D.J. Dalmotas Consulting, Inc.

Randa Radwan, PhD PMP

(formerly Randa Samaha)

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EDUCATION & TRAINING

PH.D. IN TRANSPORTATION SAFETY ENGINEERING, George Washington University, Washington, DC, May 2015
Dissertation: Real World Derived Simulation Methodology for the Evaluation of Fleet Crash Protection of New Vehicle Designs

MASTER OF ELECTRICAL ENGINEERING, Rice University, Houston, TX

BACHELOR OF SCIENCE, ELECTRICAL ENGINEERING, Rice University, Houston, TX
President's Honor Roll

PROJECT MANAGEMENT PROFESSIONAL (PMP), Project Management Institute (PMI), September 2015

HONORS & DISTINCTIONS

Secretary of Transportation Award for Outstanding Efforts
NHTSA Administrator's Award (x4)
Superior Accomplishment Award (x3)
People Saving People Award
Teamwork Leadership Challenge Award
Special Service Award
Great Teamwork Award

LANGUAGES

English (Fluent)
Arabic (Fluent)
French (Intermediate)

PROFESSIONAL EXPERIENCE

CONSULTANT, TRANSPORTATION SAFETY RESEARCH, ENGINEERING, AND POLICY
D.J. DALMOTAS CONSULTING, INC./SELF, Dec 2021-current
Evaluate and report on gender-related crash safety and injury risk studies and analyses. Review and assess ongoing studies on vulnerability of female drivers relative to males.
Panel Member, National Cooperative Highway Research Program, March 2022-current
Project 22-54, MASH Hardware Evaluation with New Proposed Test Vehicles
General Committee Member, Society of Automotive Engineers Government/Industry
Government/Industry Annual Meeting planning, March 2022-current

DIRECTOR, HIGHWAY SAFETY RESEARCH CENTER (HSRC), CHAPEL HILL, NC, University of North Carolina (UNC), Dec 2018-Nov 2021
HSRC is a renowned research center focused on active travel (e.g., pedestrian, bicyclists, e-scooters); safety and mobility effects of roadway and infrastructure design and operations; road user behavioral safety research; and data systems. HSRC currently leads the Collaborative Center for Road Safety, a national University Transportation Center (UTC). With annual revenues of $6-7M, this multi-leveled structure with 50 multidisciplinary staff and 75 active projects. As Director, I set priorities, determined resource requirements, organized work, and evaluated performance and conducted performance reviews. Supervised four functional divisions and admin staff. Built relationships with legislatures, sponsors, UNC research institutes, and industry.

KEY ACCOMPLISHMENTS:

- Led multi-disciplinary teams to develop successful technical proposals and secure awards exceeding $2.2 million for which I served as principal investigator during my tenure
- Served as Director of NCDOT Transportation Center of Excellence in Advanced Technology Safety and Policy (TSAP, https://www.tsap.unc.edu) leading staff from HSRC and UNC Charlotte, NC A&T, NC Central and Appalachian State universities. TSAP projects focus on improving existing infrastructure to advance road safety, mobility, and accessibility, building knowledge connected & automated vehicles in roadway safety and mobility, with emphasis on economic impact and data.
- Led NC Collaboratory COVID-19 Mobility and Safety Study of interrelationship of public health policies, mobility changes, traffic safety, and transmission of COVID-19. Directed diverse staff from HSRC, UNC Sheps Center for Health Services Research, Gillings School of Global Public Health, Odum Institute for Research in Social Science. Technical briefs and reports highlight implications and policy recommendations to help NC decision makers prioritize limited resources. (https://www.c19mobilityandhealth.unc.edu/)
- Managed NC DOT research project "Machine Learning Artificial Intelligence Model to Extract Roadside Hazard Features from Video Log Data," US DOT Safety Data Initiative, a key step for improving NC's current process for assessing roadside hazards, and for facilitating efficient, systemic safety initiatives on state's rural roads
- Served on the NC Executive Committee on Highway Safety (ECHS) chaired by NC Secretary of Transportation
- Briefed ESCHS on the Safe Systems Summit
- Delivered opening remarks for 2020 & 20021 NCDOT's Annual Research & Innovation Summits
- Participated in workshops for developing NC Strategic Highway Safety Plan
- Delivered Remarks on Vision Zero for Youth at Fédération Internationale de l'Automobile Foundation at the 98th TRB annual meeting

- Coordinated with UNC Office of Federal Affairs, to meet with congressional staffers of NC senators and representatives in DC, & to host UNC Safe Systems Transportation Research Forum to brief staffers on transportation research across UNC campus
- Collaborated with Director of NC GHSP & President of IIHS to plan 25-year reboot of "Booze It & Lose It"
- Assembled and moderated external panel with national and global experts to inform HSRC strategic planning, e.g., Executive Technical Leader for Safety at Ford, Senior Executive (recently retired) at US DOT, Head of Global Road Safety Facility at World Bank.

THE NATIONAL ACADEMIES OF SCIENCES, ENGINEERING, AND MEDICINE (NASEM)
Light-Duty Vehicle Fuel Economy (LDV) Committee Member, July 2018 - March 2021
Under the study sponsored by US DOT, our committee performed a technical evaluation of costs, benefits, and implementation issues of fuel efficiency technologies for next-generation light-duty vehicles and issued a final report in March 2021. The final report includes findings and recommendations related to technology cost and capabilities and considers the impacts of changes in consumer behavior and regulatory regimes and policies appropriate for 2025-2035.

KEY ACCOMPLISHMENTS:

- Authored the section of the report on vehicle safety impact of new materials and advanced powertrains and contributed to the final report
- Planned, coordinated, moderated, and presented in the NASEM LDV Safety public webinar (https://www.nationalacademies.org/event/09-19-2019/safety-webinar)

CONSULTANT, TRANSPORTATION SAFETY RESEARCH, ENGINEERING, AND POLICY, MCLEAN, VA
Diversified Technical Systems, Inc., December 2017- June 2018
Performed data analysis and engineering services for the Warrior Injury Assessment Manikin (WIAMan) underbody blast dummy program, including supporting prototype design, development, fabrication and test, materials definition and development, and documentation. Prepared and delivered presentations at various venues.
Booz Allen Hamilton, January 2018 - November 2018
Served on the Safety Review Technical Evaluation Panel for the U. S. Postal Service Next Generation Delivery Vehicle (NGDV) prototypes. Provided technical assistance on the use and application of vehicle safety standards and regulatory requirements.

CITIZANT INC., WASHINGTON, DC, SENIOR ITS ENGINEER, INTELLIGENT TRANSPORTATION SYSTEMS JOINT PROGRAM OFFICE (ITS JPO) PROJECT MANAGEMENT OFFICE (PMO), 2015 – 2017

- Provided program management and technical subject matter expert to the US Department of Transportation (DOT) Intelligent Transportation System (ITS) Joint Program Office (JPO) Project Management Office (PMO). Provided direction and guidance to the Citizant team on the ITS JPO portfolio of programs (valued over $100M annually) for advanced transportation technologies relating to vehicle-to-vehicle and vehicle-to-infrastructure connectivity, automated/autonomous systems, pilot deployments, mobility on demand, smart cities, knowledge transfer and professional capacity building, cyber security and privacy, and architecture and standards.
- Served as technical and policy advisor to the Citizant Program manager and mentor to junior staff, providing guidance on both the technical aspects of the work, and administrative and policy matters, e.g., agency procedures, and policy guidance.

KEY ACCOMPLISHMENTS:

- Evaluated and developed guidelines and templates for the for JPO programs reviews
- Designed an innovative approach, based on common tracks, icons, and linkages, to develop integrated roadmaps to track critical milestones for JPO programs
- Led gap analysis of programs roadmaps to facilitate alignment with portfolio strategic objectives and delivered significant milestones monthly report to JPO leadership
- Served as peer reviewer of technical papers for Transportation Research Board (TRB) and Society of Automotive Engineers (SAE), 2016-2017
- Organized and chaired session on Deploying Connected Vehicles at 2017 SAE Government/ Industry Meeting.
- Performed accident data analysis and delivered presentation "Short Statured Driver Exposure and Injury Rates in Frontal Crashes" at 2015 SAE Government Industry (G/I) meeting in Washington, DC
- Served on SAE G/I General Committee and TRB Committee on Motorcycles and Mopeds

GEORGE WASHINGTON UNIVERSITY, ASHBURN, VA, DIRECTOR OF ADVANCED RESEARCH – NATIONAL CRASH ANALYSIS CENTER (NCAC), 2005 – 2014

- Served as principal technical and policy advisor to the NCAC director on transportation safety issues
- Led a multi-disciplinary group of staff, contractors, and partners in planning, developing, and executing research projects and activities. Provided engineering and related technological expertise, and innovative approaches, to produce results that exceeded expectations of multiple customers.
- Developed technical requirements, budgets, and resources ($750K to $1.5M). Determined work priorities and coordinated schedules for a diverse team of 15 staff members, graduate students and visiting scholars.
- Effectively promoted and represented the Center to senior officials in government, academia, and industry in national and international meetings
- Authored 15 technical publications with presentations at conferences and annual meetings
- Organized and led workshops and symposia; served as peer reviewer for TRB, ASME and STAPP papers

SELECTED ACCOMPLISHMENTS:

- Created strategy and modeling methodology to assess safety performance of new vehicle designs in support of the NHTSA Offices of International Policy, Fuel Economy and Consumer Programs and Vehicle Safety Research. Evaluated advanced materials technology, new power trains and mass-reduction technologies. The outcome was the Vehicle Fleet Simulation methodology used for NHTSA's "Corporate Average Fuel Economy Standards (CAFE) and Midterm Evaluation for Light-Duty Vehicles, Model Years 2022-2025" safety studies.
- Assembled and directed a team of international experts in the analysis of U.S. and Canadian national accident databases for a German automotive consortium in 2013
- Led a diverse team of 15 modelers and analysts to create vehicle and occupant models for fleet safety evaluation
- Created mixed-modality training programs that advanced staff skills, improved morale, and reduced turnover following organizational restructure in 2013
- Managed project for rollover highway accident reconstruction and vehicle dynamics simulations, to fulfill the Federal Highway Administration (FHWA) 2013 Roadway Departure Strategic Plan goals from 2012 to 2014.
- Led the TRB Rollover Subcommittee summer meeting for the FHWA rollover project in 2013 (developed agenda, assembled experts, facilitated the session, and formally presented)
- Formulated & directed research to characterize roadside environment for U.S. motorcycle crashes in 2010.

- Established and managed innovative crash data studies by visiting BMW researchers for development of a state-of-the-art pedestrian pre-crash safety system in 2010
- Led and co-chaired the 2010 TRB panel on Motorcycle Safety and Roadway/Roadside
- Served on the advisory committee to the FHWA Office of Safety Integration on Evaluation Design for Motorcycle Countermeasures

GEORGE WASHINGTON UNIVERSITY, ASHBURN, VA, ADJUNCT FACULTY, SCHOOL OF ENGINEERING AND APPLIED SCIENCE, 2007 – 2013

- Instructor for "Vehicle Standards and Crash Test Analysis" and "Crash Investigation and Analysis" graduate courses
- Lecturer for "Intelligent Transportation Systems" graduate course on advanced driver assistance systems
- Invited lecturer on U.S. national crash test bases to the Korean Government Transportation Safety Authority

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION, Washington, DC, RESEARCH PROGRAM MANAGER– RESEARCH & DEVELOPMENT ASSOCIATE ADMINISTRATION, 1988 – 2005

- Manager credited with formulating, directing, and conducting foundational research and analysis for multiple national safety regulations and requirements
- Led strategic planning, including technical review and analysis, and provided operational oversight and contract management for key projects in side crash protection, vehicle upper interior protection, vehicle and restraint system model development, crash test instrumentation, and data analysis.
- Forged alliances and successfully collaborated internally with key agency staff from Research, Rulemaking, Chief Counsel and Compliance, and externally with the safety community at large including professionals from industry on both national and international levels and government officials worldwide.
- Represented the agency as a leading technical expert and led or served on formal and informal agency teams. Effectively communicated complex issues to a variety of audiences in public and private forums.
- Authored 15 technical publications with presentations at conferences and annual meetings
  SELECTED ACCOMPLISHMENTS:
  - Led a multi-disciplinary research program from concept to Notice for Proposed Rulemaking for NHTSA's 2007 Federal Motor Vehicle Safety Standard (FMVSS) 214 upgrade forecast to save over 300 lives and reduce 400 serious injuries per year
  - Effectively managed a cross-functional team of 25 staff members, a $4.4M operating budget, and a test program of 88 crash tests in collaboration with internal and external partners
  - Co-authored the FMVSS 214 side-impact regulation plan submitted to and approved by Congress
  - Directed novel crash data analyses that defined crash conditions, occupant characteristics, and injuries by body regions and injuring contacts
  - Garnered the support of external and internal stakeholders to include a side crash protection requirement for small-sized female occupants in major upgrade of FMVSS 214 safety regulation
  - Developed new test protocols and equipment, a first-of-its-kind oblique pole side impact test procedure which successfully addressed side crash head trauma and an upgrade of the European Side Impact dummy, in collaboration with dummy manufacturers, for improved measurement of chest and pelvic injuries, both adopted in the current FMVSS 214 regulation

- Served as the agency expert in a Washington Post online live discussion on air bag safety
- Served on the advisory group for the Child Injury Study by Children's Hospital of Philadelphia and State Farm
- Planned and led the agency public meeting on Side Impact Inflatable Restraints
- Effectively represented NHTSA in various programs and groups. Served as the Government Safety Sector Chair at the 2005 Government/Industry SAE Meeting, as the organizer and session chair at SAE annual meetings, as an international specialist in the Australian Council Side Impact Workshop, on the steering committee of the second national conference on Women's Travel Issues and chair for the "Women and Traffic Safety I" session, and as the Chair on the SAE J211 transducer equivalency task force
- Authored 15 technical publications with presentations at conferences and annual meetings

Previous positions include Senior Engineering Analyst at Automated Sciences Group and Software Development Engineer at Schlumberger Well Services. (1982-1988).

RECENT DISSEMINATION AND PROFESSIONAL PUBLICATIONS

- Yi, Hong, Chris Bizon, David Borland, Matthew Watson, Matthew Satusky, Robert Rittmuller, Randa Radwan, Raghavan Srinivasan, and Ashok Krishnamurthy. "AI Tool with Active Learning for Detection of Rural Roadside Safety Features." In 2021 IEEE International Conference on Big Data (Big Data), pp. 5317-5326. IEEE Computer Society, 2021.
- Radwan, R. (2021). A Deep Learning Artificial Intelligence Model to Extract Roadside Hazard Features from Video Log Data. 2021 NC DOT Research & Innovation Summit
- Planey, A. M.1, 2, Harmon, K. J. 3, Miller, K. E. M.1, 4, Radwan, (2021) The COVID-19 pandemic has devastated nursing homes. What should North Carolina's policy priorities be? (Technical Brief No. 5; C19 Mobility and Health). Highway Safety Research Center.
- Radwan, R., Srinivasan, R., Lan, B., Kumfer, W. NC Mobility and Crash Characteristics During the COVID-19 Pandemic. NC Traffic Safety Conference. Webinar. May 27, 2021.
- Kumfer, W., Harmon, K., Radwan, R., Combs, T., Ma, C., & Srinivasan, R. (2021). New mobility trend insights in North Carolina (Technical Brief No. 3, C19 Mobility and Health). Highway Safety Research Center.
- Kumfer, W., Harmon, K. J., Radwan, R., Srinivasan, R., Richey, D., Ma, C., Planey, A. M., & Combs, T. (2020). Initial COVID-19 data trend analysis in NC (Technical Brief No. 1; C19 Mobility and Health). Highway Safety Research Center.
- Radwan, R. (2020, October). NC transportation center of excellence in advanced technology safety & policy: Overview. [Presentation]. 2020 NCDOT Research and Innovation Summit.
- Radwan, R., Kumfer, W., Srinivasan, R., Lan B., Harmon, K., & Ma, C. (2021, January). Preliminary trends in NC crash data during the COVID-19 pandemic. [Presentation]. NC Executive Committee for Highway Safety.
- Radwan, R., Planey, A., O'Brien, N., Harmon, K., (2020, October). How is COVID-19 Impacting Mobility, Health, and Teen Driving in NC? [Presentation]. 2020 UNC University Research Week. Chapel Hill, NC.
- Radwan, R. (2019, January). Remarks on Vision Zero for Youth at the Fédération Internationale de l'Automobile Foundation (FIAF) meeting at the 98 th Annual Meeting of the Transportation Research Board, Washington, DC.
- Radwan, R., Marshal M., McDonald N. (2019, April). The Road Ahead. Presentation at the Safe systems Summit Closing Session, Durham, NC.
- Radwan, R., Sandt, L. (2019, May). Safe Systems Summit Recap and Takeaways. Presentation at the NC Executive Committee on Highway Safety, Raleigh, NC.

- Radwan, R. (2015), "Real World Derived Simulation Methodology for the Evaluation of Fleet Crash Protection of New Vehicle Designs," The George Washington University, ProQuest Dissertations Publishing, Pub. No. 3686081
- Samaha, R. R., et al. (2014), "Methodology for Evaluating Fleet Protection of New Vehicle Designs: Application to Lightweight Vehicle Designs. (Report No. DOT HS 812 051A). Washington, DC, National Highway Traffic Safety Administration (Informed Midterm Evaluation for Light-Duty CAFE, MY 2022-2025)
- Samaha, R., Prasad, P., Nix, L. (2013), "Opportunities of Injury Reduction in US Frontal Crashes: An Overview by Structural Engagement, Vehicle Class and Occupant Age," Stapp Car Crash Journal, Vol. 57, Paper No. 13S-38 (award winner)
- Samaha, R., Prasad, P., Marzougui, D., C. C., Kan, C. D., & Eskandarian, A. (2013), "An integrated Modeling Method to Evaluate Fleet Safety Performance of New Vehicle Designs," ASME 2013 International Mechanical Engineering Congress and Exposition, Paper No. 66285
- Samaha, R., Prasad, P., Kamakakkannan, S., Comisene, V., Nix, L., & Digges, K. (2013), "Occupant Modeling for Injury Risk Computation in Vehicle Fleet Frontal Crash Simulations," ASME 2013, Paper No. 6627
- Haight, S., Samaha, R., & Biss, D. (2013), "Analysis of seat belt positioning in recent NCAP crash tests," SAE International Journal of Transportation Safety, 1(1), 16-24
- Eigen, A. M., Digges, K., & Samaha, R. (October 2012), "Safety changes in the US vehicle fleet since model year 1990, based on NASS data," Annals of Advances in Automotive Medicine/Annual Scientific Conference (Vol. 56, p. 241)
- Samaha, R., Scullion, P. (2010), "US Single Motorcycle Crashes: An Investigation of Roadway and Roadside Hazards," IFZ 8th International Motorcycle Conference, Cologne
- Helmer, T., Ebner, A., Samaha, R., Scullion, P., Kates, R. (2010), "Injury Risk to Specific Body Regions of Pedestrians in Frontal Vehicle Crashes Modeled by Empirical In-Depth Accident Data," STAPP Car Crash Journal, Vol. 54, No. 10-13
- Ebner, A., Samaha, R., Scullion P., and Kates, R. (2010), "Methodology for the Development and Evaluation of Active Safety Systems Using Reference Scenarios: Application to Preventive Pedestrian Safety," IRCOBI, Hannover
- Helmer, T., Samaha, R., Scullion, P., Ebner A., & Kates, R. (2010), "Kinematical, Physiological, and Vehicle-related Influences on Pedestrian Injury Severity in Frontal Vehicle Crashes: Multivariate Analyses, and Cross-Validation," IRCOBI, Hannover
- Samaha, R. & Scullion, P. (2010), "US Single Motorcycle Crashes: An Overview of Roadside Hazards," AAAM, P30, Las Vegas
- Bonnevie, S., Samaha, R., Digges, K. H. (2010), "Factors in NASS/CDS Motorcycle Crashes with Passenger Cars," ESAR Expert Symposium on Accident Research, Hannover
- Samaha, R., Digges, K. H., Fesich, T. M., & Authaler M. (2010), "Frontal Crash Testing and Vehicle Safety Designs: A Historical Perspective Based on Crash Test Studies," SAE, No. 2010-01-1024
- Samaha, R., Kuroki, K., Digges, K. H., and Ouellet, J. V. (2007), "Opportunities for Safety Improvements in Motorcycle Crashes in the United States," ESV Conference, Paper No. 07- 0370, France
- Samaha, R., and Elliott, D. S. (2003), "NHTSA Side Impact Research: Motivation for Upgraded Test Procedures," ESV Conference, Paper No. 492-O, Japan
- Samaha, R., Maltese, M. R., and Bolte, J. (2001), "Evaluation of the ES-2 Dummy in Representative Side Impacts," ESV Conference, Paper No. 486, Netherlands
- Prasad, A. K., Samaha, R. and Louden, A. E. (2001), "Evaluation of Injury Risk from Side Impact Air Bags," ESV Conference, Paper No. 331, Amsterdam, the Netherlands
- Samaha, R., and Molino, L. N., (1999), "Status of NHTSA Plan for Side Impact Regulation Harmonization and Upgrade," Report to U.S. Congress

- Maltese, M. R., Samaha, R., Eppinger, R. H., and Strassbourg, G. (1999), "Response of the EUROSID-1 Thorax to Lateral Impact," Occupant Protection (SAE-SP-1432), 1999-01-0709
- Maruthayappan, R., Rao, A., Gupta, V., Samaha, R. and Trella, T. J. (1999), "Improved Finite Element SID for in-Vehicle Simulation," Occupant Protection (SAE-SP-1432), 1999-01-0716
- Samaha, R., Molino L. N. (1997), "NHTSA Plan for Achieving Harmonization of the US and European Side Impact Standards," Report to US Congress
- Trella, T. J., Samaha, R., and Smith, E. J. (1996), "The Use of Advanced Analytical Techniques in Side Impact Crashworthiness Research," ESV Conference, Paper No. 96-S6-O-10, Australia
- Nickles, J. E. and Samaha, R. (1996), "An Upgraded System for Crash Test Data Acquisition System Evaluation," ESV International Technical Conference, Paper No. 96-S9-W-27, Australia
- Trella, T. J. and Samaha, R. (1995), "Finite Element Model of a Moving Deformable Barrier for Federal Motor Vehicle Safety Standard 214 Side Impact Collision," ASME
- Elias, J., Mills, R., Samaha, R., and Pritz, H. (1996), "Accelerometers Equivalency in Dummy Crash Testing," Technologies for Occupant Protection Assessment (SP-1174), SAE 960454
- Mentzer, S. G., Samaha (Radwan), R., and Hollowell, W. T (1992), "The SISAME Methodology for Extraction of Optimal Lumped Parameter Structural Crash Models," Analytical Modeling and Occupant Protection Technologies (SP-906), SAE 920358
- Samaha (Radwan), R., and Nickles, J. (1991"Performance Evaluation of Crash Test Data Acquisition Systems," ESV Conference, Paper No. 91-S9-W-26, France.
- Samaha (Radwan), R., and Hollowell W. T. (1990) "System Identification of Vehicle Structures in Crash Loading Environments," Vehicle Crashworthiness and Occupant Protection in frontal Collisions (SP-807), SAE 900415