

Feng Xie

500 Pillsbury Drive SE
Minneapolis, Minnesota 55455

Office phone: 612-626-0024

Home phone: 515-230-9794

Fax: 612-626-7750

Email: xiex0055@umn.edu

Web: <http://welelaw.ce.umn.edu>

EDUCATION

Ph.D. Civil Engineering **University of Minnesota** **Expected: 05/2008**

Dissertation: *Network growth under alternative regulatory and financing regimes*

M.S. Civil Engineering **University of Minnesota** **06/2005**

Thesis: *The Evolution of Road Networks:*

A simulation study based on network degeneration

Advisor: Dr. David Levinson

M.S. Civil Engineering **Tsinghua University** **06/2003**

Thesis: *Research on Construction Safety Performance Measurement*

Advisor: Dr. Dongping Fang

B.S. Civil Engineering **Tsinghua University** **06/2000**

ACADEMIC POSITIONS

Research Assistant University of Minnesota **09/2003-present**

Teaching Assistant University of Minnesota **01/2006-05/2006**

CE3201: *Introduction to Transportation Engineering*

Research Assistant Tsinghua University **08/2003-08/2000**

HONORS AND AWARDS

The Finalist Award	The Charles M. Tiebout Prize Paper Competition	2006
Best MS Thesis	Tsinghua University	2003
University Fellowship	Tsinghua University	1996-1998, 2000, 2002

RESEARCH INTERESTS

- Transportation planning and economics
- Network modeling and system analysis
- Evolution of transportation systems
- Transportation-land use interactions
- Ownership structure in transport infrastructure provision

MAJOR PROJECT INVOLVEMENT

3. The Evolution of Transportation Networks: Empirical Research and Agent-Based Models (2003-present). Funded by National Science Foundation.

This research endeavors to understand the evolutionary growth process of transportation networks at a theoretical and empirical level. In coping with the complexity and interdisciplinarity that characterize this process, I have gained extensive research experience from various dimensions of transportation engineering, urban planning, regional science, economics, and geography, embodied by research papers produced in a wide range of fields. In this project I have:

- Developed a series of agent-based models to replicate the growth of transportation networks in a holistic process;
- Modeled alternative pricing and investment policies and examined the impacts on network deployment;
- Modeled the co-evolution of transportation and land use;
- Investigated network growth in empirical cases based on historical observations;
- Evaluated structural attributes of surface transportation networks;

- Analyzed infrastructure provision under alternative regulatory and financing regimes.

2. Beyond “Business as Usual”: Ensuring the Network We Want is the Network We Get (2005-2006). Funded by Minnesota Department of Transportation.

This research constructs regional planning models to forecast the road network in the Twin Cities Metropolitan Area twenty years from now. Forecast networks using revealed investment rules estimated on historical decisions are compared with networks constructed according to alternative sets of jurisdictional decision rules developed with Minnesota Department of Transportation and Metropolitan Council staff. In this project I have:

- Coded and tested Stochastic User Equilibrium (SUE) in java and tested the algorithm on networks of various sizes;
- Built and calibrated planning models to forecast the travel demand on the Twin Cities road network;
- Developed scenarios in which different sets of decision rules are employed to forecast network growth.

1. Development of safety climate index and safety culture survey tool (2002-2003). Funded by Hong Kong Occupational Safety and Health Council.

This research examines the value and attitude toward occupational health and safety on construction workplace. Tsinghua University, cooperated with Hong Kong Safety and Health Council, conducted a cross-sectional survey in Gammon Skanska, one of the major construction contractors in Hong Kong, based on which safety climate index and safety culture survey tool for construction workplace were developed. In this project I have:

- Designed all the survey questionnaires and helped conduct the on-site survey;
- Developed safety climate index based on multivariate factor analysis.

PUBLICATIONS

Referred Journal Articles

6. Xie, F. and D. Levinson (2007). The Weakest Link: A Model of the Decline of Surface Transportation Networks. *Transportation Research, part E* (accepted for publication).
5. Xie, F. and D. Levinson (2007). Jurisdictional Control and Network Growth. *Networks and Spatial Economics* (accepted for publication).
4. Xie, F. and D. Levinson (2007). Modeling the Growth of Transportation Networks: A Comprehensive Review. *Networks and Spatial Economics* (accepted for publication).
3. Xie, F. and D. Levinson (2007). Measuring the Structure of Road Networks. *Geographical Analysis*, Vol. 39, Issue 3, p.336-356.
2. Levinson, D., F. Xie, and N. Montes de Oca (2007). Forecasting and Evaluating Network Growth. *Networks and Spatial Economics* (accepted for publication).
1. Fang, D. P., F. Xie, X. Y. Huang, H. Li. (2004) Factor Analysis Based Studies on Construction Workplace Safety Management in China. *International Journal of Project Management* ,Vol. 22, Issue 1, p. 43-49.

Journal Articles under Review

4. Levinson, D. and F. Xie. Does First Last? The existence and extent of first mover advantages on spatial networks. *Journal of Regional Science*.
3. Corbett, M., F. Xie, and D. Levinson. Evolution of the Second-Story City: The Minneapolis Skyway System. *Environment and Planning, Part B*.
2. Xie, F. and D. Levinson. Topological Evolution of Surface Transportation Networks. *Physical Review, E*.
1. Zhang, L., F. Xie, and D. Levinson. Variation of the subjective value of travel time under different driving conditions. *Transport Policy*.

Articles in Peer Reviewed Conference Proceedings

2. Levinson, D., F. Xie, and S. Zhu (2007). The Co-evolution of Land Use and Road Networks. *Proceedings of the 17th International Symposium on Transportation and Traffic Theory (ISTTT)*.
1. Xie, F. and D. Levinson (2006). The Use of Road Infrastructure Data for Urban Transportation Planning: Issues and Opportunities. *ASCE Special Issue "Civil Infrastructure Reporting and Asset Management: Best Practices and Opportunities"* (in press).

Technical Reports

1. Levinson, D., N. Montes de Oca, and F. Xie (2006) Beyond Business as Usual: Ensuring the Network We Want is the Network We Get. Minnesota Department of Transportation Technical Report MN/RC-2006-36.

Book Reviews

2. Xie, F. and D. Levinson (2007). Book review: The Geography of Transport Systems. *Journal of Transport Geography*. Vol. 15 Issue 1, p75-76

1. Xie, F. and D. Levinson (2006). Book review: Streets and Patterns. *Transport Reviews*. Vol. 26, Issue 2, p253-255.

Conference Papers and Presentations

12. Xie, F. (2007). Validation of the Model of Network Degeneration: a case study of the Indiana Interurban Network, to be presented at 54th Annual North American Meetings of the Regional Science Council (NARSC) in Savannah November 2007.

11. Levinson, D., and F. Xie (2007). Does First Last? The existence and extent of first mover advantages on spatial networks, to be presented at 54th Annual North American Meetings of the Regional Science Council (NARSC) in Savannah November 2007.

10. Xie, F. and D. Levinson (2007). Jurisdictional Controls and Network Growth, presented at World Conference on Transportation Research Society (WCTRS) in Berkley July 2007.

9. Corbett, M., Xie, F., and Levinson, D. (2007). Evolution of the Second-Story City: The Minneapolis Skyway System, presented at World Conference on Transportation Research Society (WCTRS) in Berkley July 2007.

8. Xie, F. and D. Levinson (2007). The Topological Evolution of Road Network, presented at 86th Transportation Research Board (TRB) in Washington, DC, January 2007. (earlier version presented at 52nd North American Regional Science Council (NARSC) in Las Vegas, November 2005)

7. Xie, F. and D. Levinson (2007). Measuring the Structure of Road Networks, presented at 86th Transportation Research Board (TRB) in Washington, DC, January 2007. (earlier version presented at 45th Western Regional Science Association (WRSA) Annual Meeting in Santa Fe, February 2006)

6. Zhu, S., F. Xie, and D. Levinson (2007). Enhancing Transportation Education through On-line Simulation using an Agent-Based Demand and Assignment Model,

presented at 86th Transportation Research Board (TRB) in Washington, DC, January 2007.

5. Levinson, D., F. Xie, N. Montes de Oca (2006). Forecasting and Evaluating Network Growth, presented at the First International Conference on Funding Transport Infrastructure in Banff, Canada August 2006.

4. Levinson, D., F. Xie, and S. Zhu (2006). Simulating the Integrated Growth of Networks and Places, presented at 53rd North American Regional Science Council (NARSC) in Toronto, Canada November 2006.

3. Xie, F. and D. Levinson (2006). The Weakest Link: A Model of the Decline of Surface Transportation Networks, presented at 85th Annual Meeting of Transportation Research Board (TRB) in Washington, DC, January 2006.

2. Zhang, L., F. Xie, D. Levinson (2005). Variation of Subjective Value of Travel Time on Freeways and Ramp Meters, presented at 84th Annual Meeting of Transportation Research Board (TRB) in Washington, DC, January 2005.

1. Xie, F. and D. Levinson (2004). Transport Network Degeneration Model: An agent-based simulation study, presented at 51st North American Regional Science Council (NARSC) in Seattle November 2004.

COMPUTER SKILLS

Proficiency in ArcGIS, Java, Visual Basic, Stata, SPSS, and LaTeX

LANGUAGE PROFICIENCY

Native Chinese, fluent in written and spoken English

TEACHING EXPERIENCE

3. Conducted pre-class and after-class surveys for CE3201 “Introduction to Transportation Engineering” in Spring 2006 and studied the effectiveness of transportation education through on-line simulation.

2. Worked as teaching assistant for CE3201 “Introduction to Transportation Engineering” in Spring 2006. Received an evaluation of 7.4 out of 10 from the class for lab instruction and grading.

1. Developed online java applet “Simulator Of Network Growth” (SONG) for CE5214 “Transportation Systems Analysis” in Spring 2004 and provided technical support for the lab.

TEACHING INTERESTS

- Transportation Systems Analysis
- Transportation Economics and Policy
- Integrated Land Use-Transportation Planning
- Application of ArcGIS in transportation planning
- Introduction to Transportation Engineering