

Michael Maness

Curriculum Vitae

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michaelmaness.com

Research Interests

Advanced Discrete Choice Modeling – Methodology, Social Networks, Alternative Behavioral Mechanisms
Agent-Based Modeling of People, Freight, and Companies in Urban and Regional Systems
The Role of Social Networks and Social Interactions in Decision Making
Forecasting Emerging Technology in Transport – Autonomous Vehicles, Shared Mobility, Electric Vehicles
Data Collection and Experimentation in Transportation – Social Media, Smartphones, Stated Preference

Professional Experience

2017-Present *Postdoctoral Research Fellow*, Department of Civil and Environmental Engineering,
University of South Florida (Tampa, FL)
2017-Present *Adjunct Instructor*, Department of Civil and Environmental Engineering, University of
South Florida (Tampa, FL)
2015-2016 *Postdoctoral Research Associate*, Center for Transportation Analysis, Oak Ridge National
Laboratory (Knoxville, TN)
2015 *Visiting Researcher*, Centre for Choice Modelling and Institute for Transport Studies,
University of Leeds (Leeds, UK)
2014-2015 *Graduate Research Assistant*, Department of Civil and Environmental Engineering,
University of Maryland (College Park, MD)
2013-2014 *Graduate Research Fellow*, Office of Operations Research & Development, Federal
Highway Administration, Turner-Fairbank Highway Research Center (McLean, VA)
2011-2013 *Graduate Research Assistant*, Department of Civil and Environmental Engineering,
University of Maryland (College Park, MD)

Education

2015 **University of Maryland, College Park.** Ph.D. Civil Engineering
Dissertation – *Choice Modeling Perspectives on Social Networks, Social Influence,
and Social Capital in Activity and Travel Behavior*
2010 **University of Maryland, College Park.** M.S. Civil Engineering
Thesis – *Modeling Vehicle Ownership Decisions in Maryland: A Preliminary Stated
Preference Survey and Model*
2009 **University of Maryland, College Park.** B.S. Civil Engineering
2009 **University of Maryland, College Park.** B.S. Computer Science

Peer Reviewed Journal Articles

1. H. Aziz, H. Park, A. Morton, R. Stewart, M. Hilliard, and M. Maness (forthcoming). A High Resolution Agent-based Model to Support Walk-Bicycle Infrastructure Investment Decisions: A Case Study with New York City. *Transportation Research Part C: Emerging Technologies*.
2. M. Maness (2017). A Theory of Strong Ties, Weak Ties, and Activity Behavior: Leisure Activity Variety and Frequency. *Transportation Research Record: Journal of the Transportation Research Board*, 2665, 30-39.
3. C. Cirillo, Y. Liu, and M. Maness (2017). A Time-dependent Stated Preference Approach to Measuring Vehicle Type Preferences and Market Elasticity of Conventional and Green Vehicles. *Transportation Research Part A: Policy and Practice*, 100, 294-310.
4. C. Calastri, S. Hess, A. Daly, M. Maness, M. Kowald, and K. Axhausen (2017). Modelling Contact Mode and Frequency of Interactions with Social Network Members Using the Multiple Discrete-continuous Extreme Value Model. *Transportation Research Part C: Emerging Technologies*, 76, 16-34.

5. M. Maness and C. Cirillo (2016). An Indirect Informational Conformity Social Influence Choice Model: Formulation and Case Study. *Transportation Research Part B: Methodological*, 93, 75-101.
6. M. Maness, C. Cirillo, and E. Dugundji (2015). Generalized Behavioral Framework for Choice Models of Social Influence: Behavioral and Data Concerns in Travel Behavior. *Journal of Transport Geography*, 46, 137-150.
7. X. Jiang, J. Bared, M. Maness, and D. Hale (2015). Traffic Performance Analysis of Dynamic Merge Control Using Micro-simulation. *Transportation Research Record: Journal of the Transportation Research Board*, 2484, 23-30.
8. C. Cirillo, M. Maness, and N. Serulle (2014). Measuring Value of Travel Time in the Presence of Managed Lanes: Results from a Pilot Stated Preference Survey on the Capital Beltway. *Transportation Letters*, 6(1), 23-35.
9. M. Maness and C. Cirillo (2012). Measuring Future Vehicle Preferences: Stated Preference Survey Approach with Dynamic Attributes and Multiyear Time Frame. *Transportation Research Record: Journal of the Transportation Research Board*, 2285, 100-109.

Research Project Grants

- 2017-2018 *Investigation of the role of attitudinal factors on adoption of emerging automated vehicle and vehicle safety technologies*, Funded by Center for Teaching Old Models New Tricks (A USDOT Tier 1 University Transportation Center), Co-PI (PI Fred Mannering) [\$220,000]

Other Grants and Fellowships

- 2014-2015 *Future Faculty Fellowship*, University of Maryland [\$3,000]
 2013-2014 *Eisenhower Grants for Research Fellowships*, Federal Highway Administration [\$60,000]
 2012 *International Conference Student Support Award*, University of Maryland [\$500]
 2010-2012 *Eisenhower Transportation Fellowship*, Federal Highway Administration [\$43,500]
 2009-2010 *Bridge to the Doctorate Fellowship*, National Science Foundation and University of Maryland [\$40,000]

Honors and Awards

- 2017-Present *Member of Traveler Behavior and Values Committee*, Transportation Research Board
 Serving a three-year appointment where responsible for reviewing papers, participating in committee meetings, and chairing sessions at conferences
- 2017 *2015 Eric Pas Dissertation Prize*, International Association for Travel Behaviour Research
 Prize recognizes the best doctoral dissertation in travel behavior research that was defended and accepted for a Ph.D. degree in 2015
- 2015 *Outstanding Student of the Year*, University Transportation Centers Program
 US Department of Transportation award to honor students based on research, academic, and leadership merit (representing Center for Advanced Transportation Technology)
- 2013 *Best Oral Presentation in Urban Studies*, University of Maryland
 University-wide research conference (Graduate Research Interaction Day) for graduate students
- 2004-2008 *Banneker-Key Scholarship*, University of Maryland
 University of Maryland's most prestigious merit scholarship, awarded full scholarship

Conference Presentations (* presenter)

- 2017 M. Maness*. A Theory of Strong Ties, Weak Ties, and Activity Behavior: Leisure Activity Variety and Frequency. Proceedings from the *2017 Annual Meeting of the Transportation Research Board*, Washington, DC. [Talk]
- 2017 C. Calastri*, S. Hess, A. Daly, M. Maness, M. Kowald, and K. Axhausen. Modelling Contact Mode and Frequency of Interactions with Social Network Members Using the Multiple Discrete-continuous Extreme Value Model. Presentation at the *2016 Annual Meeting of the Transportation Research Board*, Washington, DC. [Poster]

- 2016 M. Maness* and C. Liu. Social Adoption of Plug-in Electric Vehicles: A Review of Modeling and Policy Implications. Presentation at the *2016 Behavior, Energy, and Climate Change Conference*, Baltimore, MD. [Talk]
- 2016 M. Maness*. Social Influence Choice Modelling of Travel Behavior: The Policy Implications of Differentiating Social Effects and Possible Pathways to Accomplish Differentiation. Presentation at the *5th Symposium of the European Association for Research in Transportation*, Delft, Netherlands. [Talk]
- 2016 C. Calastri*, S. Hess, A. Daly, M. Maness, M. Kowald, and K. Axhausen. Modelling Contact Mode and Frequency of Interactions with Social Network Members Using the Multiple Discrete-continuous Extreme Value Model. Presentation at the *5th Symposium of the European Association for Research in Transportation*, Delft, Netherlands. [Talk]
- 2016 M. Maness*. Forecasting Demand for Electric Bicycles and Their Sustainability Impacts: Case Study for a University Campus. Presentation at the *Transportation Research Board Committees on Resource Conservation & Recovery and Geo-Environmental Processes 2016 Summer Workshop*, Asheville, NC. [Talk]
- 2016 M. Maness*. Choice Modeling Perspectives on Social Networks, Social Influence, and Social Capital in Activity and Travel Behavior. Presentation at the *2016 Annual Meeting of the Transportation Research Board*, Washington, DC. [Talk]
- 2015 M. Maness*. Comparison of Position Generators and Name Generators as Social Capital Indicators in Modeling Activity Selection. Presentation at *Frontiers in Transportation 2015: An Update on Social Networks and Travel*, London, UK. [Talk]
- 2015 M. Maness* and C. Cirillo. Incorporating Heterogeneous Social Influence Motivations in Choice Models: A Formulation and Case Study. Presentation at the *14th International Conference on Travel Behaviour Research*, London, UK. [Talk]
- 2015 X. Jiang*, Q. Gan, J. Bared, M. Maness*, and D. Hale. Traffic Performance Analysis of Dynamic Merge Control Using Micro-simulation. Proceedings from the *2015 Annual Meeting of the Transportation Research Board*, Washington, DC. [Poster]
- 2014 M. Maness*. Measurement Error Bias from Social Network Data used in Discrete Choice Models. Presentation at the *3rd Symposium of the European Association for Research in Transportation*, Leeds, UK. [Talk]
- 2012 C. Cirillo and M. Maness*. A Dynamic Stated Preference Survey and Modeling Approach for Future Vehicle Preference, Presentation at the *2012 International Association for Travel Behavior Research Conference*, Toronto, Canada. [Talk]
- 2012 M. Maness* and C. Cirillo. Measuring and Modeling Future Vehicle Preferences: A Preliminary Stated-Preference Survey in Maryland. Proceedings from the *2012 Annual Meeting of the Transportation Research Board*, Washington, DC. [Poster]
- 2012 M. Maness*. Bicycle Ownership in the United States: Empirical Analysis of Regional Differences. Proceedings from the *2012 Annual Meeting of the Transportation Research Board*, Washington, DC. [Poster]
- 2011 M. Maness* and C. Cirillo. Future Vehicle Preferences: Lessons from a SP Survey. Presentation at the *2011 Behavior, Energy, and Climate Change Conference*, Washington, DC. [Poster]
- 2011 C. Cirillo* and M. Maness. Estimating Demand for New Technology Vehicles. Proceedings from the *European Transport Conference 2011*, Glasgow, Scotland. [Talk]
- 2010 M. Maness* and C. Cirillo. A Modeling Framework for Vehicle Ownership Decisions in Maryland. Presentation at the *First International Symposium on Advances in Transport Sustainability*, Tempe, AZ. [Talk]

Invited Talks

- 2017 M. Maness. Incorporating Social Interactions in Activity and Travel Behavior Models: New Directions in Social Capital and Social Influence. University of South Florida, Tampa, FL.

- 2016 M. Maness. Behavioral Realism in Transportation: Dynamic Vehicle Markets and Providing Free Charging Infrastructure. National Renewable Energy Laboratory, Golden, CO.
- 2015 M. Maness. Choice Modelling Perspectives on Social Influence in Travel Behaviour – A Behavioural Review with Future Research Directions. *Centre for Transport Studies Seminar Series*. Imperial College London, London, UK.
- 2015 M. Maness. Incorporating Social Networks into Choice Models of Social Interaction – Behavioural and Data Perspectives. University of Leeds, Leeds, UK.
- 2015 M. Maness. Choice Modeling Perspectives on Social Networks, Social Influence, and Social Capital in Activity and Travel Behavior. Oak Ridge National Laboratory, Knoxville, TN.
- 2014 M. Maness. Application of the Active Traffic and Demand Management Analysis Framework to Virginia’s I-66 Active Traffic Management Project. *TFHRC Brown Bag Lunchtime Technical Presentation Program*. Turner-Fairbank Highway Research Center, McLean, VA.
- 2013 M. Maness. Transportation Considerations. *Exploring the Adolescent Need for Sleep*. Start School Later, Montgomery College, Rockville, MD.

Research Project Experience

- 2017-Present *Postdoctoral Research Fellow*, University of South Florida (Tampa, FL)
- Investigation of the role of attitudinal factors on adoption of emerging automated vehicle and vehicle safety technologies (*autonomous vehicles, attitudes, latent variable discrete choice models, survey design, social network analysis*)
- 2015-2016 *Postdoctoral Research Associate*, Oak Ridge National Laboratory (Knoxville, TN)
- A National Model of the Adoption of Personal Connected and Autonomous Vehicle and Ridesharing (*autonomous vehicles, ridesharing, vehicle ownership*)
 - A Free Public Charging Policy: An Exploratory Analysis (*vehicle ownership, behavioral economics, travel behavior analysis, policy analysis*)
 - Social and Neighborhood Effects in the Adoption of New Vehicle Technology (*agent-based modeling, social network analysis*)
 - A High-Performance, Data-Driven Simulator of the American Population for Modeling Urban Dynamics (*agent-based modeling, travel demand, non-motorized transport*)
 - US Job Impacts of Battery Investment Strategies for Plug-in Electric Vehicles (*simulation, vehicle ownership, policy analysis*)
- 2015 *Visiting Researcher*, University of Leeds (Leeds, UK)
- Role of Social Networks and Societal Influences on Transport, Activity, and Household Energy Behavior (*activity diary, social network analysis, smartphone app*)
 - Joint Modeling of Communication Mode and Frequency using Egocentric Social Network Data (*social network analysis, ICT, discrete-continuous modeling*)
- 2014-2015 *Graduate Research Assistant*, University of Maryland (College Park, MD)
- Dynamic Choice Models for Challenging Societies with an Application to Car Ownership Decisions (*data analysis, long-term & short term elasticity*)
 - Dissertation – Choice Modeling Perspectives on Social Interactions (*nonlinear optimization, social network analysis, Bayesian inference, simulation*)
- 2013-2014 *Graduate Research Fellow*, Turner-Fairbank Highway Research Center (McLean, VA)
- Analyzing Active Traffic Management Systems: Application to I-66 in Virginia (*data analytics, data fusion, traffic operations analysis, cost-benefit analysis*)
 - Development of Dynamic Merge Control Guidelines (*traffic simulation*)
 - Dynamic Speed Harmonization through Vehicle-to-Infrastructure Communications Field Experiment (*data collection, connected vehicles technology*)
 - Calibrating Models of Car-Following Behavior in Work Zones (*data analysis*)

- 2011-2013 *Graduate Research Assistant*, University of Maryland (College Park, MD)
- Dynamic Choice Models for Challenging Societies with an Application to Car Ownership Decisions (*dynamic adaptive stated preference survey design*)
 - Departure Time Choice Model in the Presence of Time-of-Day Toll Pricing (*stated preference survey design, semi-parametric discrete choice model, managed lanes*)
 - Estimating Drivers' Willingness to Pay for HOT Lanes on I-495 in Maryland (*stated preference survey design, value-of-time study, managed lanes*)
- 2009-2011 *Graduate Student (independently funded)*, University of Maryland (College Park, MD)
- Integrating Vehicle Ownership Decisions into the Maryland Statewide Transportation Model (*stated preference survey design, vehicle ownership, alternative fuels, taxation*)

Teaching Experience

- 2017 *Instructor*, Travel Demand Modeling (Graduate)
Developing a three credit course on the methodology and application of regression and discrete choice methods in models of travel demand forecasting
- 2017 *Guest Lecturer*, Survey Methods in Transportation (Graduate)
Taught two lectures on stated preference surveys and experimental design
- 2016 *Guest Lecturer*, Advanced Transportation Demand Modeling (Graduate)
Taught a lecture on social networks and travel demand modeling
- 2014, 2013 *Teaching Assistant*, Transportation Engineering & Planning (Undergraduate)
Graded assignments and exams; wrote exams; aided students at office hours
- 2012 *Teaching Assistant*, Highway Engineering (Undergraduate)
Prepared and taught an 8-lecture sequence about traffic control devices and intersection design; conducted weekly lab sessions on traffic engineering software; designed exams
- 2012 *Guest Lecturer*, Computational Methods for Transportation Demand Analysis (Graduate)
Designed and taught a 3-lecture sequence on discrete choice models of social influence
- 2011 *Guest Lecturer*, Survey Methods in Transportation (Graduate)
Designed and taught a 4-lecture sequence about web-based survey design; designed the class' final project; critiqued project presentations and reports
- 2006 *Teaching Fellow*, Introduction to Engineering Design (Undergraduate)
Graded assignments, aided students during lab sessions

Other Relevant Experience

- 2010-2012 *Lead Developer*, JULIE (<https://github.com/mmaness/JULIE>)
Started an open-source software framework for designing stated preference web-based surveys and computer-assisted interviews; actively developed new features and bug fixes; wrote documentation and provided a publicly available codebase

Professional Service

Peer Review

Transportation Research Record
 Transportation Research Board Annual Meeting
 International Conference on Travel Behaviour Research
 Journal of Transportation Engineering
 Journal of Transport Geography
 Research in Transportation Economics
 International Journal of Sustainable Transportation
 Journal of Choice Modelling

Volunteer Work for Organizations

Member, Traveler Behavior and Values Committee, Transportation Research Board
Member, Subcommittee on Behavioral Processes: Qualitative and Quantitative Methods, Transportation Research Board

Conference Session Chair

2015 International Conference on Travel Behaviour Research
5th Symposium of the European Association for Research in Transportation

University Service

2013-2014 *Member*, University Senate Elections, Representation, & Governance Committee
2013 *Member*, Department of Civil & Environmental Engineering Chair Search Committee
2011-2012 *Graduate Student Representative*, University of Maryland Facilities Advisory Committee

Extracurricular University Service

2014-2015 *Secretary*, UMD ITE-ITS America Student Chapter
2013-2015 *President*, Civil & Environmental Engineering Graduate Student Council
2012-2013 *Vice-President*, Civil & Environmental Engineering Graduate Student Council
2011-2012 *Graduate Student Affairs Committee Co-Chair*, Graduate Student Government (GSG)