Tokyo, Japan	2000 - 2001

### **Research and Scholarship**

#### **Research Interests**

- Traffic operation and control
- Intelligent Transportation Systems
- Flow modeling and optimization
- Measures of effectiveness and evaluation of traffic system performance using microscopic/macrosopic traffic simulation

#### **Research Projects**

- (1) Comprehensive Planning and Design Guidelines for Incorporating a Bus Rapid Transit Scenario to the Analysis of Texas Highway Corridors. (FY 2006-2008).
- (2) Managing Freeway Operation During Weather Events. (FY 2005-2006).
- (3) Development of Hardware-in-the-loop (HiL) Simulation and Virtual 170/2070 controller. (FY 2003-2006).
- (4) Development of Adaptive Bus Signal Priority Systems. (FY 2001 – 2004).
- (5) Toward Deployment of Adaptive Transit Signal Priority (ATSP) System. (FY 2002-2004).
- (6) Evaluation of VTA's (Santa Clara County Transportation Authority) Bus Signal Priority System. (FY 2003).
- (7) SmartBRT: A Set of Planning, Analysis and Evaluation Tools for Bus Rapid Transit. (FY 2001-2003).

#### **Peer-reviewed Journal and Conference Papers (since September 2004)**

##### *Papers under review*

- (1) **Liu, H.**, W. Lin., and C. Tan (2006), "An Operational Strategy for AVL-based Transit Signal Priority." Revised version under re-review for publication in Journal of Transportation Engineering.
- (2) Zhang, J., Y. Wang, , **H. Liu**, and Mark E. Hallenbeck (2006) "Estimating the Impact of Near-Side Bus Stop on Transit Delays at Transit Signal Priority Enabled Intersections." Under re-review for publication in Transportation Research Record: the Journal of the Transportation Research Board.
- (3) Gong, H., and **H. Liu** (2006) "Asymmetric Full Velocity Difference Car-following Model." Under review for publication in Transportation Research Part B.

##### *Published papers*

- (4) **Liu, H.**, A. Skabardonis, and M. Li (2006) "Simulation of Transit Signal Priority Using the NTCIP Architecture." Journal of Public Transportation, 9(3), 117-136.
- (5) Li, L., W. Lin, and **H. Liu** "A Type-2 Fuzzy Logic Approach for Short-term Traffic Forecasting." IEE Journal of Intelligent Transportation Systems, 153(1) 33-40, March 2006.
- (6) Tan, C., S. Park, , K. Zhou, **H. Liu**, P. Lau, M. Li, and W. Zhang (2006) "Prediction of Transit Vehicle Arrival Times at Signalized Intersections for Signal Priority Control." Proceedings of the 2006 IEEE Intelligent Transportation Systems Conference, Toronto, Canada, September 17-20, 1477-1482.
- (7) Li, L., W. Lin, and **H. Liu** (September 2005) "Traffic Signal Priority/Preemption Control with Colored Petri Nets." Proceedings of the IEEE 8<sup>th</sup> International Conference in Intelligent Transportation System, Austria, 694-699.

- (8) **Liu, H.**, Y. Yin., and J. Song (June 2005) “A Simplified Method for Estimation of Back of Queue and Its Application.” Proceedings of IEEE Intelligent Vehicle Symposium, 662-668.
- (9) Zhu, L., J. Song, Q. Huang, M. Zhang, and **H. Liu** (June 2005) “A Novel Module of Tracking Vehicles with Occlusion.” Proceedings of IEEE Intelligent Vehicle Symposium, 893-899.
- (10) Li, M., Y. Yin, K. Zhou, W. B. Zhang, **H. Liu**, and C. W. Tan (January, 2005) “Adaptive Transit Signal Priority on Actuated Signalized Corridors.” Proceedings of 84<sup>th</sup> Transportation Research Board Annual Meeting.
- (11) **Liu, H.**, Alex Skabardonis, W. B. Zhang, and M. Lee (December 2004) “Optimal Location of Detectors for Transit Signal Priority.” Journal of Transportation Research Record, No. 1867, 144-150.

#### Research Reports

- (1) Balke, K., P. Songchitruksa, **H. Liu**, Brydia, R., Jasek, D., and Benz, R., “Managing Freeway Operation During Weather Events” Report 0-5278-1.
- (2) **Liu, H.**, Chen, S., Lin, W., and Li, L., “Development of Hardware-in-the-loop (HiL) Simulation and Virtual 170/2070 controller.” UCB-ITS-PRR-2006, September, 2006.
- (3) Zhang, W.B. Yin, Y., Li, M., Zhou, K., **Liu, H.**, Tan, C., Park, S., and Skabardonis, A., “Development of Adaptive Transit Signal Priority Systems – Volume A.” University of California, Berkeley: Institute of Transportation Studies, California PATH Program, Final PATH Research Report UCB-ITS-PRR-2005, July 2005.
- (4) **Liu, H.**, “Development of Adaptive Transit Signal Priority Systems – Volume B.” University of California, Berkeley: Institute of Transportation Studies, California PATH Program, Final Report UCB-ITS-PRR-2005, July 2005.
- (5) Balvanyos, T., Bethel, W., Gardes, Y., Kourjanskaia, N., **Liu, H.**, Misener, J., Sousa, J., VanderWerf, J., and Wei, W., “SmartBRT: A Set of Planning, Analysis and Evaluation Tools for Bus Rapid Transit.” University of California, Berkeley: Institute of Transportation Studies, California PATH Program, Final report UCB-ITS-PRR-2003-7, July, 2003.

#### Professional Societies

- Institute of Transportation Engineers
- American Society of Civil Engineers
- Traffic Signal Control System Committee, Traffic Simulation and Modeling Subcommittee of Transportation Research Board, National Research Council

#### Institutional and Professional Service

Guest professor, Hebei Polytechnic University, City, China. (2006-2009)

#### *Manuscript Reviewer*

Journal of Transportation Research Record (2000-present)

Journal of Computer Aided Civil and Infrastructure Engineering (2006)

IEEE International Conference on Intelligent Transportation Systems (2004 – Present)

IEEE Transactions on Intelligent Transportation Systems (2004 - Present)

#### Honors and Awards

- Texas Tech University Hemphill-Wells New Professor Excellence in Teaching Award for College of Engineering, 2006.
- Featured Young Faculty Member in ENVISION 2(2), Newsletter of College of Engineering, Texas Tech University, 2006.
- Sigma Xi, Member, 2004- Present.
- Scholarship of Japanese Ministry of Education, Culture, Sports, Science and Technology, 1997 - 2001.
- Excellent Paper Presentation Award, Japan Society of Civil Engineering, Tokyo, Japan, August 1999.