

## *Pablo L. Durango-Cohen*

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Civil and Environmental Engineering  
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### **Academic Appointments**

NORTHWESTERN UNIVERSITY	EVANSTON, IL
Civil and Environmental Engineering	
Northwestern University Transportation Center	
<i>Associate Professor</i>	2008 – PRESENT
<i>Assistant Professor</i>	2002 – 2008
<i>Louis Berger Jr. Assistant Professor</i>	2002 – 2005
TECHNION–	HAIFA, ISRAEL
ISRAEL INSTITUTE OF TECHNOLOGY	
Faculty of Civil and Environmental Engineering	
<i>Visiting Associate Professor</i>	January 1 – June 30, 2016

### **Education**

UNIVERSITY OF CALIFORNIA, BERKELEY, CA  
Ph.D. Industrial Engineering and Operations Research, 2002  
Dissertation: *Adaptive Optimization Models for Infrastructure Management*

UNIVERSITY OF CALIFORNIA, BERKELEY, CA  
M.S. Industrial Engineering and Operations Research, 1997

UNIVERSITY OF SOUTHERN CALIFORNIA, LOS ANGELES, CA  
B.S. Industrial and Systems Engineering (*Summa Cum Laude*), 1996

### **Honors and Awards**

Northwestern University Faculty and Administrator Honor Roll, 2010  
Elected by undergraduate students

Grantee of the Senior Specialist Program, 2007  
J. William Fulbright Commission

WCTR Young Author Prize, 2007  
World Conference on Transport Research Society

Faculty CAREER Development Program Award Recipient, 2006–2011  
National Science Foundation

Searle Faculty Fellow, 2003–2004  
Northwestern University Searle Center for Teaching Excellence

University of California Transportation Center Student of the Year, 2003  
United States Department of Transportation Region 9

Doctoral Dissertation Grant, 2001  
University of California Transportation Center

Outstanding Graduate Student Instructor, 2000  
Academic Senate’s Advisory Committee for GSI Affairs, UC Berkeley  
Nominated by IEOR faculty

Best Graduate Student Instructor, 2000  
IEOR Department, UC Berkeley  
Elected by IEOR students

Eugene Cota-Robles Fellowship for graduate studies, 1996–1999  
University of California, Berkeley

Outstanding Student Award, 1996  
Industrial and Systems Engineering Department, USC

Dean’s Scholarship for Undergraduate Studies, 1992–1996  
University of Southern California

## PUBLICATIONS

### Book Chapter

- B1. Durango-Cohen, P.L. (2007), “An optimal estimation and control framework for the management of infrastructure facilities”, Chapter 9 in *The management and measurement of infrastructure: Performance, efficiency and innovation*, C. Karlsson, W. Anderson, B. Johansson and K. Kobayashi, eds., Edward Elgar Publishing, Cheltenham, UK, pp. 177–197.

### Introductions and Editorials

- IE1. Durango-Cohen, P.L. and Madanat, S. (2015), “Introduction to special issue on transportation infrastructure management”, *EURO Journal on Transportation and Logistics*, 4(1), pp. 1–4.
- IE2. Doll, C., Durango-Cohen, P.L. and Ueda, T. (2009), “Transportation infrastructure planning, management, and finance”, *Journal of Infrastructure Systems*, 15(4), pp. 261–262.

### Archival Journal Publications

- J1. Lascano, M.E. and Durango-Cohen, P.L. (2018), “New ridership for old rail: An analysis of changes in the utilization of Chicago’s urban rail system, 1990–2008”, to appear *Journal of the Transportation Research Forum*.
- J2. Durango-Cohen, P.L. and McKenzie, E.C. (2018), “Trading off costs, environmental impact, and levels of service in the optimal design of transit bus fleets”, *Transportation Research Part A: Policy and Practice*, 114, pp. 354–363.
- J3. Chan, R., Durango-Cohen, P.L. and Schofer, J.L. (2016), “Dynamic learning process for selecting storm protection investments”, *Transportation Research Record: Journal of the Transportation Research Board*, 2599, pp. 1–8.
- J4. Chen, Y. and Durango-Cohen, P.L. (2015), “Development and field application of a multivariate statistical process control framework for health-monitoring of transportation infrastructure”, *Transportation Research Part B: Methodological*, 81, pp. 78–102.

- J5. Medury, A., Zhang, W. and Durango-Cohen, P.L. (2015), “Identification and estimation of latent group-level-effects in infrastructure performance modeling”, *EURO Journal on Transportation and Logistics*, 4(1), pp. 31–55.
- J6. Zhang, W. and Durango-Cohen, P.L. (2014), “Explaining heterogeneity in pavement deterioration: A clusterwise linear regression model”, *Journal of Infrastructure Systems*, 20(2), pp. 04014005(9).
- J7. Kosnik, D.E., Zhang, W., and Durango-Cohen, P.L. (2014), “An application of statistical process control for structural health monitoring of a historic building”, *Journal of Infrastructure Systems*, 20(1), pp. 05013002(12).
- J8. Chen, Y., Corr, D.J., and Durango-Cohen, P.L. (2014), “Analysis of common-cause and special-cause variation in the deterioration of transportation infrastructure: A field application of statistical process control for structural health monitoring”, *Transportation Research Part B: Methodological*, 59(1), pp. 96–116.
- J9. Durango-Cohen, P.L., Durango-Cohen, E.J., and Torres, R.L. (2013), “A Bernoulli-Gaussian mixture model of donation likelihood and monetary value: An application to alumni segmentation in a university setting”, *Computers and Industrial Engineering*, 66(4), pp. 1085–1095.
- J10. Durango-Cohen, E.J., Torres, R.L., and Durango-Cohen, P.L. (2013), “Donor segmentation: When summary statistics don’t tell the whole story”, *Journal of Interactive Marketing*, 27(3), pp. 172–184.
- J11. Durango-Cohen, P.L., Durango-Cohen, E.J., and Zhang, W. (2012), “A clusterwise linear regression model of alumni giving”, *International Journal of Education Economics and Development*, 3(4), pp. 330–347.
- J12. Zhang, Z. and Durango-Cohen, P.L. (2012), “A strategic model of public-private partnerships in transportation: Effect of taxes and cost structure on investment viability”, *Research in Transportation Economics*, 36(1), pp. 9–18.
- J13. McKenzie, E.C. and Durango-Cohen, P.L. (2012), “Environmental life-cycle assessment of transit buses with alternative fuel technology”, *Transportation Research Part D: Transport and Environment*, 17(1), pp. 39–47.
- J14. Lascano, M.E. and Durango-Cohen, P.L. (2012), “The transportation systems of Buenos Aires, Chicago and São Paulo: City centers, infrastructure and policy analysis”, *Transportation Research Part A: Policy and Practice*, 46(1), pp. 102–122.
- J15. Lindsey, M., Schofer, J., Durango-Cohen, P.L. and Gray, K. (2011), “The effect of residential location on vehicle miles of travel, energy consumption and greenhouse gas emissions: Chicago case study”, *Transportation Research Part D: Transport and Environment*, 16(1), pp. 1–9.
- J16. McKenzie, E.C. and Durango-Cohen, P.L. (2010), “An input-output approach for the efficient design of sustainable goods and services”, *The International Journal of Life Cycle Assessment*, 15(9), pp. 946–961.
- J17. Lindsey, M., Schofer, J., Durango-Cohen, P.L. and Gray, K. (2010), “Relationship between proximity to transit and ridership for journey-to-work trips in Chicago”, *Transportation Research Part A: Policy and Practice*, 44(9), pp. 697–709.

- J18. Durango-Cohen, P.L. and Sarutipand, P. (2009), “Maintenance optimization for transportation systems with demand responsiveness”, *Transportation Research Part C: Emerging Technologies*, 17(4), pp. 337–348.
- J19. Durango-Cohen, P.L. and Madanat, S. (2008), “Optimization of inspection and maintenance decisions for infrastructure facilities under performance model uncertainty: A Quasi-Bayes approach”, *Transportation Research Part A: Policy and Practice*, 42(8), pp. 1074–1085.
- J20. Chu, C.-Y. and Durango-Cohen, P.L. (2008), “Empirical comparison of statistical pavement performance models”, *Journal of Infrastructure Systems*, 14(2), pp. 138–149.
- J21. Chu, C.-Y. and Durango-Cohen, P.L. (2008), “Incorporating maintenance effectiveness in the estimation of dynamic infrastructure performance models”, *Computer-Aided Civil and Infrastructure Engineering*, 23(3), pp. 174–188.
- J22. Chu, C.-Y. and Durango-Cohen, P.L. (2008), “Estimation of dynamic performance models for transportation infrastructure using panel data”, *Transportation Research Part B: Methodological*, 42(1), pp. 57–81.
- J23. Durango-Cohen, P.L. and Sarutipand, P. (2007), “Capturing interdependencies and heterogeneity in the management of multifacility transportation infrastructure systems”, *Journal of Infrastructure Systems*, 13(2), pp. 115–123.
- J24. Durango-Cohen, P.L. (2007), “A time series analysis framework for transportation infrastructure management”, *Transportation Research Part B: Methodological*, 41(5), pp. 493–505.
- J25. Chu, C.-Y. and Durango-Cohen, P.L. (2007), “Estimation of infrastructure performance models using state-space specifications of time series models”, *Transportation Research Part C: Emerging Technologies*, 15(1), pp. 17–32.
- J26. Durango-Cohen, P.L. and Tadepalli, N. (2006), “Using advanced inspection technologies to support investments in maintenance and repair of transportation infrastructure facilities”, *Journal of Transportation Engineering*, 132(1), pp. 60–68.
- J27. Childress, S. and Durango-Cohen, P.L. (2005), “On parallel machine replacement problems with general replacement cost functions and stochastic deterioration”, *Naval Research Logistics*, 52(5), pp. 409–419.
- J28. Durango-Cohen, P.L. (2004), “Maintenance and repair decision making for infrastructure facilities without a deterioration model”, *Journal of Infrastructure Systems*, 10(1), pp. 1–8.
- J29. Guillaumot, V., Durango-Cohen, P.L. and Madanat, S. (2003), “Adaptive optimization of infrastructure maintenance and inspection decisions under performance model uncertainty”, *Journal of Infrastructure Systems*, 9(4), pp. 133–139.
- J30. Madanat, S., Durango-Cohen, P.L. and Guillaumot, V. (2003), “Inspection, prediction and decision-making in infrastructure management: Framework, models and computation”, *Japanese Society of Civil Engineering Journal of Infrastructure Planning and Management*, No. 744/IV-61, pp. 1–10.
- J31. Durango, P.L. and Madanat, S. (2002), “Optimal maintenance and repair policies in infrastructure management under uncertain facility deterioration rates: An adaptive control approach”, *Transportation Research Part A: Policy and Practice*, 36(9), pp. 763–778.

## Papers Submitted and Under Revision

- S1. Durango-Cohen, P.L. (2018), “Leveraging analytics to monitor and manage urban infrastructure”, submitted to *Transportmetrica Part A*.
- S2. Durango-Cohen, E.J., Durango-Cohen, P.L., Zhang, W. (2017), “Using mixture regression modeling to identify determinants of alumni giving”, submitted to *Nonprofit and Voluntary Sector Quarterly*.
- S3. Durango-Cohen, P.L. (2016), “Management of heterogeneous transportation infrastructure systems: A finite mixture modeling approach”, submitted to *Transportation Science*.

## Conference Proceedings

- P1. Durango-Cohen, P.L., and McKenzie, E.C. (2017), “Trading off costs, environmental impact, and levels of service in the optimal design of transit bus fleets”, *Proceedings of the 22nd International Symposium on Transportation and Traffic Theory*, Evanston, IL. Transportation Research Procedia 23C (2017) 1020-1032.
- P2. Durango-Cohen, P.L. (2016), “A stochastic control framework to deal with model uncertainty in the management of transportation infrastructure systems”, *Proceedings of The Asian Civil Engineering Coordinating Council’s (ACECC’s) 7<sup>th</sup> Civil Engineering Conference (CECAR 7)*, Honolulu, HI.
- P3. Chen, Y., and Durango-Cohen, P.L. (2016), “Characterizing redundancies among structural response measurements for detection and interpretation of unusual events”, *Proceedings of International Symposium on Infrastructure Asset Management (SIAM 2016)*, Kyoto, Japan.
- P4. Chen, Y., and Durango-Cohen, P.L. (2013), “A statistical health monitoring and forecasting framework for transportation infrastructure”, *Proceedings of the 13<sup>th</sup> World Conference on Transport Research*, Rio de Janeiro, Brazil.
- P5. Chen, Y., and Durango-Cohen, P.L. (2013), “An application of statistical process control for structural health monitoring of a highway bridge”, *Proceedings of the 11<sup>th</sup> International Conference on Structural Safety & Reliability (ICOSSAR)*, New York, NY.
- P6. Zhang, Z., Chen, Y., Jinker, J., and Durango-Cohen, P.L. (2011), “Public pricing in the freight rail industry: Using erratic business index to measure market attractiveness”, *2011 Annual Conference Proceedings Published by the Marketing Management Association*, Chicago, IL.
- P7. Zhang, Z. and Durango-Cohen, P.L. (2010), “Private-public partnerships in transit investments”, *Proceedings of the 12<sup>th</sup> World Conference on Transport Research*, Lisbon, Portugal.
- P8. Lascano, M. and Durango-Cohen, P.L. (2009), “Análisis de la utilización de los ferrocarriles metropolitanos de Buenos Aires con datos de la INTRUPUBA”, *15<sup>to</sup> Congreso Latinoamericano de Transporte Público y Urbano (CLATPU)*, Buenos Aires, Argentina.
- P9. Durango-Cohen, P.L. (2008), “A general probabilistic framework for clustering and managing heterogeneous infrastructure facilities”, *Proceedings of the 10<sup>th</sup> ASCE Conference on Applications of Advanced Technology in Transportation*, Athens, Greece.

- P10. Durango-Cohen, P.L. and Sarutipand, P. (2007), “Multi-facility maintenance optimization with coordinated interventions”, *Proceedings of the 11<sup>th</sup> World Conference on Transport Research*, Berkeley, CA (Best Paper Award).
- P11. Durango-Cohen, P.L. (2007), “An estimation-optimization approach to the management of infrastructure under model uncertainty”, *Proceedings of the 11<sup>th</sup> World Conference on Transport Research*, Berkeley, CA.
- P12. Chu, C.-Y. and Durango-Cohen, P.L. (2007), “Multivariate time series analysis to support transportation infrastructure management”, *Proceedings of the 11<sup>th</sup> World Conference on Transport Research*, Berkeley, CA.
- P13. Bernardin, Jr., V. and Durango-Cohen, P.L. (2007), “Improving conceptual model of transportation asset management: Lessons learned from the local level”, *Compendium of Presentations at the 86<sup>th</sup> Annual Meeting of the Transportation Research Board*, Washington, DC.
- P14. Durango-Cohen, P.L. and Sarutipand, P. (2006), “Coordination of maintenance and rehabilitation policies for transportation infrastructure”, *Proceedings of the 9<sup>th</sup> ASCE Conference on Applications of Advanced Technology in Transportation*, Chicago, IL.
- P15. Chu, C.-Y. and Durango-Cohen, P.L. (2006), “Estimating pavement performance models using advanced technologies and time series analysis”, *Proceedings of the 9<sup>th</sup> ASCE Conference on Applications of Advanced Technology in Transportation*, Chicago, IL.
- P16. Durango-Cohen, P.L. (2005), “Using remote sensors to support maintenance and repair investments for civil infrastructure facilities”, *Proceedings of the 4<sup>th</sup> International Workshop on Life-Cycle Cost Analysis and Design of Civil Infrastructure Systems*, Cocoa Beach, FL.
- P17. Madanat, S. and Durango, P. (2004), “Adaptive optimization of infrastructure maintenance and inspection decisions under performance model uncertainty”, *Proceedings of the 10<sup>th</sup> World Conference on Transport Research*, Istanbul, Turkey.
- P18. Guillaumot, V., Durango-Cohen, P.L. and Madanat, S. (2003), “Adaptive optimization of infrastructure maintenance and inspection decisions under performance model uncertainty”, *Proceedings of the 9<sup>th</sup> International Conference of Statistics and Probability in Civil Engineering*, San Francisco, CA.
- P19. Durango-Cohen, P.L. (2002), “Reinforcement learning models for transportation infrastructure management”, *Proceedings of the 7<sup>th</sup> ASCE Conference on Applications of Advanced Technology in Transportation*, Cambridge, MA.

### Other Publications

- O1. Durango, P.L. (2002), “Adaptive optimization models for infrastructure management”, **Ph.D. Dissertation**, University of California, Berkeley.
- O2. Fitzpatrick, M. and Durango-Cohen, P.L. (2015), “Psychological and social factors in travel behavior: a review of theory, recent developments, and research perspectives”, Technical Report, Northwestern University Transportation Center.
- O3. Schofer, J.L., Chan, R., and Durango-Cohen, P.L. (2012), “Managing a regional transit system through a severe weather event: Case study of the New York Region and Hurricane Irene”, Report prepared for the project Weather Extremes: Impacts on Transport Systems and Hazards for European Region (WEATHER) funded by the European Commission.

- O4. Luo, Y. and Durango-Cohen, P.L. (2012), “A Framework for Estimating Emissions of freight Transportation Operations”, **Final Report – CCITT Project 60030609.**
- O5. Chen, Y., Corr, D. and Durango-Cohen, P.L. (2012), “A Data Processing And Control System To Support Remote Infrastructure Monitoring”, **Final Report – ITI Project 60027736.**
- O6. Chen, Y., Corr, D. and Durango-Cohen, P.L. (2011), “A Process Control System for the John F. Kennedy Memorial Bridge”, **Final Report – ITI Project 60025238.**
- O7. Higgins, B. and Durango-Cohen, P.L. (2009), “New fuel surcharge methodologies for freight transportation”, Northwestern University Transportation Center, Evanston, IL.
- O8. Durango-Cohen, P.L. (2008), “A knowledge management platform for infrastructure performance modeling”, **Final Report – ITI Project A225.**
- O9. Madanat, S. and Durango-Cohen, P.L. (2007), “Transportation infrastructure management: A research and teaching agenda”, Paper presented by Samer Madanat at the Transportation and Logistics Education and Training Seminar held in Istanbul, Turkey, in November 2007.
- O10. Bernardin, Jr., V. and Durango-Cohen, P.L. (2006), “Transportation asset management for local government agencies”, **Final Report – MRUTC Project 05-01.**
- O11. Durango-Cohen, P.L. and Tadepalli, N. (2005), “Infrastructure management decision-making with condition data generated by remote sensors”, **Final Report – MRUTC Project 04-03.**

**Funded Research Projects**

- COLLABORATIVE RESEARCH: ASSESSING THE EFFECT OF DIRECT-MARKETING STRATEGIES IN NON-PROFIT FUNDRAISING: AN INTEGRATED FRAMEWORK FOR SEGMENTATION, ESTIMATION AND CONTROL  
National Science Foundation 2013 – 2017  
Role: Principal Investigator with E. Durango-Cohen
- A FRAMEWORK FOR ESTIMATING EMISSIONS OF FREIGHT TRANSPORT OPERATIONS  
Center for the Commercialization of Innovative Transportation Technology 2011 – 2012  
Role: Principal Investigator
- A REAL-TIME HEALTH MONITORING AND MANAGEMENT SYSTEM FOR TRANSPORTATION INFRASTRUCTURE  
Infrastructure Technology Institute 2011 – 2012  
Role: Principal Investigator with D. Corr
- A DATA PROCESSING AND CONTROL SYSTEM TO SUPPORT REMOTE INFRASTRUCTURE MONITORING  
Infrastructure Technology Institute 2010 – 2011  
Role: Principal Investigator with D. Corr
- A PROCESS CONTROL SYSTEM FOR THE JOHN F. KENNEDY MEMORIAL BRIDGE  
Infrastructure Technology Institute 2009 – 2010  
Role: Principal Investigator with D. Corr
- A KNOWLEDGE MANAGEMENT PLATFORM FOR INFRASTRUCTURE PERFORMANCE MODELING  
Infrastructure Technology Institute 2007 – 2008  
Role: Principal Investigator

- PARTNERSHIPS FOR INTERNATIONAL RESEARCH AND EDUCATION: US-ASIA NETWORK OF CENTERS FOR INTELLIGENT STRUCTURAL HEALTH MONITORING OF SAFETY-CRITICAL STRUCTURES  
National Science Foundation 2007 – 2012  
PIs: J. Achenbach and S. Krishnaswamy  
Role: Participating Faculty
- CAREER: AN INTEGRATED FRAMEWORK FOR INFRASTRUCTURE MANAGEMENT: EXPLOITING ADVANCED INSPECTION TECHNOLOGIES TO SUPPORT CONDITION ASSESSMENT, FORECASTING AND DECISION-MAKING  
National Science Foundation 2006 – 2012  
Role: Principal Investigator
- TRANSPORTATION ASSET MANAGEMENT THRESHOLD LEVELS  
Midwest Regional University Transportation Center 2004 – 2006  
Role: Principal Investigator
- BRIDGE ASSET MANAGEMENT BASED ON LIFE CYCLE COST CONSIDERATIONS  
Infrastructure Technology Institute 2004 – 2005  
PIs: R. Krizek and A. Hadavi  
Role: Participating Faculty
- INFRASTRUCTURE MANAGEMENT DECISION-MAKING WITH CONDITION DATA GENERATED BY REMOTE SENSORS: A TIME SERIES FRAMEWORK  
Midwest Regional University Transportation Center 2003 – 2004  
Role: Principal Investigator  
Collaborators: Minnesota Road Research Program

### Other Funded Projects

- CO<sub>2</sub> EMISSIONS REPORTING  
Philips North America Forwarding and Distribution 2009 – 2014  
Role: Advisor  
Students: Madison Fitzpatrick, Elaine Croft McKenzie, Talha Merchant, and Matthew Pettit
- EVALUATING AND OPTIMIZING FUEL SURCHARGES  
Philips North America Forwarding and Distribution 2008 – 2009  
Role: Advisor  
Student: Brendan Higgins

### Invited Talks and Workshops

- T1. Department of Civil and Materials Engineering, University of Illinois, Chicago, November, 2016. “Leveraging analytics to monitor the performance of (urban) infrastructure.”
- T2. Department of Industrial Engineering and Management, Ben Gurion University of the Negev, Ber Sheva, Israel, March, 2016. “Leveraging analytics to monitor the performance of (urban) infrastructure.”
- T3. Department of Civil and Environmental Engineering, Technion – Israel Institute of Technology, Haifa, Israel, February, 2016. “Improving the management of transportation assets: Research overview and synergistic opportunities.”



- T4. International Symposium on Infrastructure Asset Management, Kyoto University, Kyoto, Japan, January, 2016. “Development and field application of a multivariate statistical process control framework for health-monitoring of transportation infrastructure.”
- T5. Department of Civil and Environmental Engineering, University of California, Berkeley, November, 2013. “A statistical process control framework for health-monitoring and management of transportation infrastructure.”
- T6. Transportation, Policy Development, Planning and Management Program, Jakarta, Indonesia, August, 2013. “Ensuring the future: Sustainable transportation systems.” Program presented by the NUTC for the Rajawali Foundation.
- T7. Transportation, Policy Development, Planning and Management Program, Jakarta, Indonesia, August, 2013. “Supporting informed choices: Decision Analysis.” Program presented by the NUTC for the Rajawali Foundation.
- T8. Annual Meeting of the Transportation Research Board, Washington, DC, January 2010. “A time series analysis framework for transportation infrastructure management.” Workshop on Time-Series Analysis Methods and Applications for Beginners. Sponsored by TRB Committees on Artificial Intelligence and Advanced Computing Applications (ABJ70), and Statistical Methodology (ABJ80).
- T9. North Carolina A&T State University, Greensboro, NC, March 2008. “Transportation Infrastructure Management: Opportunities for Research and Education.” National Science Foundation Workshop on Bridges to Engineering Research – 2020: Foundation for National Partnerships.
- T10. Industrial Engineering Graduate Program, Escuela Politécnica Nacional, Quito, Ecuador, December, 2007. “Inventory, Production and Maintenance Planning.” Workshop funded by the Fulbright Senior Specialist Program (32 hours).
- T11. School of Civil Engineering, Purdue University, October, 2007. “A Finite Mixture Modeling Framework for the Management of Heterogeneous Transportation Infrastructure Systems.”
- T12. Department of Civil and Architectural Engineering, Illinois Institute of Technology, April, 2007. “An Integrated Framework for Infrastructure Management: Exploiting Advanced Inspection Technologies to Support Condition Assessment, Forecasting and Decision-Making.”
- T13. Department of Civil and Environmental Engineering, University of Illinois, Urbana-Champaign, March, 2007. “An Integrated Framework for Infrastructure Management: Exploiting Advanced Inspection Technologies to Support Condition Assessment, Forecasting and Decision-Making.”
- T14. Department of Industrial Engineering and Management Sciences, Northwestern University, March, 2006. “An Integrated Framework for Infrastructure Management: Exploiting Advanced Inspection Technologies to Support Condition Assessment, Forecasting and Decision-Making.”
- T15. Department of Civil and Environmental Engineering, University of California, Berkeley, April, 2005. “Management of Transportation Infrastructure Systems Using Condition Data Generated by Advanced Technologies.”

- T16. Department of Industrial and Systems Engineering, Lehigh University, May, 2004. “Management of Transportation Infrastructure Systems Using Condition Data Generated by Advanced Technologies.”
- T17. Urban Management Engineering, Kyoto University, Japan, September, 2003. “Management of Transportation Infrastructure Systems Using Condition Data Generated by Advanced Technologies.”
- T18. Urban Transportation Center, University of Illinois, Chicago, April, 2003. “Infrastructure Management Decision-Making under Performance Model Uncertainty.”
- T19. Northwestern University Transportation Center, April, 2003. “Infrastructure Management Decision-Making under Performance Model Uncertainty.”
- T20. Department of Civil and Environmental Engineering, University of Illinois, Urbana-Champaign, April, 2002. “Infrastructure Management Decision-Making under Performance Model Uncertainty.”
- T21. Department of Civil and Environmental Engineering, Northwestern University, April, 2002. “Infrastructure Management Decision-Making under Performance Model Uncertainty.”
- T22. School of Industrial and Systems Engineering, Purdue University, March, 2002. “Infrastructure Management Decision-Making under Performance Model Uncertainty.”
- T23. Department of Civil and Environmental Engineering, Carnegie-Mellon University, February, 2002. “Infrastructure Management Decision-Making under Performance Model Uncertainty.”
- T24. Department of Civil and Environmental Engineering, University of California, Berkeley, November, 2001. “Infrastructure Management Decision-Making under Performance Model Uncertainty.”
- T25. Facultad de Ingeniería Industrial, Instituto Tecnológico de San Luis Potosí, México, July, 2001. “Políticas Óptimas de Inventario para Sistemas de Instalaciones en Serie.”

### **Conference Presentations & Posters**

- C1. “Trading off costs, environmental impact, and levels of service in the optimal design of transit bus fleets”, 2017, 22nd International Symposium on Transportation and Traffic Theory, Evanston, IL, joint work with E.C. McKenzie
- C2. “Formulation and solution of Input-Output models with substitution to support environmentally-conscious design”, 2017, ISIE-ISSST 2017: Science in Support of Sustainable and Resilient Communities, Chicago, IL, joint work with E.C. McKenzie
- C3. “Pareto efficiency analysis of private toll road markets: Leveraging PPPs to finance investments in infrastructure”, 2017, Thirteenth Annual Inter-University Symposium on Infrastructure Management, West Lafayette, IN, joint work with H. Shu
- C4. “New ridership for Chicagos old elevated urban rail system, 1990-2008”, 2017, 58th Annual Transportation Research Forum, Chicago, IL, joint work with M. Lascano
- C5. “Dynamic learning process for selecting storm protection investments”, 2016, Transportation Research Board 95th Annual Meeting, Washington, DC, joint work with R. Chan and J. Schofer

- C6. “Leveraging Analytics to Support Health-monitoring and Management of Infrastructure Facilities”, 2015 INFORMS Annual Meeting, Philadelphia, PA, joint work with Y. Chen
- C7. “Dynamic Learning Process for Selecting Storm Protection Investments”, 2015 First International Conference on Surface Transportation System Resilience to Climate Change and Extreme Weather Events, Washington, DC, joint work with R. Chan and J. Schofer
- C8. “Tailoring Contribution Requests to Improve Donor Participation and Monetary Value of Contributions”, 2015 POMS Annual Conference, Washington, DC, joint work with M. Beamer and E. Durango-Cohen
- C9. “A Framework to Support Direct-Marketing Strategies in Non-Profit Fundraising”, 2014 INFORMS Annual Meeting, San Francisco, CA, joint work with E. Durango-Cohen
- C10. “Analytics approach to support health-monitoring and management of transportation infrastructure”, 2014, INFORMS Annual Meeting, San Francisco, CA, joint work with Y. Chen
- C11. “Application of Structural Time Series Model for Condition Assessment in Structural Health Monitoring”, 2014, Transportation Research Board 93rd Annual Meeting, Washington, DC, joint work with Y. Chen
- C12. “Using Remote Sensors to Support Health-monitoring and Management of Transportation Infrastructure”, 2013, INFORMS Annual Meeting, Minneapolis, MN, joint work with Y. Chen
- C13. “A Probabilistic Framework for Managing Heterogeneous Infrastructure Systems under Model Uncertainty”, 2013, Engineering Mechanics Institute (EMI) Conference, Evanston, IL
- C14. “A statistical health monitoring and forecasting framework for transportation infrastructure”, 2013, Thirteenth World Conference on Transport Research, Rio de Janeiro, Brazil, joint work with Y. Chen
- C15. “An Application of Statistical Process Control for Structural Health Monitoring of A Highway Bridge”, 2013, Eleventh International Conference on Structural Safety & Reliability (ICOSSAR), New York, NY, joint work with Y. Chen
- C16. “An Application of Structural Time Series Model to Assess Conditions in Structural Health Monitoring”, 2013, Ninth Annual Inter-University Symposium on Infrastructure Management, Berkeley, CA, joint work with Y. Chen (Best Presentation Award)
- C17. “Multivariate Statistical Process Control for Structural Health Monitoring”, 2013, Transportation Research Board 92nd Annual Meeting, Washington, DC, joint work with Y. Chen
- C18. “A Multivariate Statistical Framework for Monitoring the Performance of Transportation Infrastructure”, 2012, INFORMS Annual Meeting, Phoenix, AZ, joint work with Y. Chen
- C19. “An Application of Clusterwise Regression to Model Heterogeneity of Pavement Panel Data”, 2012, INFORMS Annual Meeting, Phoenix, AZ, joint work with W. Zhang
- C20. “A General Clusterwise Regression Model of Pavement Performance Prediction”, 2012, Eighth Annual Inter-University Symposium on Infrastructure Management, Atlanta, GA, joint work with W. Zhang

- C21. “Multivariate Statistical Process Control for Structural Health Monitoring”, 2012, Eighth Annual Inter-University Symposium on Infrastructure Management, Atlanta, GA joint work with Y. Chen (Best Presentation Award)
- C22. “A Statistical Process Control System for Infrastructure Performance Monitoring”, 2011, INFORMS Annual Meeting, Charlotte, NC, joint work with Y. Chen and D. Corr
- C23. “The Application of Hidden Markov Models and Clusterwise Linear Regression in Pavement Performance Prediction”, 2011, Seventh Annual Inter-University Symposium on Infrastructure Management, Evanston, IL joint work with W. Zhang
- C24. “Statistical Process Control in Structural Health Monitoring: A Case study on the Hurley Bridge”, 2011, Seventh Annual Inter-University Symposium on Infrastructure Management, Evanston, IL joint work with Y. Chen and D. Corr
- C25. “Public pricing in the freight rail industry: Using erratic business index to measure market attractiveness”, 2011, The 47th Annual MBAA International Conference, Chicago, IL, joint work with Z. Zhang, Y. Chen and J. Jinker
- C26. “A Strategic Optimization Framework Incorporating LCA Within the Bus Fleeting Problem”, 2010, INFORMS Annual Meeting, Austin, TX, joint work with E. Croft McKenzie
- C27. “Private Involvement in Financing Public Projects”, 2010, INFOMS Annual Meeting, Austin, TX, joint work with Z. Zhang
- C28. “Alternative Fuels for Urban Transit. Phase 1: Life-Cycle Assessment (LCA) of Alternative Fuel Buses”, 2010, TRB Transportation Systems for Livable Communities Conference, Washington, DC, joint work with E. Croft McKenzie
- C29. “Private-public partnership in transit investment”, 2010, 12<sup>th</sup> World Conference on Transport Research, Lisbon, Portugal, joint work with Z. Zhang
- C30. “Public pricing in the freight rail industry”, 2010, Sixth Annual Inter-University Symposium on Infrastructure Management, Newark, DE joint work with Z. Zhang and Y. Chen
- C31. “Environmental Impact and Cost-Effectiveness of Hydrogen Fuel Cell Buses: Going Beyond CTTransit Demonstration Project”, 2010, Transportation Research Board 89th Annual Meeting, Washington, DC, joint work with E. Croft McKenzie
- C32. “Exploiting advanced inspection technologies to support condition assessment, forecasting, and decision-making: A process control system for the John F. Kennedy Memorial Bridge”, 2009, TRB Transportation Infrastructure Preservation and Renewal Conference, Washington, DC, joint work with Y. Chen and D. Corr
- C33. “Direct-Marketing Optimization for Public Broadcasting Stations”, 2009, INFORMS Annual Meeting, San Diego, CA, joint work with E. Durango-Cohen
- C34. “A Framework for Efficient Design of Environmentally-friendly Products and Services”, 2009, INFORMS Annual Meeting, San Diego, CA, joint work with E. Croft McKenzie
- C35. “Optimizing Direct-marketing Strategies for a Public Broadcasting Institution: An Adaptive Control Application”, 2009, Informs Marketing Science Conference, Ann Arbor, MI, joint work with E. Durango-Cohen
- C36. “Relationship Between Proximity to Transit and Ridership for Journey-to-Work Trips in Chicago”, 2009, Engineering Sustainability 2009: Innovations that Span Boundaries Conference, Pittsburgh, PA, joint work with M. Lindsey, K. Gray, and J. Schofer

- C37. “Effect of Residential Location on Vehicle Miles of Travel, Energy Consumption, and Greenhouse Gas Emissions: Chicago Case Study”, 2009, Transportation Research Board 88th Annual Meeting, Washington, DC, joint work with M. Lindsey, K. Gray, and J. Schofer
- C38. “General Probabilistic Framework for Clustering and Managing Heterogeneous Infrastructure Systems”, 2009, Transportation Research Board 88th Annual Meeting, Washington, DC
- C39. “A model for optimal maintenance policies of multi-component transportation systems with demand response”, 2007, INFORMS, Seattle, WA, joint work with P. Sarutipand.
- C40. “A finite-mixture modeling approach to the management of transportation infrastructure systems”, 2007, INFORMS, Seattle, WA.
- C41. “A finite-mixture modeling approach to the management of transportation infrastructure systems under model uncertainty”, 2007, INFORMS Midwest Regional Conference, Evanston, IL.
- C42. “Multi-facility maintenance optimization with coordinated interventions”, 2007, 11<sup>th</sup> World Conference on Transport Research, Berkeley, CA, joint work with P. Sarutipand (Best Paper Award)
- C43. “An estimation-optimization approach to the management of infrastructure under model uncertainty”, 2007, 11<sup>th</sup> World Conference on Transport Research, Berkeley, CA.
- C44. “Multivariate time series analysis to support transportation infrastructure management”, 2007, 11<sup>th</sup> World Conference on Transport Research, Berkeley, CA, joint work with C.Y. Chu
- C45. “A model for management of transportation infrastructure system with economic and demand interdependencies”, 2007, Third Annual Inter-University Symposium on Infrastructure Management, Blacksburg, VA joint work with P. Sarutipand
- C46. “Improving conceptual model of transportation asset management: Lessons learned from the local level”, 2007, Transportation Research Board 86th Annual Meeting, Washington, DC, joint work with V. Bernardin, Jr
- C47. “Pavement Performance Models for Maintenance Optimization Using Time Series Analysis with Time-varying Parameters”, 2007, Transportation Research Board 86th Annual Meeting, Washington, DC, joint work with C.Y. Chu
- C48. “A dynamic infrastructure performance model for evaluating maintenance effectiveness and poolability”, 2006, INFORMS, Pittsburgh, PA, joint work with C.Y. Chu
- C49. “Determining economic maintenance schedules for interdependent components”, 2006, INFORMS, Pittsburgh, PA, joint work with P. Sarutipand
- C50. “Coordination of maintenance and rehabilitation policies for transportation infrastructure”, 2006, Ninth ASCE Conference on Applications of Advanced Technology in Transportation, Chicago, IL, joint work with P. Sarutipand
- C51. “Estimating pavement performance models using advanced technologies and time series analysis”, 2006, Ninth ASCE Conference on Applications of Advanced Technology in Transportation, Chicago, IL, joint work with C.Y. Chu

- C52. “Pavement Performance Models for Maintenance Optimization Using Time Series Analysis with Time-varying Parameters”, 2006, Second Annual Inter-University Symposium on Infrastructure Management, Newark, DE, joint work with C.Y. Chu (Best Presentation Award)
- C53. “Maintenance and Rehabilitation Policies for Interdependent Transportation Infrastructure Systems”, 2006, Second Annual Inter-University Symposium on Infrastructure Management, Newark, DE, joint work with P. Sarutipand
- C54. “Using Remote Sensor Data to Estimate Pavement Performance Models”, 2006, Transportation Research Board 85th Annual Meeting, Washington, DC, joint work with C.Y. Chu
- C55. “Using Time Series Analysis to Model Infrastructure Performance”, 2005, INFORMS, San Francisco, CA, joint work with C.Y. Chu
- C56. “Incorporating Functional Interdependencies in Maintenance Optimization”, 2005, INFORMS, San Francisco, CA, joint work with P. Sarutipand
- C57. “Using Time Series Analysis to Model Infrastructure Performance”, 2005, First Annual Inter-University Symposium on Infrastructure Management, Waterloo, Canada, joint work with C.Y. Chu
- C58. “Functional Interactions in Network Maintenance Optimization”, 2004 INFORMS, Denver, CO, joint work with S. Childress
- C59. “Maintenance and repair decision making for infrastructure facilities without a deterioration model”, 2004, Transportation Research Board 83rd Annual Meeting, Washington, DC
- C60. “A Time-Series Framework for Transportation Infrastructure Management”, 2003 INFORMS, Atlanta, GA
- C61. “A Time-Series Framework for Transportation Infrastructure Management”, 2003 Third International Symposium on Infrastructure Management and Financing, Kyoto, Japan
- C62. “Adaptive optimization of infrastructure maintenance and inspection decisions under performance model uncertainty”, 2003 Ninth International Conference on Applications of Statistics and Probability in Civil Engineering (ICASP9), San Francisco, CA, joint work with V. Guillaumot and S. Madanat
- C63. “Adaptive optimization of infrastructure maintenance and inspection decisions under performance model uncertainty”, 2003 Transportation Research Board 82nd Annual Meeting, Washington, DC, joint work with V. Guillaumot and S. Madanat
- C64. “Developing maintenance and repair policies without a deterioration model”, 2002 ASCE Conference on Applications of Advanced Technology in Transportation, Cambridge, MA
- C65. “Optimal Maintenance and Rehabilitation Policies for Infrastructure Networks under Model Uncertainty”, 2001 INFORMS, Miami, FL, joint work with S. Madanat
- C66. “Optimal Maintenance and Rehabilitation Policies for Infrastructure Networks under Model Uncertainty”, 2001 Second International Symposium on Transportation Infrastructure Management, Berkeley, CA, joint work with S. Madanat
- C67. “Reinforcement Learning in Infrastructure Management”, 2001 The Second Berkeley-Tottori Joint Seminar on Evolution Processes of Transportation Systems: Analysis and Policy Implications, Tottori, Japan

- C68. “Políticas Óptimas de Inventario para Sistemas de Instalaciones en Serie”, 2001 Primer Congreso Internacional de Ingeniería Industrial, San Luis Potosí, México
- C69. “Adaptive Control Models in Infrastructure Management”, 2001 Transportation Research Board 80th Annual Meeting, Washington, DC, joint work with S. Madanat
- C70. “Adaptive Control Models in Infrastructure Management Systems”, 2000 INFORMS, San Antonio, TX, joint work with S. Madanat
- C71. “Technology Adoption, Capacity Planning & Equipment Flexibility in Multi-Product Manufacturing Systems”, 2000 INFORMS, Salt Lake City, UT, joint work with C. Yano.

## TEACHING AND STUDENT GUIDANCE ACTIVITIES

### Courses Taught

#### CIVENV 205: ECONOMICS AND FINANCE FOR ENGINEERS

Fundamental concepts in economics and finance in the context of decisions that arise in contemporary planning and management of social and environmentally-relevant (civil) engineering systems. Typical enrollment: sophomores in industrial engineering and management sciences, and other undergraduate students from across the engineering school. Fall 2017 – present.

#### CIVENV 304: CIVIL AND ENVIRONMENTAL ENGINEERING SYSTEMS ANALYSIS

Introduction to operations research modeling techniques with applications to problems in civil and environmental engineering. Typical enrollment: juniors, seniors, MS and MPM students in Civil and Environmental Engineering. Spring 2003 – present.

#### CIVENV 483: INFRASTRUCTURE SYSTEMS ANALYSIS

Formulation and analysis of (sequential) optimization models with applications to management of civil infrastructure systems. Tools drawn from decision analysis, dynamic programming and game theory. Typical enrollment: MS and PhD students in the Transportation Program and in other engineering departments. Winter 2003 – present.

#### CIVENV 517: TRANSPORTATION ENGINEERING SEMINAR

Biweekly seminar in transportation engineering. Fall, Winter, Spring 2007 – 2013.

#### GENENG 195: ENGINEERING DIALOG

Seminar series for Northwestern’s undergraduate engineering honors program Fall, Winter, Spring 2014 – present.

#### GENENG 205-2 (EA 2): INTRODUCTION TO ENGINEERING MECHANICS – STATICS AND DYNAMICS

Linear algebra and introduction to vector methods in engineering analysis. Statics and dynamics of rigid bodies and matrix analysis of trusses and networks. Second in a sequence of engineering analysis courses required of all first year engineering students. Winter 2004 – 2010.

### Teaching Evaluations

The table presents the average scores for the CTEC question “Provide an overall rating of the instruction.” This question is assessed by students on a scale of 1 (low) to 6 (high).

Undergraduate				Graduate			
Course	Qtr/yr	Enrollment	CTEC	Course	Qtr/yr	Enrollment	CTEC
GENENG 205-2	Winter 04	28	5.18	CIVENV 483	Winter 03	6	4.80
GENENG 205-2	Winter 05	41	4.70	CIVENV 483	Winter 04	10	5.20
GENENG 205-2	Winter 06	72	4.77	CIVENV 483	Winter 05	5	4.20
GENENG 205-2	Winter 07	77	4.84	CIVENV 483	Winter 06	5	5.00
GENENG 205-2	Winter 08	76	4.68	CIVENV 483	Winter 07	6	5.40
GENENG 205-2	Winter 09	61	4.67	CIVENV 483	Winter 08	7	5.20
GENENG 205-2	Winter 10	80	4.70	CIVENV 483	Winter 09	10	5.67
CIVENV 304	Spring 03	7	5.33	CIVENV 483	Winter 10	10	5.78
CIVENV 304	Spring 04	9	5.50	CIVENV 483	Winter 11	12	5.30
CIVENV 304	Spring 05	16	5.58	CIVENV 483	Winter 12	14	5.40
CIVENV 304	Spring 06	15	5.40	CIVENV 483	Winter 13	10	5.88
CIVENV 304	Spring 07	20	4.55	CIVENV 483	Winter 14	20	5.35
CIVENV 304	Spring 08	20	5.00	CIVENV 483	Winter 15	20	5.22
CIVENV 304	Spring 09	26	5.22	CIVENV 483	Winter 17	15	5.50
CIVENV 304	Spring 10	33	4.54	CIVENV 483	Winter 18	16	5.81
CIVENV 304	Spring 12	35	4.84				
CIVENV 304	Spring 13	31	5.22				
CIVENV 304	Spring 14	37	4.75				
CIVENV 304	Spring 15	25	4.52				
CIVENV 304	Spring 17	28	5.18				
CIVENG 205	Fall 17	75	4.32				
CIVENG 205	Spring 18	123	4.38				

## Student Supervision

Madison Fitzpatrick, Ph.D. Civil and Environmental Engineering (December 2015)

Dissertation title: *Agent-Based Modeling of Mode Choice with Dynamic Attitudes and Social Influence*

Transportation Center Dissertation Year Fellowship, 2014-15.

Fellowship Recipient NSF Reach for the Stars, 2012-13, 2013-14.

Dwight D. Eisenhower Transportation Fellowship for Doctoral Studies, 2011, 2012, 2013.

Position after graduation: Consultant, Boston Consulting Group, Chicago, IL.

Yikai Chen, Ph.D. Civil and Environmental Engineering (September 2014)

Dissertation title: *A Statistical Health-monitoring Framework for Transportation Infrastructure*

Best Presentation Award, Ninth Annual Inter-university Symposium on Infrastructure Management, Berkeley, CA, 2013.

Transportation Center Dissertation Year Fellowship, 2011-12.

2012 Executive Leadership Program, International Road Federation.

Best Presentation Award, Eight Annual Inter-university Symposium on Infrastructure Management, Atlanta, GA, 2012.

Current Position: Senior Revenue Management Analyst, FedEx Services, Memphis, TN.

Weizeng Zhang, Ph.D. Civil and Environmental Engineering (August 2014)

Dissertation title: *Segmentation Modeling: Applications of Finite Mixture Regression Models in University Fundraising and Management of Transportation Infrastructure*

Transportation Center Dissertation Year Fellowship, 2013-14.



- Current position: Associate, McKinsey and Company, Chicago, IL.
- Ramón Torres, Ph.D. Civil and Environmental Engineering (May 2014)  
 Dissertation title: *Dynamic Segmentation Modeling: Application of Finite Mixture Models to Explain Giving Behavior of Donors in a University Setting*  
 Fellowship Recipient NSF Reach for the Stars, 2012-13.  
 Current position: Senior Data Scientist, Wayfair.com, Boston, MA.
- Zitao Zhang, Ph.D. Civil and Environmental Engineering (August 2011)  
 Dissertation title: *Analysis of Public-Private Partnerships in Transportation Infrastructure Investment and Management*.  
 Transportation Center Dissertation Year Fellowship, 2010-11.  
 Fellowship in Leadership, Northwestern Center for Leadership, 2010-11.  
 Scholarship Recipient Transportation Clubs International Scholarship, 2010 and 2011  
 Scholarship Recipient Institute of Transportation Engineers IL Scholarship, 2008  
 Scholarship Recipient American Society of Civil Engineers (ASCE) – Transportation Group, 2008  
 Hooper Memorial Scholarship in Transportation, 2008  
 Current position: Vice President, Zhen Fund, Beijing, China.  
 Position after graduation: Associate, Booz Allen Hamilton, Chicago, IL.
- Elaine Croft McKenzie, Ph.D. Civil and Environmental Engineering (August 2011)  
 Dissertation title: *An input-output framework for the inclusion of environmental impacts in the design of goods, systems, and services*.  
 Transportation Center Dissertation Year Fellowship, 2010-11.  
 McCormick School of Engineering and Applied Science Dissertation Year Fellowship, 2010-11.  
 Fellowship in Leadership, Northwestern Center for Leadership, 2010-11.  
 Dwight D. Eisenhower Transportation Fellowship for Doctoral Studies, 2007–2010.  
 Position after graduation: Senior Analyst, Cambridge Systematics, Chicago, IL.
- Pattharin Sarutipand, Ph.D. Civil and Environmental Engineering (June 2008)  
 Dissertation title: *An Optimization Framework for Management of Transportation Infrastructure Systems with Interdependent Facilities*.  
 Royal Thai Fellowship for Doctoral Studies, 2003–2008.  
 Young Author Prize, 11<sup>th</sup> World Congress on Transport Research, Berkeley, CA, 2007.  
 2008 Executive Leadership Program, International Road Federation.  
 Position after graduation: Civil Engineer, Bureau of Highway Maintenance Management, Department of Highways, Thailand.
- Chih-Yuan Chu, Ph.D. Civil and Environmental Engineering (April 2007)  
 Dissertation title: *Dynamic Performance Models for Transportation Infrastructure Management*.  
 Transportation Center Dissertation Year Fellowship, 2006-07.  
 Best Presentation Award, Second Annual Inter-university Symposium on Infrastructure Management, Newark, DE, 2006.  
 Current position: Associate Professor, Department of Civil Engineering, National Taiwan University, Taiwan.  
 Position after graduation: Assistant Professor, Department of Transportation Technology and Supply Chain Management, Kainan University, Taiwan.

- Hang Shu, Ph.D. Civil and Environmental Engineering (started 2014) Transportation Center  
Dissertation Year Fellowship, 2018-19.
- Jingyuan Bao, Ph.D. Civil and Environmental Engineering (started 2016)
- Marcos Martínez Gómez, Visiting Scholar (2016–2017)  
Home Institution: Universitat Politècnica de Catalunya  
Topic: *Environmental design of public transit systems*
- Zhening Cui, M.S. Civil and Environmental Engineering (2017)  
Report: *A set of lecture notes for Infrastructure Systems Analysis*
- Xuening Han, M.S. Information Technology (2016)  
Report: *Identifying factors contributing to the severity of transit accidents in Israel*
- Susheel Kumar Siram, M.S. Civil and Environmental Engineering (2015)  
Report: *Should we electrify our buses?*
- Mallory Trouvé, M.S. Civil and Environmental Engineering (2015)  
Report: *The benefits of autonomous vehicles*
- Matthew Beamer, M.S. Civil and Environmental Engineering (2015)  
Report: *Using a compound poisson regression to model latent relationships between transaction amount and frequency with an application to non-profit fundraising*
- Wenqiao Sun, M.S. Civil and Environmental Engineering (2015)  
Report: *Procurement involvement in early supplier involvement: A case study on Bombardier Transportation International Procurement Office*
- Suo Qiu, M.S. Civil and Environmental Engineering (2015)  
Report: *High-speed rail in the US*
- Matthew Pettit, M.S. Civil and Environmental Engineering (2014)  
Report: *Energy analysis of the CTAs Red and Purple Lines Modernization Project*
- Anamaria Torres, M.S. Civil and Environmental Engineering (2014)  
Report: *An evaluation of cost contributions for US 30 and US 34 grade separations after the Canadian National acquisition of the Elgin, Joliet & Eastern*
- Wangqi Ge, M.S. Civil and Environmental Engineering (2014)  
Report: *Public bicycle sharing system research in suburban area: Case study in Shanghai, China*
- Alexandre Vieira, M.S. Civil and Environmental Engineering (2013)  
Report: *Shortest path algorithm in stochastic, intermodal transportation systems: Application to shared bicycles networks*
- Yidan Luo, M.S. Civil and Environmental Engineering (2012)  
Report: *A framework for estimating emissions of freight transport operations*
- Weizeng Zhang, M.S. Civil and Environmental Engineering (2010)  
Report: *Application of the hidden Markov Model in prediction of pavement performance*
- Ramón Torres, M.S. Civil and Environmental Engineering (2010)  
Report: *The right to travel: Intersection with the right to privacy, a personal liberty*  
Supervised by Richard Sobel

- Jeremy Peyre, M.S. Civil and Environmental Engineering (2010)  
 Report: *Environmental life cycle assessment of the new railroad cars for Chicago's elevated train.*
- Marcelo Lascano, M.S. Civil and Environmental Engineering (2009)  
 Report: *The transportation systems of Buenos Aires, Chicago, and São Paulo: City centers, infrastructure and policy analysis.*  
 Fulbright Scholar, Fellow International Road Federation.
- Jean Goilav, M.S. Civil and Environmental Engineering (2009)  
 Report: *Implementation of personal rapid transit (PRT) systems: A viable design?*
- Vincent Bernardin, Jr., M.S. Civil and Environmental Engineering (2006)  
 Report: *Transportation asset management for local government agencies.*
- Naveen Tadepalli, M.S. Civil and Environmental Engineering (2004)  
 Report: *Using advanced inspection technologies to support investments in maintenance and repair of transportation infrastructure facilities.*  
 Scholarship Recipient – Urban Planning and Development Group, Illinois Section of ASCE, 2004
- Siva Surabathula, M.S. Civil and Environmental Engineering (2004)  
 Report: *Transportation contracting for supply-chain coordination.*
- Suzanne Childress, M.S. Industrial Engineering and Management Science (2003)  
 Report: *On parallel machine replacement problems with general cost functions and stochastic deterioration.*
- Katrin Chandra, B.S. Civil and Environmental Engineering (2020)  
 Project: *Environmental life-cycle assessment of residential construction*
- Molly McCormick, B.S. Civil and Environmental Engineering (2015)  
 Project: *Health monitoring of scour-prone bridges in California*
- Talha Merchant, B.S. Industrial Engineering and Management Science (2011)  
 Project: *CO<sub>2</sub> Emissions reporting*
- Brendan Higgins, B.S. Civil and Environmental Engineering (2009)  
 Project: *Evaluating and optimizing fuel surcharges.*
- Jim Spadaro, B.S. Electrical Engineering and Computer Science (2009)  
 Project: *A knowledge management platform for infrastructure performance modeling.*

#### **Ph.D. Committees**

Alec Biehl (TRN, exp. 2019), Fiorella Mete (MMS, 2018), Jie Yang (TRN, 2017), Mingyang Di (IEMS, 2016), Raymond Chan (TRN, 2015), Timothy Sweda (IEMS, 2014), Lan Jiang (TRN, 2013), David Kosnik (GEO, 2012), Emily R. Kushto (TRN, 2011), Marshall Lindsey (ChBE, 2010), Vincent Bernardin (TRN, 2008), Robert Lien (IEMS, 2008), Xiaojing Dong (TRN, 2006), Krishnan Kasturirangan (TRN, 2006), Bhuwan Agrawal (TRN, 2006), Gregory Coldren (TRN, 2005), Laurie Garrow (TRN, 2004)

### **M.S. Committees**

Zhixun Wang (TRN, 2018), Guillaume Hoareau (TRN, 2018), Judah Anolick (TRN, 2018), Yilun Yang (TRN, 2018), Hai Yang (TRN, 2017), Shihui He (TRN, 2017), Aymeric Punel (TRN, 2015), Hongyu Chen (TRN, 2014), Alexander Burkley (TRN, 2014), Adrien Baril (TRN, 2014), Monica Shei (TRN, 2014), Jeffrey Hanft (TRN, 2013), Cheng Gong (TRN, 2013), Ran Gao (TRN, 2013), Shuyu Chen (TRN, 2013), Peng Chen (TRN, 2013), Yunling Zhang (TRN, 2012), Dorine Duives (TRN, 2011), Sébastien Barraol (TRN, 2011), Son Dang (TRN, 2011), Raymond Chan (TRN, 2011), Charlotte Frei (TRN, 2011), Steven Seung-Cheol Oak (TRN, 2010), David Baumgartner (TRN, 2009), Hermann Orth (TRN, 2009), Alexis Roque (TRN, 2009), Russell Wight (TRN, 2008), David Franck (TRN, 2005), Heather Purdy (TRN, 2005), Julien Mure (TRN, 2005), Randy Herbstman (Structures, 2004), Brian Lee (TRN, 2003), Bhuwan Agrawal (TRN, 2003)

### **MPM Committees**

Yuan Shang (2017), Qing Wang (2017), Diana Wilczynski (2011), Cyril Sault (2011), María Hausen (2010), Benoit Rosala (2010), Chad Cochran (2010), Francois Zuccheri (2009), Eric Bouillerot (2009), Wei-Chieh Lin (2005), Antoine Robichon (2005), Carlos Anaya (2004), Han Pil Cho (2004), Hakan Tokis (2003)

## SERVICE ACTIVITIES

### **Department, School and University Service**

Department of Civil and Environmental Engineering

- Undergraduate Advisor, 2009–2015.
- Area Coordinator for the Transportation Engineering Program, 2005–2015.
- Director of Graduate Studies, 2007–2012.
- Civil and Environmental Engineering Faculty Advisory Committee, 2010–2012.
- Departmental Computing Committee, 2008–2009.
- Undergraduate Curriculum Committee, 2005–2007.
- Strategic Planning Committee for the Department of Civil and Environmental Engineering, 2004–2005.
- Steering Committee for Civil and Environmental Engineering Faculty Retreat, 2003.

Northwestern University Transportation Center

- Transportation Center Educational Committee, 2004–present.
- Dissertation Year Fellowship Committee, 2004–present.
- Coordinator for the Transportation Center’s Seminar Series, 2003–2008.

McCormick School of Engineering and Applied Science

- Director, Murphy Scholars Program, 2016–present.
- Academic Standing Committee, 2009–present.
- University Faculty Reappointment, Promotion and Tenure Denial Appeal Panel, 2012–2015.

- Faculty Search Committees:
  - Civil and Environmental Engineering (Transportation Systems), 2005–2006, 2011–2012, 2012–2013, 2013–2014.
  - Industrial Engineering and Management Sciences, 2010–2011.
- Freshmen Advisor, 2003–2009.
- Working group, Murphy Institute, 2006–2007.

#### Northwestern University

- Fulbright Faculty Advisor, 2011–present.
- Executive Committee, University Faculty Appeals Panel, 2014–2016.
- Fellow of Shepard Residential College, 2015–2016.
- Investigation Committee, Office of Research Integrity, 2011–2012.
- Science and Engineering Committee on Multicultural Affairs (SECMA), 2007–2008.

#### Professional Affiliations & Service

- Promotion and tenure reviews of faculty at other universities 2
- Illinois Center for Transportations (ICT) representative on the ICTs *Planning* Technical Advisory Group, 2015–2017
- National Research Council’s Transportation Research Board  
Committee for Review of the Federal Transit Administration’s Transit Economic Requirements Model, 2012–2013
- Senior Specialist Program, J. William Fulbright Commission, 2007–2012
- Industry Studies Program, Alfred P. Sloan Foundation (invited in 2007)
- Institute for Operations Research and the Management Sciences (INFORMS)  
Member, 2002–present  
Chair, 2010–2012, Vice-Chair, 2008–2010  
Urban Transportation Planning and Management Special Interest Group  
Transportation Science and Logistics Society (TSL)
- American Society of Civil Engineers (ASCE)  
Associate Member, 2008–present
- World Congress on Transport Research (WCTR) Society  
Special Interest Group 5 – Transportation Infrastructure Systems
- Transportation Research Board (TRB)  
Member Network Modeling Committee (ADB 30), 2006–2009  
Young Member Network Modeling Committee (ADB 30), 2003–2006  
Member of Subcommittee on Latin American Activities (A0010-1), 2005–present
- Grant proposal reviewer:  
National Science Foundation (2006, 2007, 2009, 2011, 2012, 2016, 2017)  
University of Illinois Critical Infrastructure Resilience Institute (2016)  
University of California Center on Economic Competitiveness in Transportation (2015)  
National Center for Sustainable Transportation (2015)

Department of Homeland Security Science and Technology Directorate: Critical Infrastructure Resilience Center of Excellence Program (2014)

University of California Transportation Center (2003, 2012, 2013)

Netherlands Organization for Scientific Research: ExploRail Program (2012)

Swiss National Science Foundation: Review of Centres of Excellence (2012)

NEXTRANS Regional University Transportation Center (2007, 2008, 2011)

South African National Research Foundation (2008)

Oregon Transportation Research and Education Consortium (2007)

National Center for Metropolitan Transportation Research (2006)

- Fellowship/Scholarship application reviewer:  
UC Davis University Transportation Center (2006)
- Consulting  
CIACSECON, S.A. Consultora Científica, 2013 – Formulated strategic plan for the Ecuadorean National Institute for Transportation Research  
Norbridge, Inc., 2009

### Editorial Service

- Journal of Infrastructure Systems  
Associate Editor, 2003–Present  
Editorial Board, 2002–Present  
Guest Editor for Special Issue on Transportation Infrastructure Planning, Management, and Finance, 2009–2010
- European Journal of Transportation and Logistics (EJTL)  
Guest Editor for Special Issue on Transportation Infrastructure Management, 2013–2015
- Served as Referee for the following journals:  
*Computer-Aided Civil and Infrastructure Engineering*  
*Environmental Science and Technology*  
*IEEE Transactions on Automation Science and Engineering*  
*International Journal of Sustainable Transportation*  
*Journal of Bridge Engineering*  
*Journal of Infrastructure Systems*  
*Journal of Transportation Engineering*  
*Operations Research*  
*Public Works Management and Policy*  
*The Engineering Economist*  
*The International Journal of Pavement Engineering*  
*Transportation Letters*  
*Transportation Research Parts A, B, C, D, E*  
*Transportation Research Record (Journal of the Transportation Research Board)*  
*Transportation Science*  
*Transportmetrica Part A*
- Served as Reviewer for the following conferences:  
*Transportation Research Board Annual Meetings, Washington, DC 2004–2011, 2015, 2016, 2018*  
*World Congress on Transportation Research, 2007, 2010, 2013*  
*International Symposium on Transportation and Traffic Theory (ISTTT), 2011, 2017*

*Tenth ASCE Conference on Applications of Advanced Technology in Transportation, Athens, Greece, 2008*  
*Eleventh World Congress on Transportation Research, Berkeley, CA, 2007*  
*Tenth International Conference on Applications of Statistics and Probability in Civil Engineering, Tokyo, Japan, 2007*  
*IEEE Control Systems Society Conference, New York, NY, 2007*  
*Sixth International Conference on Managing Pavements, Brisbane, Australia, 2004*  
*IEEE Conference on Decision and Control, Maui, HI, 2003*  
*Ninth International Conference on Applications of Statistics and Probability in Civil Engineering, San Francisco, CA, 2003*  
*Seventh ASCE Conference on Applications of Advanced Technology in Transportation, Cambridge, MA, 2002*

### **Event Organization**

- Organizing Committee, 22nd International Symposium on Transportation and Traffic Theory (ISTTT), Evanston, IL, 2017
- International Organizing Committee, International Symposium on Infrastructure Asset Management (SIAM), Kyoto, Japan, 2016
- Co-Chair (with Y. Chen), Seventh Annual Inter-university Symposium on Infrastructure Management (AISIM7), Evanston, IL, 2011
- Session Co-Chair (with K. Smilowitz)  
Interactive Sessions (2 sessions with 104 presentations)  
2008 INFORMS Annual Meeting, Washington, DC
- Cluster Chair  
Transportation Science and Logistics Sessions (44 sessions with 159 presentations)  
2005 INFORMS Annual Meeting, San Francisco, CA
- Chair Infrastructure Management Sessions  
2003–2006, 2012 INFORMS Annual Meetings