



Curriculum Vitae

Kelly M. Palframan, Ph.D., P.E.



Professional Profile

Dr. Kelly Palframan has dedicated her professional career to the study and understanding of transportation safety incidents, with insight into the human, vehicular, and roadway factors that combine to result in collisions and crashes. After completing a Bachelor’s of Science in Civil Engineering at Florida State, she earned both Master’s and Ph.D. degrees in Civil and Environmental Engineering with focus on Transportation Safety from Virginia Tech. In addition to her academic degrees, she has received training from the Federal Highway Administration (FHWA) National Highway Institute. She has over 7 years of experience as a professional safety researcher into a wide breadth of collision factors, including projects related to vehicle crashworthiness, vehicle dynamics, impact analysis, roadway design and sustainable operations, injury biomechanics, supplemental restraint systems, infrastructure-based safety programs, and temporary traffic control devices.

Dr. Palframan’s works have been widely published in leading journals, including the Transportation Research Record, the Annals of Advances in Automotive Medicine, Transportation Research, and the International Association of Traffic and Safety Sciences. She has notably been an author on a number of manuals and guidelines for practitioners that have been adopted and published by leading national standard-setting organizations, including Work Zone Safety Audit Guidelines and Prompt Lists (FHWA), Guidelines for the Use of Variable Speed Limit Systems in Wet Weather (FHWA), Manual for Selecting Safety Improvements of High Risk Rural Roads (FHWA), Guidelines for the Use of Dynamic Lane Merging Strategies for the American Traffic Safety Services Association (ATSSA), and Guidance on the Use of Automated Flagger Assistance Devices (ATSSA).

Dr. Palframan has also brought her academic studies and research into focus on several specific collision types involving heavy commercial vehicles, including an analysis of fire truck crashes and associated firefighter injuries. Her Master’s Thesis evaluated the effectiveness of electronic stability systems in reducing heavy truck rollovers, and her Doctoral Dissertation addressed issues of School Bus Safety and School Bus Stop Safety using intelligent transportation systems.

As a Transportation Safety Engineer at Focus Forensics LLC, Dr. Palframan brings her wide and deep knowledge of human, vehicular, and roadway issues to the Forensic Engineering analysis of collision events and transportation systems. Her engineering consulting practice deals with the investigation and evaluation of incidents involving passenger vehicles, motorcycles, pedestrians, commercial vehicles, buses, emergency vehicles, and other modes of travel. She evaluates roadway geometry, operations, maintenance, construction, signalization, signs and markings, and temporary traffic controls. She analyzes the driver performance and response, occupant kinematics, and related human aspects. By bringing a comprehensive approach to each assignment, Dr. Palframan is able to help clients understand all of the causes and potential countermeasures for a given incident or transportation pattern. Dr. Palframan remains actively involved in safety research, publications, and teaching. She is an experienced lecturer and instructor at university engineering programs and she has testified at deposition as an expert in her field.

Contact Information

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Jupiter, FL 33458

Education

Ph.D. in Civil Engineering
Virginia Polytechnic Institute and State University (Virginia Tech)
Blacksburg, Virginia

Master of Science in Civil Engineering
Virginia Polytechnic Institute and State University (Virginia Tech)
Blacksburg, Virginia

Bachelor of Science in Civil Engineering
Florida State University
Tallahassee, Florida

Work Experience

Focus Forensics, LLC
Engineer: 2017-Present
Consultant: 2016-2017

Leidos (formerly SAIC)
Transportation Consultant and Researcher:
2010-2016

Virginia Tech Center for Infrastructure-Based Safety Systems
Graduate Researcher: 2014-2015

Virginia Tech Center for Injury Biomechanics
Graduate Researcher: 2011-2013

Virginia Tech College of Engineering
Instructor: 2013

Virginia Tech Center for Sustainable Transportation Systems
Graduate Researcher: 2009-2010

FSU-FAMU Crashworthiness & Impact Analysis Lab
Undergraduate Researcher: 2008-2009

Avcon, Inc.
Civil Engineering Intern: 2008



Licensure and Professional Certification

Professional Engineer, State of Florida, # 83340

Certified Traffic Control Supervisor American Traffic Safety Services Association (ATSSA), 2016

Professional Affiliations

- Transportation Research Board (TRB)
 - Transportation Safety Management Committee (ANB10)
 - Occupant Protection Committee (ANB45)
- Women’s Transportation Seminar
- Tau Beta Pi, Engineering Honor Society, (FL Eta Chapter), 2008

Paper Review Committee Appointments

- Work Zone Traffic Control Committee (AHB55)
- Transportation Safety Management Committee (ANB10)
- Occupant Protection Committee (ANB45)

Professional Development

American Traffic Safety Services Association (ATSSA)

- Florida Advanced Maintenance of Traffic Training, 2016

Axiom Forensic

- Motorcycle Collision Reconstruction, 2018

Collision Safety Institute / ARC

- Annual Crash Conference and Full Scale Crash Testing, 2017

Federal Highway Administration’s National Highway Institute

- Highway Safety Manual Training, 2013
- Strategic Highway Safety Plan Implementation, 2012

Lightpoint Scientific, LLC

- Advanced Photogrammetry for Collision Reconstruction, 2017

Northwestern University Center for Public Safety

- Advanced Crash Reconstruction Utilizing Human Factors Research, 2018

Society of Automotive Engineering (SAE)

- Vehicle Crash Reconstruction: Principles and Technology, 2018
- Vehicle Crash Reconstruction: Principles and Technology, 2019
- Accident Reconstruction, The Autonomous Vehicle and ADA, 2020

Virginia Tech

- Institutional Review Board (IRB) Human Subject Protections, 2009

World Reconstruction Exposition (WREX)

- Crash Conference and Full Scale Crash Testing, 2016

Seminar and Course Presentations

“Applications of Connected Vehicle Technology for School Buses and School Bus Stops”, *Joint Meeting of the Intelligent Transportation Society of Virginia and the Virginia Section Institute of Transportation Engineers*, Richmond, VA, 2017

“Maintenance of Traffic and Roadway Design Analysis”, World Reconstruction Exposition, 2016

“Evaluating Driver Responses to In-vehicle “School Bus Stopped Ahead” Messages and Equivalent Roadside Signing” *Transportation Research Board 94th Annual Meeting*, Washington, D.C., 2016

“Evaluation of Fatal School Bus Related Crashes and Associated Crash Characteristics” *Transportation Research Board 93rd Annual Meeting*, Washington, D.C., 2015

“School Bus Stop Examination: An Interactive Tool for Improving Student Safety (poster)” *Women Transportation Seminar Annual Conference*, Chicago, IL 2015



Seminar and Course Presentations Continued

“Evaluation of Fatal School Bus Related Crashes and Associated Crash Characteristics (poster)” *Civil and Environmental Engineering Research Symposium*, Blacksburg, VA, 2014

“Illuminating the Road Ahead” *Virginia Tech TEDX Event*, Blacksburg, VA, 2014

“Analysis of Firetruck Crashes and Associated Firefighter Injuries in the United States” *Association for the Advancement of Automotive Medicine*, Seattle, WA, 2012

“Safety Benefits of Stability Control Systems for Tractor-Semitrailers Estimated with Hardware-in-the-loop Simulation” *Transportation Research Board 91st Annual Meeting*, Washington, D.C., 2012

“Analysis of Firetruck Crashes and Associated Firefighters Injuries in the United States (poster)” *11th Annual Graduate Student Research Symposium*, Blacksburg, VA, 2012

“Development of Hardware-in-the-loop Testbed for Evaluating Truck Safety Systems” *Transportation Research Board 90th Annual Meeting*, Washington, D.C., 2011

“Low Risk Deployment Airbag Star Rating System (poster)” *10th Annual Graduate Student Research Symposium*, Blacksburg, VA 2011

Publications

Melcher, D., Przybyla, J., Palframan, K., Rush, T., “Big Data Analysis – Combining GPS with Traffic Signal Data Logger Records,” *Proceedings of the 27th Annual Congress of the European Association for Accident Research and Analysis (EVU)*, 2018

Przybyla, J., Rush, T., Palframan, K., Melcher, D., “Introduction to Traffic Signal Data Loggers and their Application to Accident Reconstruction.” *SAE Technical Paper*, 2018-01-0527, 2018

Atkinson, J., Dixon, K., Jones, J., Donoughe-Palframan, K., Colety, M., Pratt, M. “Scale and Scope and Safety Assessment Methods in the Project Development Process” *Federal Highway Administration*, 2016

Donoughe, K., Alden, B., Mayer, B. “Final Report of Reducing School Bus/ Light-Vehicle Conflicts through Connected Vehicle Communications.” *Under Review for Connected Vehicle UTC*, 2015

Donoughe, K., Katz, B. “A Survey of Stated Driver Behavior around Stopped School Buses.” *Under Review for Transportation Research Part F.*, 2015

Donoughe, K., Katz, B. “Evaluation of Fatal School Bus Related Crashes and Near-term Crash Mitigation Strategies.” *IATSS Research, Volume 38, Issue 2*, 2015

Donoughe, K., Balk, S. “Vehicle to Pedestrian Technical Scan Summary Database” *Intelligent Transportation System Joint Program Office (ITS JPO) Connected Vehicle Program*, 2015

Atkinson, J., Chandler, B., Betkey, V., Weiss, K., Dixon, K., Giragosian, A., Donoughe, K., O’Donnell, C. “Manual for Selecting Safety Improvements of High Risk Rural Roads” *Federal Highway Administration*, 2014

Atkinson, J., Chandler, B., Rigdon, H., Donoughe, K. “Work Zone Road Safety Audit Guidelines and Prompt Lists” *Federal Highway Administration*, 2013

Katz, B., O’Donnell, C., Donoughe, K., Atkinson, J., Finley, M., Bouke, K., Kuhn, B., Warren, D. “Guidelines for the use of Variable Speed Limit Systems in Wet Weather.” *Federal Highway Administration*, 2012

Donoughe, K., Whitestone, J. Gabler, H.C. “Analysis of Firetruck Crashes and Associated Firefighter Injuries in the United States” *Annals of Advances in Automotive Medicine, Volume 56*, 2012

Park, S., Donoughe, K., Rakha, H. “Safety Benefits of Stability Control Systems for Tractor-Semitrailers Estimated with Hardware-in-the-loop Simulation” *Transportation Research Record*, 2281, 2012

Donoughe, K. “Guidelines for the Use of Dynamic Lane Merging Strategies” *American Traffic Safety Services Association*, 2012

Donoughe, K. “Guidance on the Use of Automated Flagger Assistance Devices” *American Traffic Safety Services Association*, 2012

Katz, B., O’Donnell, C., Donoughe, K., Atkinson, J., Finley, M.D., Balke, K., Kuhn, B., et al. “Variable Speed Limit Systems in Wet Weather” *Federal Highway Administration*, 2012

Donoughe, K., Rakha, H., Swanson, W., Park, S., Bryson, J. “Development of Hardware-in-the-loop Testbed for Evaluating Truck Safety Systems” *Transportation Research Record*, 2265, 2011



Thesis/ Dissertation

“Addressing Issues of School Bus and School Bus Stop Safety Using Intelligent Transportation Systems and Connected Vehicle Technology” Ph.D. Dissertation, Virginia Tech

“Evaluating the Effectiveness of Electronic Stability Systems in Reducing Truck Rollovers” Master’s Thesis, Virginia Tech 2010

Leadership Roles

- Odyssey of the Mind Creative Problem Solving Competition, Regional Board Member (2006-2012)
- Virginia Tech Alliance of Transportation Engineering Students, Vice President and President (2010-2012)
- Tau Beta Pi “The Engineering Honor Society”, President (2008-2009)

Awards

- Helen M. Overly Scholarship, Women’s Transportation Seminar, Virginia Chapter, Winner, 2012
- Patricia F. Waller Award, Transportation Research Board, Finalist, 2011
- Best Safety-Related paper, International Road Federation, Winner, 2011
- Via Master’s Fellowship, Department of Civil Engineering at Virginia Tech, Recipient, 2009-2010
- Best Research Presentation, Institute of Transportation Engineers, Big Bend Chapter, Winner, 2008