



Résumé of
GRAY BEAUCHAMP, P.E.



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EXPERIENCE: Senior Engineer and Engineer, Kineticorp, LLC, Denver, Colorado, April 2005 to Present
Engineer, Knott Laboratory, Inc., Centennial, Colorado, January 2003 to March 2005

EDUCATION: **B.S. Mechanical Engineering**, Biomedical emphasis, University of Colorado, Boulder, 2002

REGISTRATIONS: Mr. Beauchamp is registered as a Professional Engineer in the State of Colorado. He is an accredited Traffic Accident Reconstructionist through the Accreditation Commission for Traffic Accident Reconstruction (ACTAR).

FORENSIC ENGINEERING: Mr. Beauchamp is an expert in Traffic Accident Reconstruction and has investigated and reconstructed hundreds of vehicular accidents. Some specific examples of Mr. Beauchamp's experience are listed below:

- Mr. Beauchamp is an active member of the Society of Automotive Engineers (SAE). He is a peer reviewer for technical papers published in the rollover session and the accident reconstruction session of SAE. He regularly presents his own research at the annual World Congress in Detroit Michigan.
- Mr. Beauchamp guest lectures on Accident Reconstruction at the Denver Police Department for officers training in the Level 3 Advanced Traffic Collision Investigation and Reconstruction Course. He has guest lectured at the graduate level at the University of Colorado and Wayne State University.
- Mr. Beauchamp has performed full scale vehicle testing including rollover testing on a public highway in Utah and P.I.T (Pursuit Intervention Technique) testing with the Denver Police Department at their training facility in Denver, Colorado.
- Mr. Beauchamp specializes in heavy truck systems, including air brake systems, to determine their condition and relevance to an accident. He has completed numerous seminars on the topics of commercial vehicle accidents, air brake systems and out-of-service criteria.
- Mr. Beauchamp also specializes in single vehicle loss of control accidents. This includes both driver loss of control and vehicle rollovers. He has published numerous publications, and has given lectures regarding these types of accidents.
- Mr. Beauchamp analyzes occupant kinematics, including occupant motion and seat belt usage, in a variety of different accidents, including bus accidents and vehicle rollovers. He has also published with SAE on the topic of occupant ejection during vehicle rollover.
- Mr. Beauchamp has investigated accidents involving a variety of vehicles including tractor-trailers, buses, railway vehicles, farm equipment and animals, motorcycles, bicycles and passenger cars. Many of these accidents also involved pedestrians.
- Within the SAE, Mr. Beauchamp has participated in the Accident Investigation and Reconstruction Practices Committee (AIRP) and has drafted standards and recommendations regarding accident reconstruction. Additionally, he has participated three subcommittees within AIRP; the Critical Speed Taskforce, the EDR Working Group and the Animation Committee.

RESEARCH: Mr. Beauchamp's current and past areas of research include rollover dynamics, crush energy analysis, vehicle handling, pneumatic tires, electronic stability control and heavy truck braking. Mr. Beauchamp is currently pursuing his Master's Degree in Mechanical Engineering at the University of Colorado at Denver where his thesis focuses on how braking and steering inputs by the driver affect the specific tire marks that are deposited by a yawing vehicle. Two of Mr. Beauchamp's publications from 2009 were selected as top papers for the year and were included in the SAE International Journal of Passenger Cars.

OTHER INTERESTS: Mr. Beauchamp is a licensed motorcycle rider. He is also an avid snowmobile rider and snow skier.

PROFESSIONAL AFFILIATIONS: SAE - Society of Automotive Engineers; INCR - International Network of Collision Reconstructionists.

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Senior Engineer



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Publications

1. **Rose, Nathan A.**, Beauchamp, Gray, "A Variable Deceleration Rate Approach to Rollover Crash Reconstruction," *Collision Magazine*, Volume 5, Issue 1, Spring 2010.
2. **Beauchamp, Gray**, Hessel, David, Rose, Nathan A., Fenton, Stephen J., "Determining Steering and Braking Levels from Yaw Mark Striations," Paper Number 2009-01-0092, Society of Automotive Engineers, 2009, published in the *SAE International Journal of Passenger Cars – Mechanical Systems* **2**(1):291-307.
3. Rose, Nathan A., **Beauchamp, Gray**, "Development of a Variable Deceleration Rate Approach to Rollover Crash Reconstruction," Paper Number 2009-01-0093, Society of Automotive Engineers, 2009, published in the *SAE International Journal of Passenger Cars – Mechanical Systems* **2**(1):308-332.
4. Rose, Nathan A., **Beauchamp, Gray**, "Analysis of a Dolly Rollover with PC-Crash," Paper Number 2009-01-0822, Society of Automotive Engineers, 2009.
5. Rose, Nathan A., **Beauchamp, Gray**, Fenton, Stephen J., "The Influence of Vehicle-to-Ground Impact Conditions on Rollover Dynamics and Severity," 2008-01-0194, Society of Automotive Engineers, Warrendale, PA, 2008.
6. Rose, Nathan A., Fenton, Stephen J., **Beauchamp, Gray**, "Analysis of Vehicle-to-Ground Impacts during a Rollover with an Impulse-Momentum Impact Model," *SAE Int. J. Passeng. Cars – Mech. Sys.* **1**(1):105-123 (SAE Paper Number 2008-01-0178), 2008.
7. Funk, J. R., **Beauchamp, G.**, Rose, Nathan A., Fenton, S. J., Pierce, J., "Occupant Ejection Trajectories in Rollover Crashes: Full-Scale Testing and Real World Cases," *SAE Int. J. Passeng. Cars – Mech. Sys.* **1**(1):43-54 (SAE Paper Number 2008-01-0166), 2008.
8. Rose, Nathan A., **Beauchamp, Gray**, Fenton, Stephen J., "Factors Influencing Roof-to-Ground Impact Severity: Video Analysis and Analytical Modeling," 2007-01-0726, Society of Automotive Engineers, Warrendale, PA, 2007.
9. Rose, Nathan A., **Beauchamp, Gray**, Bortles, Will., "Quantifying the Uncertainty in the Coefficient of Restitution Obtained with Accelerometer Data from a Crash Test," 2007-01-0730, Society of Automotive Engineers, Warrendale, PA, 2007.
10. Rose, Nathan A., **Beauchamp, Gray**, Fenton, Stephen J., "Restitution Modeling for Crush Analysis: Theory and Validation," 2006-01-0908, Society of Automotive Engineers, Warrendale, PA, 2006.

Presentations

1. "Severity Underreported: The Accident May be More Severe Than You Think" American Bar Association – 2011 Emerging Issues In Motor Vehicle Product Liability Litigation, Phoenix, AZ, April 1, 2011.
2. "Tire Mark Forensic Evidence" Guest Lecturer, Wayne State University, BME 7810 – Forensic Bioengineering, Detroit, MI, April 14, 2010.
3. "Level 3 Advanced Traffic Collision Investigation and Reconstruction", Instructor, Denver Police Department, Denver, CO, September 29, 2009.

Last Revised: 07/14/11

4. "Tire Marks Deposited Preceding and Subsequent to Vehicular Impacts" Guest Lecturer, University of Colorado at Denver, ME 4238/5238 – Impact Mechanics, Denver, CO, June 30, 2009.
5. "Development of a Variable Deceleration Rate Approach to Rollover Crash Reconstruction," SAE Technical Paper Presentation, 2009 Society of Automotive Engineers World Congress, Detroit, MI, April 22, 2009.
6. "Determining Steering and Braking from Yaw Mark Striations," SAE Technical Paper Presentation, 2009 Society of Automotive Engineers World Congress, Detroit, MI, April 21, 2009.
7. "Level 3 Advanced Traffic Collision Investigation and Reconstruction", Instructor, Denver Police Department, Denver, CO, October 2, 2008.
8. "Factors Influencing Rollover Crash Severity" Chrysler LLC International Product Liability Conference and Tier 1 Counsel Meeting, Detroit, MI, June 12, 2008.
9. "Accident Reconstruction: Heavy Trucks" Morison Ansa Holden Assuncao & Prough LLP, Philadelphia, PA, June 2, 2008.
10. "Guardrail and Barrier Impacts" CALTrans Legal Department, Los Angeles, CA, August 7, 2007.
11. "Factors Influencing Roof-to-Ground Impact Severity: Video Analysis and Analytical Modeling," SAE Technical Paper Presentation, Society of Automotive Engineers World Congress, Detroit, Michigan, April 17, 2007.
12. "Impaired Driver Awareness", Center for Transportation Safety, Fort Collins Colorado, March 24, 2005.

Technical Conferences and Seminars

1. "Crash Data Retrieval (CDR) Technician – Level 1," Course Presented by William Bortles, Greenwood Village, Colorado, March 8, 2011.
2. "Crash Data Retrieval (CDR) Technician – Level 2," Course Presented by William Bortles, Greenwood Village, Colorado, March 8, 2011.
3. Society of Automotive Engineers World Congress, Detroit, Michigan, April 2010.
4. "CVSA Seminar", Colorado Motor Carriers Association, Denver, Colorado, August 27, 2009.
5. Society of Automotive Engineers World Congress, Detroit, Michigan, April 2009.
6. "2008 SAE Government/Industry Meeting", SAE, Washington, DC, May 13th 2008.
7. "VBOX Product Training", VBOX USA, Denver, CO, April 21st, 2008.
8. "Tire Mechanics & Modeling," 1-Day Course Presented by Dr. Patrick Fitzhorn, Director of the Race Vehicle Dynamics Laboratory at Colorado State University, March 20, 2008.
9. "Tire and Wheel Safety Issues", SAE, Greenville, SC, June 22nd, 2007.
10. "Tire as a Vehicle Component", SAE, Greenville, SC, June 21st, 2007.
11. "Basic Rider Course", T3RG Motorcycle Class, Denver, CO, May, 2007.
12. Society of Automotive Engineers World Congress, Detroit, Michigan, April 2007.
13. "Active Safety Technology: Paving the Road to Accident-Free Driving Telephone/Webcast," March 1, 2007.
14. CarSim 7 Training Session, Presented by Thomas Gillespie of Mechanical Simulation Corporation via Teleconference, December 13, 2006.

15. "Vehicle Dynamics for Passenger Cars and Light Trucks", SAE, Troy, Michigan, August 23-25, 2006.
16. "CVSA Critical Inspection Seminar", Colorado Motor Carriers Association, Denver, Colorado, July 27, 2006.
17. "Bendix Comprehensive Air Brake Systems Training," Bendix Corporation, Denver, Colorado, May 9-11, 2006.
18. "Inspection and Investigation of Commercial Vehicle Crashes, Institute of Police Technology and Management", Tempe AZ, December 8-12, 2003.