

# Dagmar Buzeman Jewkes, Ph.D.



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## EDUCATION

Fall 1995-1998

**PhD in Injury Prevention/ Crash Safety:** October 1998

**Chalmers University of Technology**, Department of Injury Prevention, Gothenburg, Sweden  
**Thesis Title:** Car Compatibility in Frontal Crashes: New Methods to Determine the Influence of Mass, Structure, Stiffness, and Geometry, and their Interactions on Injuries.

Fall 1990-1995

**Masters of Science in Biomechanical Engineering**, July 1995

**University of Technology Eindhoven**, the Netherlands

Including courses and internships in chemistry, physics, anatomy, physiology, biochemistry, fluid dynamics, constitutive properties of (biological) materials.

## WORK EXPERIENCE

January 2009-  
present

**Jewkes Biomechanics, LLC.**

- President of Jewkes Biomechanics, LLC
- Accident Reconstruction and Biomechanical Engineering

May 2002-  
December 2008

**Self Employed-** Independent Expert witness in Biomechanical Engineering and Accident Reconstruction

October 1998-May  
2002

**Woolley Engineering Research Corporation-** Accident Reconstruction and Biomechanical Engineering, including:

Vehicle and scene inspections, crash test analysis, full scale crash testing, vehicle interior and component measurements and testing, mathematical calculations and (MADYMO) simulations of vehicle and occupant dynamics and kinematics, relationships between personal injuries and accident loading conditions, injury causation, research, statistics, deposition and trial testimony

November 1995-  
October 1998

**Chalmers University of Technology**, Department of Injury Prevention/Crash Safety, Sweden

- Ph.D. Student, conducting research on 'Car Compatibility in Frontal Crashes', using statistics, crash testing and mathematical modeling to determine compatibility effects on occupant-injuries. Included:
  - Rigorous oral defense of thesis-work versus a panel of experts
  - Collaboration with various car-manufacturers
  - Oral presentations for several car-manufacturers and research institutions
  - Teaching lectures in Biomechanics, Traffic Safety and Multi-Body Dynamics
  - Providing MADYMO technical support for biomechanical research projects at Chalmers
  - Oral and written applications for project funding from the Swedish National Road Administration
- Expert advisor to the European Enhanced Vehicle-Safety Committee (EEVC), Compatibility Work Group.
- Courses in Advanced Calculus, Medicine, Advanced Statistics, Biomechanics, Epidemiology Statistics and Accidental Injury

•Summer 1996

**Collision Safety Engineering**, Orem, UT

- Assisted in accident investigations, including scene and vehicle inspections
- Conducted a research project on (low-speed) rear-impacts, using MADYMO

•Summer 1995

**TNO Crash-Safety Research Center/ TNO-MADYMO NA**, Detroit MI

- Expert/Technical Support Engineer of the commercial occupant safety software MADYMO at the new TNO-MADYMO North America office in Detroit, MI, USA

•Summer 1994

**TNO Crash-Safety Research Center**, Delft, the Netherlands

- Developed a Mathematical Model of the New TNO 18-months old Child Dummy in MADYMO

•Fall 1993

**Japan Automobile Research Institute**, Tsukuba City, Japan

- Internship: A Biomechanical Study on Knee-Injury Mechanisms During Lateral Impact, using MADYMO

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**University of Technology Eindhoven, Netherlands** Department of Mechanical Engineering

- Fall 1994- 1995
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- Spring 93
- Summer 91, 92
- Graduation research project: Developed a Finite Element Model of Porous Polymer Membranes.
- Internship: Studied brittle polymers to describe their mechanical behavior with a visco-elastic fluid model.
- Processing and Automation Laboratory. Performed an Experimental Parameter-Study of the Effect of Lubrication on Extrusion Processes.

## TEACHING EXPERIENCE

- February 2020 Judge for Science Innovation of the Year, Brigham Young University, Provo, Utah
- March 2019 Guest Lecture at Brigham Young University, Provo, Utah: Injury Biomechanics
- Fall 2018-Spring 2019 **Brigham Young University**, Department of Mechanical Engineering, Provo, UT  
Senior Capstone Coach: supervisor of senior Mechanical Engineering students during an 8-month industrial design and development project.  
Project: Development of A Light Weight Crash Bracket for a Airplane Luggage Bin
- October 2016 Guest Lecture at Brigham Young University, Provo, Utah: Injury Biomechanics
- November 2015 Guest Lecture at Brigham Young University, Provo, Utah: Injury Biomechanics
- December 2013 Guest Lecture at Brigham Young University, Provo, Utah: Injury Biomechanics
- April 2009 Presentation at SAE International Congress. Sessions: Rollover
- March 2003 Presentation at SAE International Congress. Sessions: Occupant Injury
- March 2001 Presentations at SAE International Congress. Sessions: Occupant Injury, Compatibility  
Chair at SAE International Congress. Session: Rollover
- April 2000 **Chalmers University of Technology, Department of Machine and Vehicle Design, Gothenburg Sweden.** Invited guest lecturer in Advanced Traffic Safety
- Fall 99-Spring 2002 **Brigham Young University**, Department of Mechanical Engineering, Provo, UT  
Senior Capstone Coach: supervisor of senior Mechanical Engineering students during an 8-months industrial design and development project.  
Project 1 (1999-2000): Sealing of a Slit-Cannula for use of catheter introducing.  
Project 2 (2000-2001): Design and development of an electrical circuit breaker, using a bi-stable compliant mechanism  
Project 3 (2001-2002): Design and development of a constant-force compression spring using compliant mechanism technology
- December 1999 SAE TOPTEC Accident Reconstruction. Invited speaker
- March 1999 Presentations at SAE International Congress. Sessions: Occupant Injury, Compatibility
- 1995-1998 **Chalmers University of Technology**, Department of Injury Prevention, Gothenburg Sweden  
Guest lectures in Biomechanics, Traffic Safety and Multi-body Dynamics
- University of Technology Eindhoven**, the Netherlands
- Spring 1995 • Teaching assistant Electronic Circuits
- Spring 93, 94 • „ Control Engineering I
- Fall 1992 • „ Control Engineering II
- Fall 1992 • „ Mechanical Sketching

## COMPUTER EXPERIENCE

*Data Acquisition Programs:* TrackEye, Diadem, Igor Pro *Biomechanical Modeling:* MADYMO, Dynaman

*Mathematical Programs:* MATLAB

*Finite Element Software:* MADYMO

*CAD Programs:* Microstation 95

*Accident Reconstruction Software:* PC-Crash, Crash3, Edsmac

**ACTIVITIES**

Family, church, biking, running, swimming, tennis, skiing, singing, flying

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*References Available Upon Request*

## RESEARCH PUBLICATIONS

- Jewkes, D. B. (2009) Effect of Roll Velocity and Roof-to-Ground Impact Angle on Injuries in Lateral Rollovers. *SAE Paper No. 2009-01-0823. Presented at the SAE World Congress, April 2009, Detroit, MI.*
- Jewkes, D. B. (2003) Vehicle Acceleration and Compartment intrusion for Far-Sided Occupants v. Near-Sided Occupants in Frontal Offset Collisions. *SAE Paper No. 2003-01-0159. Presented at the SAE International Congress, March 2003, Detroit, MI.*
- Buzeman-Jewkes, D., Thomson, R.W., and Viano, D.C., "Crash Compatibility." Chapter 28 in *Crashworthiness: Energy Management and Occupant Protection*, edited by Jorge Ambrosio, *CISM Courses and Lectures No. 423, International Centre for Mechanical Sciences*, Springer Verlag, New York, ISBN 3-211-83334-X, pp 447-463, 2001.
- Asay, A. F.; Jewkes, D. B.; Woolley, R. L. (2002) Narrow Object Impact Analysis and Comparison with Flat Barrier Impacts. *SAE Paper No. 2002-2B-0069. Presented at SAE International Congress, March 2002. Detroit, MI*
- Jewkes, D. B. (2001) Reconstruction of Accident Severity in a Multiple Vehicle Collision. *SAE Paper No. 2001-01-1283. Presented at SAE International Congress, March 5-8, 2001. Detroit, MI.*
- Woolley, R. L.; Asay, A. F.; Jewkes, D. B.; Monson, C. (2000) Crash Testing With A Massive Moving Barrier As An Accident Reconstruction Tool. *SAE Paper No. 00B-159. Presented at SAE International Congress, March 6-8 2000, Detroit, MI.*
- Jewkes, D. B. (1998) Car Compatibility in Frontal Crashes: New Methods to Determine the Influence of Mass, Structure, Stiffness and Geometry, and their Interactions. *Thesis for the Degree of Doctor of Philosophy. Chalmers University of Technology, Gothenburg, Sweden.*
- Jewkes, D. B.; Viano, D. C.; Lövsund, P. (1999) Safety of a Downsized Vehicle Fleet: Effects of Mass Distribution, Impact Speed and Inherent Protection in Car-to\_Car Crashes. *SAE Paper No. 1999-01-0074 in Proc. SP-1442. Presented at SAE Int. Congress, March 1-4 1999. Detroit, MI.*
- Buzeman-Jewkes, D. G.; Viano, D. C.; Lövsund, P. (1999) A Multi-body Integrated Vehicle-Occupant Model for Compatibility Studies in Frontal Crashes. *Journal of Crash Prevention and Injury Control Vol. 1:2*
- Buzeman-Jewkes, D. G.; Viano, D. C.; Lövsund, P. (1999) Use of Repeated Crash-Tests to Determine Local Longitudinal and Shear Stiffness of the Vehicle Front with Crush. *SAE Paper No. 1999-01-0637 in Proc. SP-1432. Presented at SAE Int. Congress, March 1-4 1999. Detroit, MI.*
- Buzeman-Jewkes, D. G.; Viano, D. C.; Lövsund, P. (1999) Occupant Risk, Partner Risk and Fatality Rate in Frontal Crashes: Estimated Effects of Changing Vehicle Fleet Mass in 15 Years. *Journal of Crash Prevention and Injury Control Vol. 2:1*
- Buzeman, D. G.; Viano, D. C.; Lövsund, P. (1998) Car Occupant Safety in Frontal Crashes: A Parameter-study of Vehicle Mass, Impact Speed and Inherent Vehicle Protection. *Accident Analysis and Prevention Vol. 30:6*
- Buzeman, D. G.; Viano, D. C.; Lövsund, P. (1998) Injury Frequency and Risk in Frontal Crashes: The Effect of Sorting Techniques on Priorities for Offset Testing. *Accident Analysis and Prevention Vol. 30:3*
- Buzeman-Jewkes, D. G. (1998) Local Longitudinal and Shear Stiffness of the Vehicle Front, and Vehicle Responses in Repeated and High-Speed Crash-Tests. *Internal Report 1998-08-17. Chalmers University of Technology, Gothenburg, Sweden.*
- Buzeman, D. G. (1997) Car-to-Car and Single Car Crash Compatibility: The Individual Effects of Mass, Structure, Stiffness and Geometry. *Thesis for the Degree of Engineering of Licentiate. Chalmers University of Technology, Gothenburg, Sweden.*

**DEPOSITION & TRIAL EXPERIENCE**

<b>Case Name</b>	<b>Date</b>	<b>Testimony</b>	<b>Court</b>	<b>Party</b>
Fullerton v. Bridgestone/Firestone	2/15/07	Deposition	SC State	Defense
Walton v. Bridgestone/Firestone	11/14/07	Deposition	AZ State	Defense
Cleminson v. Bridgestone/Firestone	03/20/08	Deposition	SC Federal	Defense
Dorr v. Allied Waste	03/31/10	Deposition	AZ State	Defense
Clark v. Bridgestone Firestone	06/16/10	Deposition	KY Federal	Defense
Lee. V. Werner Enterprises	09/27/10	Deposition	NC Federal	Defense
Troche v. Bridgestone/Firestone	10/05/10	Deposition	FL State	Defense
Irma Gonzalez v. BATO LLC.	08/31/11	Deposition	CA State	Defense
Jade Solis v. BATO LLC.	05/17/12	Deposition	AZ Federal	Defense
Lisette Ramirez v. Cooper Tire & Rubber Co.	06/06/12	Deposition	TX State	Defense
Vidal Rodriguez v. BATO LLC.	09/26/12	Deposition	TN State	Defense
Estate of Dominick Michael Uslin v. Dorel Juvenile Group	03/28/13	Deposition	WV State	Defense
Taphouse/Cape v. Foshee Trucking, Inc. et al.	11/20/13	Deposition	AL State	Defense
Seth Whitfield v. Commonwealth Edison	02/13/14	Deposition	IL State	Plaintiff
DeWayne Bailey v. Bham Race Course	08/28/14	Deposition	AL State	Defense
Eckenrod v. DeBoer & Sons	02/26/15	Deposition	CA State	Defense
Mathers v. BATO	07/14/15	Deposition	FL State	Defense
Haderlie v. CNA	09/10/15	Arbitration	UT State	Defense
Menard v. CSX	09/28/15	Trial	Federal	Defense
Estate of Dominick Michael Uslin v. Dorel Juvenile Group	11/06/15	Trial	WV State	Defense
Campbell et al. v. Polaris Industries et al.	03/29/16	Deposition	Federal	Defense
Campbell et al. v. Polaris Industries et al.	06/09/16	Trial	Federal	Defense
Williams et al. v. Fontaine Commercial Trailer, Inc et al.	05/12/17	Deposition	AL State	Defense

## **FEE SCHEDULE**

### *Biomechanical Evaluation*

Professional Services	\$400.00/hr
Deposition and Trial Testimony	\$400.00/hr

### *Expenses*

Charged at actual cost