

Summary of qualifications

Mrs. Barsan-Anelli has over 9 years of direct DOT experience, and 13 years of engineering experience. She currently provides MADYMO and LS-Dyna support to NHTSA's research activities, which includes the vehicle aggressivity and fleet compatibility program, the newly proposed roof crush standard, the child safety crashworthiness program, and the school bus crashworthiness research.

She was also involved in school bus accident reconstruction studies in which she determined the occupant kinematics and dummy responses. Also, she worked on pedestrian impact reconstruction case studies.

Employment eligibility

U.S. Citizen

Education

1996 – 1997 George Washington University Washington, DC
MS, Mechanical Engineering

1987 – 1992 Petroleum and Gas Institute Romania
BS/MS, Mechanical Engineering

Professional experience

1998 – present ISSI/NHTSA Washington, DC
Engineer

Provided modeling support to vehicle safety research programs. This included:

- Development of the next generation occupant protection systems for school buses. Worked on three validation studies of a full frontal rigid barrier test of a Thomas Built bus and two derived frontal sled tests containing belted and unbelted occupants. MADYMO models of the tests were created and validated.
- Modeling occupant responses in the offset research program. The MADYMO lumped parameter vehicle model of a Dodge Neon was used together with the Hybrid III 50th Thor-LX dummy model. Also, support was provided in the rear occupant protection program, by setting up various MADYMO sled models and validating them against physical test data.
- The Pedestrian Reconstruction Study to support the ongoing efforts of the International Harmonization Research (IHRA) Pedestrian Safety working group that investigates test procedures for evaluating pedestrian protection. Various MADYMO models were created in order to reconstruct actual pedestrian-vehicle impacts. A series of parameter sensitivity analysis studies for different vehicle shapes, different vehicle material properties and various pedestrian positions were conducted.
- Finite element modeling for the vehicle aggressivity and fleet compatibility research program. Work included the set up of various impact scenarios (frontal, side and offset) using LS-Dyna. A database of vehicle finite element models representing the US fleet were used for the various impact scenarios.
- Airbag modeling of driver and passenger airbags using MADYMO. Specifically, this supported NHTSA's airbag research program by modeling the driver and passenger side airbags, utilizing the finite element mesh generator BAGGEN, a MADYMO application, and the PATRAN, preprocessor.
- Finite element modeling in the roof crush research study for the simulation of the FMVSS 216 test procedures and the Notice of Proposed Rule Making for the FMVSS 216. The study included an evaluation of various vehicle tie-down alternative procedures and platen angles. Also studied various design concepts for the A-pillar and B-pillar inner layers that could improve the strength-to-weight ratio for the vehicle.

1997 – 1998
Analysis Center

George Washington University FHWA/NHTSA National Crash
Ashburn, VA

Engineer

- Worked in the NCAC's vehicle modeling laboratory performing reverse engineering work on a couple of vehicles. Generated the finite element mesh for an entire pick-up truck and performed various pre-simulations LS-Dyna runs in order to ensure a good quality mesh and robustness of the vehicle model.
- Performed sensitivity analysis of mesh density on various finite element vehicle models and simulated different impact scenarios with coarsely and finely meshed vehicle models.

1993 – 1995

Office of the Senator Alexandru Popovici

Romania

Chief of Staff

- Managed staff of four. Prepared research and briefing materials for Senate hearings and presentations.
- Organized Senator's travel schedule and meeting agendas.

1992 – 1993

UPETROM, Petroleum Processing Plant

Romania

Quality Control Engineer

- Tested compliance with design specifications during manufacturing of drill bit components.
- Supervised assembly process for large industrial mud pumps.
- Assisted in 3D CAD and FEA projects.
- Performed laboratory testing and data analysis.
- Other responsibilities included material estimation and specification, engineering analysis and theoretical calculation.

Patents and publications

1. Bolte, K., Barsan, A., et. al. Simulations of Large School Bus Crashes. SAE Technical Paper Series, SAE 2000 World Congress, Detroit Michigan, March 6-9, 2000.

2. McCray, L. and Barsan-Anelli, A. Simulations of Large School Bus Safety Restraints. Paper presented at the 17th International Technical Conference on the Enhanced Safety of Vehicles (ESV) Proceedings, June 4 -7, 2001.

3. Barsan-Anelli, A. and Stammen, J. Adaptation of a Human Body Mathematical Model to Simulation of Pedestrian Vehicle Interactions. Paper presented at the 4th TNO MADYMO User's Meeting Conference, Detroit Michigan, October 24, 2001.

4. Poland, K., McCray, L., Barsan-Anelli, A. Occupant Safety in Large School Buses. Journal of Accident Investigation, Spring 2006, Vol. 2 Issue 1. User's Meeting Conference, Detroit Michigan, October 24, 2001.

5. Saunders, J., Smith, D., and Barsan-Anelli, A. Restraint Robustness in Frontal Crashes. SAE Technical Paper, SAE World Congress & Exhibition, Detroit, Michigan, April 2007.

CAE Skills

MADYMO, LS-Dyna, MADYMO/Workspace, Altair Hyperworks, ESI EasiCrash, PATRAN, I-DEAS, Windows, Unix, MS Office,....

Languages

English, Romanian (native), French, German (conversational)

References

Available upon request