

## Feng Guo, Ph.D.

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Department of Statistics, Virginia Tech  
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### EDUCATION

#### **Ph.D in Statistics**

University of Connecticut, Storrs, CT, 2007

Dissertation title: Modelling Genetic Data using Bayesian Hierarchical Models

#### **Ph.D in Transportation Engineering**

University of Connecticut, Storrs, CT, 2010

Dissertation title: Nationwide Freight Generation Models

#### **M.S. Transportation Economics and Management**

Tongji University, Shanghai, China, 2000

#### **B.S. Highway and Traffic Engineering**

Tongji University, Shanghai, China, 1995

### RESEARCH INTERESTS

- Transportation statistics
- Bayesian hierarchical models
- Traffic safety modeling
- Spatial statistics
- Statistical epidemiology

### PROFESSIONAL EXPERIENCE

**Associate Professor**, Department of Statistics, Virginia Tech, Virginia Tech Transportation Institute, Blacksburg, 2013-Current

**Assistant Professor**, Department of Statistics, Virginia Tech, Virginia Tech Transportation Institute, Blacksburg, 2007-2013

### HONORS AND AWARD

- ◆ 2015 Taylor Technical Talent Award, “Impact of Roadway Lighting on Crash Safety” Ronald Gibbons, Feng Guo, Alejandra Medina, Travis Terry, Jianhe Du, Paul Lutkevich, Qing Li
- ◆ 2014 Best Poster Award: “Senior Fitness-to-Drive Evaluation using Naturalistic Driving Study Data”, Feng Guo, Youija Fang, Jonathan Antin, The Fourth International Symposium on Naturalistic Driving Study
- ◆ 2014 Top 15 Most Read Article, *New England Journal of Medicine*
- ◆ 2014 58th “Most Talked About” Study, Altmetric.com
- ◆ Section on Bayesian Statistical Science best student paper award, Joint Statistical Meeting, Salt Lake City, 2007
- ◆ Gottfried Noether Award, University of Connecticut, January 2004

- ◆ Graduate Predoctoral Fellowship, University of Connecticut, 2004

**PROFESSIONAL SERVICES:**

- ◆ Co-Chair, Data Analysis Committee. SAE Crash Data Collection and Analysis
- ◆ Vice-Chair, Transportation Statistics Interest group of American Statistical Association.
- ◆ Member of the Transportation Research Board Committee on Statistical Methods, (ABJ80)
- ◆ Member of the Transportation Research Board Committee on Safety Data, Analysis, and Evaluation (ANB20)
- ◆ National Academy of Sciences Panel Study on Research Methodologies and Statistical Approaches to Understanding Driver Fatigue Factors in Motor Carrier Safety and Driver Health.
- ◆ Member of the Transportation Research Board Subcommittee on Traffic Surrogate Measures

**PUBLICATIONS: PEER REVIEWED JOURNALS**

1. **Guo, Feng**, Youjia Fang and Jonathan F. Antin. "Older Driver Fitness-to-Drive Evaluation Using Naturalistic Driving Data." *Journal of Safety Research* 54, (2015): 49.e29-54.
2. Simons-Morton, Bruce G., Sheila G. Klauer, Marie Claude Ouimet, **Feng Guo**, Paul S. Albert, Suzanne E. Lee, Johnathon P. Ehsani, Anuj K. Pradhan and Thomas A. Dingus. "Naturalistic Teenage Driving Study: Findings and Lessons Learned." *Journal of Safety Research* 54, (2015): 41.e29-44.
3. Zhu, H. H., Q. Chen, J. W. Ju, Z. G. Yan, **F. Guo**, Y. Q. Wang, Z. W. Jiang, S. Zhou and B. Wu. "Maximum Entropy-Based Stochastic Micromechanical Model for a Two-Phase Composite Considering the Inter-Particle Interaction Effect." *Acta Mechanica* 226, no. 9 (2015): 3069-3084.
4. Gibbons, Ronald B., **Feng Guo**, Alejandra Medina, Jianhe Du, Travis Terry, Paul Lutkevich and Qing Li. "Approaches to Adaptive Lighting on Roadways." *Transportation Research Record: Journal of the Transportation Research Board* 2485, (2015): 26-32.
5. Farmer, Charles M., Sheila G. Klauer, Julie A. McClafferty and **Feng Guo**. "Relationship of near-Crash/Crash Risk to Time Spent on a Cell Phone While Driving." *Traffic Injury Prevention* 16, no. 8 (2015): 792-800.
6. Hickman, J.S., Guo, F., Camden, M.C., Hanowski, R.J., Medina, A., & Mabry, J.E. (2015). Efficacy of roll stability control and lane departure warning systems using carrier-collected data. *Journal of Safety Research*, 52, 59-63.

7. Greg Fitch, Rich Hanowski, **Feng Guo**, (2015) The Risk of a Safety-Critical Event Associated with Mobile Device Use in Specific Driving Contexts, *Traffic Injury Prevention*,;16(2):124-32
8. Chen, Q., Zhu, H. H., Ju, J. W., **Guo, F.**, Wang, L. B., Yan, Z. G., Zhou, S. (2014). A stochastic micromechanical model for multiphase composites containing spherical inhomogeneities, *Acta Mechanica*, 1-20.
9. **Feng Guo** and Lisa Aultman-Hal(2014), “A Zone Design Methodology for National Freight Origin-Destination Data and Transportation Modeling”, Accepted, *Transportation Planning and Technology*. V. 37, Issue 8, pp738-756.
10. Marie Claude Ouimet, Thomas G. Brown, **Feng Guo**, Sheila G. Klauer Bruce G. Simons-Morton, Youjia Fang, Suzanne E. Lee, Christina Gianoulakis, Thomas A. Dingus(2014)., Higher crash and near-crash rates in teenage drivers with lower cortisol response: an 18-month longitudinal, naturalistic study, *Journal of American Medical Association: Pediatrics*, **168**(6): 517-522
11. Bruce G. Simons-Morton, **Feng Guo**, Sheila G. Klauer, Johnathon P. Ehsani, Anuj K. Pradhan (2014), Keep Your Eyes on the Road: Young Driver Crash Risk Increases According to Duration of Distraction, *Journal of Adolescent Health*, 54(5):S61–S67.
12. Sheila G Klauer, **Feng Guo**, Bruce G Simons-Morton (2014), Distracted driving and crash risk. *New England Journal of Medicine* 370(16):1565-6.
13. Sheila G. Klauer\*, **Feng Guo\***, Bruce G. Simons-Morton, Marie Claude Ouimet, Suzie E. Lee, and Tom A. Dingus (2014), “The Prevalence and Risk of Cell Phone and Other Secondary Tasks as Observed in Crashes and Near-Crashes with Novice and Experienced Drivers”, *The New England Journal of Medicine*, 370: 54-59.

**\*Equally contributed authors**

**Rank 58 of all academic papers that received the most attention in 2014 with 72 media reports (according to Almetric)**

14. **Feng Guo**, Bruce G. Simons-Morton, Sheila E. Klauer, Marie Claude Ouimet, Thomas A. Dingus, and Suzanne E. Lee, “Variability in Crash and Near-Crash Risk among Novice Teenage Drivers: A Naturalistic Study” (2013), the *Journal of Pediatrics*, 163(6): 1670-1676.
15. **Feng Guo** and Youjia Fang (2013), “Individual Driver Risk Assessment Using Naturalistic Driving Data”, *Accident Analysis and Prevention*, **61**(0): 3-9.
16. Soccolich, Susan A., Myra Blanco, Richard J. Hanowski, Rebecca L. Olson, Justin F. Morgan, **Feng Guo**, and Shih-Ching Wu (2013) "An Analysis of Driving and Working Hour on Commercial Motor Vehicle Driver Safety Using Naturalistic Data Collection." *Accident Analysis & Prevention*, 58:249-58.
17. **Guo, Feng**, Qing Li, and Hesham Rakha. "Multistate Travel Time Reliability Models with Skewed Component Distributions." *Transportation Research Record: Journal of the Transportation Research Board* 2315, no. -1 (2012): 47-53.

18. Bruce G Simons-Morton, Kyeongni Cheong, **Feng Guo**, Paul Albert (2012). Trajectories of Kinematic Risky Driving Among Novice Teenagers. *Accident Analysis & Prevention*, 51C:27-32,
19. Hickman, J.S., **Guo, F.**, Hanowski, R.J., Bishop, R., Bergoffen, G., & D. Murray. (2012). Safety benefits of speed limiters in commercial motor vehicles using carrier-collected crash data. *Journal of Intelligent Transportation Systems*, 16(4), 177-183.
20. Jonathan F. Antin, Thurmon E. Lockhart, Laura M. Stanley, **Feng Guo** (2012), "Comparing the impairment profiles of older drivers and non-drivers: toward the development of a fitness-to-drive model". *Safety Science* vol. 50, pp 333-341.
21. Yan Jiao, Enric Cortés, Kate Andrews, and **Feng Guo** (2011), "Poor-data and data-poor species stock assessment using a Bayesian hierarchical approach", *Ecological Applications* 21(7), pp 2691-2708.
22. David C. Novak, Christopher Hodgdon, **Feng Guo**, and Lisa Aultman-Hall (2011), "Nationwide Freight Generation Models: A Spatial Approach", *Networks and Spatial Economics*. Vol.11 pp. 23-41.
23. **Feng Guo**, Hesham Rakha, Sangjun Park (2010) "A Multi-State Travel Time Reliability Model", *Transportation Research Record: Journal of the Transportation Research Board*. Vol. 2188, pp 46-54.
24. Sangjun Park, Hesham Rakha, **Feng Guo** (2010), "Multi-state Travel Time Reliability Model: Model Calibration Issues", *Transportation Research Record: Journal of the Transportation Research Board*. Vol. 2188, pp 74-84.
25. **Feng Guo**, Sheila G. Klauer, Jonathan M. Hankey, Tomas A. Dingus (2010), "Near-Crashes as Crash Surrogate for Naturalistic Driving Studies" the *Transportation Research Record: Journal of the Transportation Research Board*. Vol 2147, pp 66-74.
26. **Feng Guo**, Xuesong Wang, and Mohamed A. Abdel-Aty (2010), "Modeling Signalized Intersection Safety with Corridor Level Spatial Correlations", *Accident Analysis and Prevention*. 42(1), pp 84-92.
27. **Feng Guo**, Dipak Dey, and Kent Holsinger (2009), "A Bayesian Hierarchical Model for Analysis of Single-Nucleotide Polymorphisms Diversity in Multilocus, Multipopulation Samples", *Journal of the American Statistical Association*. Vol. 104, No. 485, pp. 142-154
28. Darren Scott, David Novak, Lisa Aultman-Hall, and **Feng Guo** (2006), "Network Robustness Index: A New Method for Identifying Critical Links and Evaluating the Performance of Transportation Networks", *Journal of Transportation Geography*, Vol 14 No. 3, pp. 215-227.

#### **BOOK CHAPTERS**

1. Hesham Rakha, Mazen Arafeh, Abdo Abdel-Salam, **Feng Guo**, and Alejandra M. Flintsch (2008), "Linear Regression Crash Prediction Models: Issues and Proposed

Solutions,” *Efficient Transportation and Pavement Systems: Characterization, Mechanisms, Simulation and Modeling* (Editors: Al-Qadi, Sayed, Alnuaimi, and Masad), Taylor and Francis, ISBN: 978-0-415-48979-9, pp. 241-256.

2. **Feng Guo**, Dipak Dey, and Kent Holsinger (2008), “A Hierarchical Bayesian Approach for Estimating Origin of a Mixed Population”, in *IMS Collections, Volume 3, Pushing the Limits of Contemporary Statistics: Contributions in Honor of Jayanta K. Ghosh*", pp 237-250.
3. Yang, S., Wang, W., and **Guo, F.** (2008) Effective Freeway Incident Response: A Bayesian Network Based Algorithm. *Transportation and Development Innovative Best Practices 2008*: pp. 344-349.

### **PEER REVIEWED CONFERENCE PROCEEDINGS (FULL PAPERS)**

*Please note that the Transportation Research Board meeting is the most influential meeting on transportation research, Papers are peer reviewed with about a 50% acceptance rate.*

- C1. Gibbons, Ronald, **Feng Guo**, Jianhe Du, Alejandra Medina, Teavis Terry, Pul Lutkevich, Qing Li, Linking Roadway Lighting and Crash Safety, *Proceedings of the Transportation Research Board 94th Annual Meeting, 2015*
- C2. Alejandra Medina Flintsch, Ronald B. Gibbons, Jianhe Du, **Feng Guo**, Travis Neal Terry, “Moving Toward MAP-21 and Beyond: Creating GIS Multistate Database to Support Safety Analyses”, *Proceedings of the Transportation Research Board 94th Annual Meeting, 2015*
- C3. Jeffery S. Hickman, **Feng Guo**, Mathew Camden, Richard J. Hanowski, Jessica Mabry, Quon Kwan, “Efficacy of Roll Stability Control, Forward Collision Warning, and Lane Departure Warning Using Carrier-Collected Crash Data”, *Proceedings of the Transportation Research Board 91st Annual Meeting, 2012*
- C4. Alejandra M. Flintsch, Jeffrey Hickman, **Feng Guo**, Richard J. Hanowski, Mathew Camden, “Cost-Benefit Analysis: Onboard Safety System Effectiveness Evaluation”, *Proceedings of the Transportation Research Board 91st Annual Meeting, 2012*.
- C5. Park, S., Rakha, H., Guo, F., 2011. Multi-state travel time reliability model: Impact of incidents on travel time reliability. In: *Proceedings of the 14th International IEEE Conference on Intelligent Transportation Systems (ITSC)*, Washington, DC, USA, pp. 2106-2111.
- C6. Zachary R. Doerzaph, Rajaram Bhagavathula, **Feng Guo**, “Identification of factors related to violation propensity using large naturalistic intersection approach-level database” *Proceedings of the Transportation Research Board 89th Annual Meeting, 2010*.

- C7. **Feng Guo**, Xuesong Wang, and Mohamed A. Abdel-Aty, “Corridor Level Signalized Intersection Safety Analysis Using Bayesian Spatial Models”, *Proceedings of the Transportation Research Board 88th Annual Meeting*, 2009.
- C8. Yang, S., Wang, W., and Guo, F. (2008) Effective Freeway Incident Response: A Bayesian Network Based Algorithm. *Transportation and Development Innovative Best Practices 2008*: pp. 344-349.
- C9. **Feng Guo** and Lisa Aultman-Hall, “Comparing and Integrating Data Sources to Update the Truck Generation Model in a State-wide Planning Model”, *Proceedings of the Transportation Research Board 84th Annual Meeting*, Washington DC, 2005.
- C10. **Feng Guo** and Lisa Aultman-Hall, “Alternative Nationwide Freight Generation Models”, *Proceedings of the Transportation Research Board 84th Annual Meeting*, Washington DC, 2005.
- C11. Wael ElDessouki, John Ivan, and **Feng Guo**, “Trafficshed Approach for Estimating Hourly Traffic Volumes on Freeways,” *Proceedings of the Transportation Research Board 82nd Annual Meeting*, Washington, DC, 2003.
- C12. **Feng Guo** and Zhiming Tan, “Statistical Analysis of Traffic Flow Characteristics in Shanghai Highway System”, *Proceedings of the Annual Meeting of Shanghai Society of Civil Engineering*, 2000.

**CONFERENCE PROCEEDINGS (FULL PAPERS, ABSTRACT REVIEWED)**

- C13. **Feng Guo** and Lisa Aultman-Hall, “Towards Continental Freight Transportation Planning Models”, *European Transport Conference*, Strasbourg France, October 2003.

**REPORTS FOR FUNDED PROJECTS**

- R1. **Feng Guo**, Youjia Fang, and Jonathan Antin (2014) “Older Driver Fitness-to-Drive Evaluation using Naturalistic Driving Study” National Surface Transportation Center for Excellence
- R2. Ronald Gibbons. **Feng Guo**, Alejandra Medina, Travis Terry, Jianhe Du, Paul Lutkevich, and Qing Li (2014), Design Criteria for Adaptive Roadway Lighting, (Report No. FHWA-HRT-14-051), Federal Highway Administration
- R3. Ronald Gibbons, **Feng Guo**, Alejandra Medina, Travis Terry, Jianhe Du, Paul Lutkevich, David Corkum, and Peter Vetere (2014), “Guidelines for the Implementation of Reduced Lighting on Roadway” (Report No. FHWA-HRT-14-050), Federal Highway Administration,
- R4. Fitch, G. M., Soccolich, S. A., Guo, F., McClafferty, J., Fang, Y., Olson, R. L., Perez, M. A., Hanowski, R. J., Hankey, J. M., & Dingus, T. A. (2013). The Impact of Hand-held and Hands-free Cell Phone Use on Driving Performance and Safety-

- Critical Event Risk. (Report No. DOT HS 811 757). Washington, D.C.: National Highway Traffic Safety Administration.
- R5. Jeffery S. Hickman, **Feng Guo**, Mathew C. Camden, Alejandra M. Flintsch, Richard J. Hanowski, and Erin J. Mabry (2013), “Onboard Safety Systems Effectiveness Evaluation: Final Report”, (Report No. FMCSA-RRT-12-012), Washington DC: Federal Motor Carrier Safety Administration.
- R6. Richard J. Hanowski., Gene Bergoffen, Jeffery S. Hickman, **Feng Guo**, Dan Murray, Richard Bishop, Steve Johnson, and Mathew C. Camden, (2012). “Research on the Safety Impacts of Speed Limiter Device Installations on Commercial Motor Vehicles”, (Report No. FMCSA-RRR-12-006) Washington, DC: Federal Motor Carrier Safety Administration.
- R7. Myra Blanco, Richard J. Hanowski, Rebecca L. Olson, Justin F. Morgan, Susan A. Soccolich, Shih-Ching Wu, **Feng Guo** (2011), “The Impact of Driving, Non-Driving Work, and Rest Breaks on Driving Performance in Commercial Motor Vehicle Operations” , Report FMCSA-RRR-11-017, Federal Motor Carrier Safety Administration.
- R8. Rakha, Hesham, Jianhe Du, Sangjun Park, **Feng Guo**, Zach Doerzaph, , Derek Viita, Gary Golembiewski, Bryan Katz, Nick Kehoe, and Heather Rigdon (2011) “Feasibility of Using In-Vehicle Video Data to Explore How to Modify Driver Behavior That Causes Nonrecurring Congestion”, Report S2-L10-RR-1, Transportation Research Board.
- R9. **Feng Guo**, Brian M. Wotring, and Jonathan F. Antin (2010), “Evaluation of Lane Change Collision Avoidance Systems Using the National Advanced Driving Simulator”, National Highway Traffic Safety Administration, Report number: DOT HS 811-332
- R10. Sheila G. Klauer, **Feng Guo**, Jeremy Sudweeks, and Thomas A. Dingus (2010), “An Analysis of Driver Inattention Using a Case-Crossover Approach On 100-Car Data”, Report DOT-HS-811-334 the National Highway Traffic Safety Administration.
- R11. **Feng Guo**, Sheila G. Klauer, Michael T. McGill, Thomas A. Dingus (2010), “The Relationship Between Near-Crashes and Crashes: Can Near-Crashes Serve as a Surrogate Safety Metric for Crashes”, Report DOT-HS-811-382 the National Highway Traffic Safety Administration.
- R12. **Feng Guo**, Jonathan M. Hankey (2009), “Modeling 100-Car Safety Events: A Case-Based Approach for Analyzing Naturalistic Driving Data”, the National Surface Transportation Safety Center for Excellence.
- R13. Sheila G. Klauer, **Feng Guo**, Vicki L. Neale, and David J. Ramsey (2008), “Estimating the relationship between highway infrastructure and environmental

- factors to traffic safety”, Virginia Tech Transportation Institute Center for Automotive Safety Research.
- R14. Lisa Aultman-Hall, **Feng Guo**, Darren Scott, and Ted Grossardt (2002), “Development of Freight Commodity Generation Models”, Bureau of Transportation Statistics, US Department of Transportation.
- R15. Lisa Aultman-Hall, **Feng Guo**, Chris O’Brien, Pat Padlo and Brian Hogge (2004), “Incorporating Truck Flows into the State-wide Planning Traffic Model”, Report #04-299 Final Report to the Connecticut Cooperative Highway Research Program.
- R16. John Ivan, Wael ElDessouki, Ming Zhao, and **Feng Guo** (2002), “Estimating Link Traffic Volumes by Month, Day of Week, and Time of Day”. Joint Highway Research Advisory Council Report 02-287.

## **GRANTS**

- G1. Co-PI (PI: Tom Dingus), Crash Risks of Cognitive Distractions and Driver Drowsiness, AAA Foundation, \$294,853
- G2. PI (Co-PI Jon Hankey) Moped-Vehicle Conflicts Evaluation using Shanghai NDS data; General Motors, \$71,833.
- G3. PI: Automation and Collision Avoidance Efficacy Using SHRP2 NDS; National Surface Transportation Safety Center for Excellence, \$43,000, 2015-2016,
- G4. Co-PI (PI: Gerardo Flintsch) “Development and Demonstration of Pavement Management Programs” Federal Highway Administration, \$716,627 (Phase II), 2014~2015.
- G5. Co-PI: (PI: Greg Fitch) Investigating the Relationship between Crashes/Near-Crashes and Cell Phone Call Duration and User Types, National Surface Transportation Safety Center for Excellence, \$70,000. 2015-2016,
- G6. Co-PI (PI: Sheila Klauer), Further analysis of the 100-Car Case-Crossover Baseline Data;, Association of Global Automakers\$25,233, 2014-2015
- G7. Co-PI (PI: Ron Gibbons; Co-PI: Suzie Lee) “Evaluating the Efficacy of Lighting, Markings, and Paint Schemes in Reducing the Incidence of Law Enforcement Vehicle Crashes”, US Department of Justice (2013-2015) \$806,199
- G8. Co-PI (PI: Greg Fitch, Co-PI, Hanowski) “Cell-Phone Naturalistic Driving Study (NDS) Dataset: Additional Analyses”, National Highway Traffic Safety Administration September, 2013 –December, 2014, \$350,296
- G9. PI, (Co-PI: Rich Hanowski) “Evaluate the Safety Impacts of Sleeping and Activity Patterns for Commercial Truck Drivers” National Institute of Occupational Safety and Health. \$43,000 2014~2015
- G10. Co-PI (PI: Myra Blanco) “Field Study of Heavy Vehicle Crash Avoidance Systems” National Highway Traffic Safety Administration, \$1,997,955, 2013-2015



- G11. PI, (Co-PI: Jon Hankey) “Crash and Near-Crash Analysis for Shanghai NDS”, (National Surface Transportation Safety Center for Excellence, \$50,000, 2012~2015)
- G12. PI, (Co-PI: Jon Hankey) “Driver Distraction Analysis for Shanghai NDS”, (National Surface Transportation Safety Center for Excellence, \$30,000, 2012~2015)
- G13. PI, (Co-PI: Hesham Rakha) “Development of Bayesian Multi-State Travel Time Reliability Models”, Mid-Atlantic Universities Transportation Center, \$45,011.
- G14. Co-PI (PI: Jeff Hickman; Co-PI: Rick Hanowski), “Technical Approach: Evaluating the Potential Safety Benefits of Electronic On-Board Recorders”, Federal Motor Carrier Safety Administration, \$350,000, 2012~2013
- G15. PI, (Co-PI: Jon Hankey) “International Driver Behavior Comparison using Shanghai NDS”, (National Surface Transportation Safety Center for Excellence, \$140,000, 2012~2015).
- G16. PI, (Co-PI: Jon Hankey) “Shanghai Naturalistic Driving Study” \$121,000, Tongji University, 2012~2015.
- G17. PI “Old Driver Fitness-to-Driver Analysis Using Naturalistic Driving Data” \$25,000 National Surface Transportation Safety Center for Excellence, 2012~2014.
- G18. PI, “The Impacts of Safety Critical Events on Driver Behaviors”, National Surface Transportation Safety Center for Excellence, \$25,000, 2012~2014.
- G19. PI, “Traffic Safety Predictive Modeling”, The CEI Group, \$85,000, 2011~2012.
- G20. Co-PI, (PI: Ron Gibbons; Co-PI Alejandra Medina)“Strategic Initiative for Evaluation of Reduced Lighting on Roadways” Federal Highway Administration. \$886,542 2011~2013.
- G21. Co-PI, (PI: Gerardo Flicht) “Development and Demonstration of Pavement Management Programs” Federal Highway Administration, \$131,268 (Phase I), 2011~.
- G22. Co-PI, (PI: Sheila Klauer) “A Trip Level Analysis of Driver Distraction Using 100–Car Study Database” Insurance Institute of Highway Safety, \$284,252, 2010~2012.
- G23. Co-PI (PI: Jeff Hickman; Co-PIs Richard Hanowski; Erin Mabry) “Commercial Driver Individual Differences Study” Federal Motor Carrier Safety Administration, \$3,000,000, 2010-2015.
- G24. PI, “Final Report for NADS Lane Change Collision Avoidance System Study”, National Highway Traffic Safety Administration, \$ 29,967, 2009~2010.
- G25. Co-PI, (PI: Gerardo Flintsch) Sponsor confidential, \$48,992, 2009~2010.
- G26. PI, “Developing Bayesian Models for Naturalistic Driver Study”, National Surface Transportation Safety Center for Excellence, \$59,755, 2008 – current.
- G27. Co-PI, (PI: Jon Hankey) “Modeling 100-Car Naturalistic Driving Study data”, National Surface Transportation Safety Center for Excellence \$30,000, 2007- 2008.

- G28. Co-PI, (PI: Lisa Aultman-Hall) “Development of an optimal nationwide freight planning zone system”, the New England University Transportation Center, \$54,772, 2004 – 2005.

**SELECTED RESEARCH PROJECTS AS LEADING STATISTICIAN**

1. “Naturalistic Teenage Driver Study”, National Institute of Child Health and Development, lead statistician, 2009~present.
2. "Onboard Safety Systems Effectiveness Evaluation" Federal Motor Carrier Safety Agency, lead statistician, 2009-2011.
3. " Evaluation of the Effects of Speed Limiter on Commercial Trucks" Federal Motor Carrier Safety Agency, lead statistician, 2009-2011.
4. “100-Car Follow-On 2 Task 1 and Task 2 Real-World Driving: An Examination of Secondary Task Engagement and the Near-Crash/Crash Risks Associated with Driver Inattention.” National Highway Traffic Safety Administration, Leading researcher, lead statistician, 2007-2008.
5. “100-Car Follow-On 2 Task 3: Examining the extent to which near-crashes can serve as a surrogate safety metric for crashes.” National Highway Traffic Safety Administration, lead researcher, 2007-2008.

**INVITED TALKS**

1. “New Tools for Transportation Statistics” Invited Session Discussant, JSM 2015, Seattle, WA, August 13, 2015
2. “A Case-Based Approach to Assessing Time-variant Risk Factors for Naturalistic Driving Study” Innovative Statistical Methodology for Studying Driving: Opportunities for Biostatisticians, WNAR 2015, Boise, Idaho, June 16, 2015
3. “Modeling Crash Likelihood Using Naturalistic Driving Study Data” June 4<sup>th</sup> 2014, Southeast University, Nanjing, China.
4. “Sampling Strategy and Analysis Method” Federal Highway Administration Naturalistic Driving Study Workshop, August 4-5, 2014 Washing DC and September 24-25, 2014, Blacksburg, VA
5. “Analysis of Naturalistic Driving Data” Recent Advances in Young Driver Research: New Analytic Approaches from Recent and On-going Research Workshop, January, 2013, Washington DC.
6. “Analysis of Naturalistic Driving Study Data” Naturalistic Driving Study Workshop at the Federal Highway Administration, Oct, 2012, McLean, Virginia.
7. “Developing Data Analysis Plan for Naturalistic Driving Study”, Naturalistic Driving Study Workshop at the Transportation Research Board, January, 2012 Washington DC.
8. “Estimating Crash Risk Using Naturalistic Driving Study Data”, The Second International Naturalistic Driving Symposium, September, 2010, Blacksburg, VA

9. "Modeling Crash Likelihood Using Naturalistic Driving Study Data", Workshop for euroFOT research group, May, 2010, Blacksburg, VA
10. "Modeling Crash Likelihood Using Naturalistic Driving Study Data" March 2010, National Institute of Child Health and Human Development.
11. "Assessing Driving Risk Using Naturalistic Driving Studies", Joint Sino-German Symposium on Urban Road Traffic Safety, Shanghai, China, October, 2009
12. "Modeling 100-Car Data", INFORMS seminar, April 2009, Virginia Tech
13. "Modeling Safety Outcomes of Naturalistic Driving Study", Naturalistic Driving Study Workshop at the Transportation Research Board, January 2009 Washington DC.
14. "Cohort and Case-control approaches", First Human Factors Symposium: Naturalistic Driving Methods & Analyses, August 2008, Blacksburg, VA.

#### CONFERENCE PRESENTATIONS

1. Feng Guo "Crowd-Sourcing Big Data from Smartphone Apps for Transportation Research: Role of Statistics and Challenges", JSM 2015, Seattle, August 10<sup>th</sup> 2015
2. Qing Li and Feng Guo "Change-Points Detection in Driving Risk Allowing for Varying Change-Points Among Subjects by Bayesian Parametric Models." JSM 2015, Seattle, August 10<sup>th</sup> 2015
3. Youjia Fang and Feng Guo "Bayesian random exposure Poisson regression models for evaluating the safety impact of cellphone visual-manual tasks", submitted to JSM 2015, Seattle, August 12<sup>th</sup> 2015
4. Gibbons, Ronald, Feng Guo, Jianhe Du, Alejandra Medina, Teavis Terry, Pul Lutkevich, Qing Li, Linking Roadway Lighting and Crash Safety, *The Transportation Research Board 94th Annual Meeting*, January 2015
5. Alejandra Medina Flintsch, Ronald B. Gibbons, Jianhe Du, Feng Guo, Travis Neal Terry, "Moving Toward MAP-21 and Beyond: Creating GIS Multistate Database to Support Safety Analyses, *The Transportation Research Board 94th Annual Meeting*, January 2015
6. Gibbons, Ronald, Feng Guo, Jianhe Du, Alejandra Medina, Teavis Terry, Pul Lutkevich, Qing Li, Approaches to Adaptive Lighting on Roadways, *The Transportation Research Board 94th Annual Meeting*, January 2015
7. Qing Li and Feng Guo, Recurrent-Event Models for Detecting the Change-Points of Driving Risk for Teenage Drivers. JSM, Boston, Aug, 2014
8. Chen Chen and Feng Guo, "Assessing Time-Varying Crash Effect using Semi-parametric Recurrent Event Model" JSM, Boston, Aug, 2014
9. Fitch, G. M., F. Guo, Y. Yang, S. Soccolich, M. Perez, R. Hanowski, J. Hankey, T. Dingus (September 2013) The Impact of Hand-Held and Hands-Free Cellphone Use on Driving Performance and Safety-Critical Event Risk, The 3<sup>rd</sup> International Conference on Driver Distraction and Inattention, Gothenburg, Sweden.

10. Chen Chen and Feng Guo; Evaluate the impact of crashes on driving risk using recurrent event models: JSM, Montreal, Canada, Aug, 2013
11. Youjia Fang and Feng Guo: Model distraction-related driving risk using Bayesian hierarchical models: JSM, Montreal, Canada, Aug, 2013
12. Inyoung Kim, F. Guo, and Cun Gang Park. Joint Statistical Meeting 2011: Conditional logistic mixed effects model for matched case-control studies with traffic accident application, Miami Beach, FL, Aug 2011
13. Inyoung Kim and F. Guo, Eastern North American Region/International Biometric Society 2010: Conditional logistic mixed effects model for unbalanced matched case-control studies, New Orleans, LA, Mar 2010.
14. “Assessing the crash and near-crash rate for teenage drivers”, Joint Statistical Meeting, Denver, Colorado, 2010.
15. “A Case-Crossover Study for Evaluating the Safety Impact of Driver Behavior”, Joint Statistical Meeting, Washington DC, 2009.
16. “Safety Analysis of Signalized Intersections Using Bayesian Spatial Models”, Joint Statistical Meeting, Denver, Colorado, 2008.
17. “Statistical Reasoning and Study Design in Transportation Safety Study”, Virginia Tech Transportation Institute, 2008.
18. “On Detecting Stabilizing or Divergent Selection Using Patterns of Variation at SNP Loci” Joint Statistical Meeting, Salt Lake City, 2007
19. “A Hierarchical Bayesian Approach for Estimating Origin of Mixed Population”, contributed session at the Twentieth New England Statistics Symposium, Worcester Polytechnic Institute, Worcester, Massachusetts, 2006.
20. “Comparing and Integrating Data Sources to Update the Truck Generation Model in a State-wide Planning Model”, 84th Transportation Research Board Annual Meeting, Washington DC, 2005.

**INVITED LECTURE:**

1. “Fundamentals of Highway Safety Modeling”, “June 5<sup>th</sup> to June 7<sup>th</sup>, 2014, Southeast University, Nanjing, China.

**Conference Organizer and Chair**

- ◆ Organizer, “Advanced Statistical Models for Driving Risk and Driving Behavior” August 10th JSM 2015, Seattle
- ◆ Chair, “Innovative Approaches to Administrative Records”, August 10th JSM 2015, Seattle
- ◆ Organizer and Chair for the “Modeling Driver Behavior Using Advanced Data Collection Method”, August 3<sup>rd</sup> JSM 2014. Boston
- ◆ Chair of Invited Penal Discussion on Transportation Statistics and Data Needs, JSM 2013, Montreal, Canada

- ◆ Organizer for the session on transportation statistics at JSM 2011, Miami, FL

Reviewer for

- *Journal of Transportation Research Record*
- *Accident Analysis and Prevention*
- *Traffic Injury and Prevention*
- *Transportation Research Part C*
- *Journal of Transportation Engineering*
- *Ecological Applications*
- *Transportmetrica*
- *Journal of Adolescent Health*
- *Journal of Transportation Safety and Security*
- *Sustainability*
- *Journal of natural science publishing*
- ◆ Research proposal reviewers for 2013 research solicitation, The National Center for Transportation Systems Productivity and Management (NCTSPM), a U.S. DOT University Transportation Center
- ◆ Associate editor for the 10th International Chinese Conference of Transportation Professionals (ICCTP 2010)
- ◆ Expert reviewer: NCHRP 08-36/Task 115 Applicability of Fair Division, Data Envelopment Analysis and Conjoint Analysis Techniques to Program Funding Level and Project Selection Decision making

#### **UNIVERSITY SERVICE**

- ◆ President, College of Science Faculty Associate , Virginia Tech (2015-2015)
- ◆ Vice-President, College of Science Faculty Associate (2013-2014)

#### **PROFESSIONAL SOCIETIES**

- ◆ American Statistical Association
- ◆ Mu Sigma Rho national statistical honor society
- ◆ International Chinese Statistical Association.