

COOPER BARRETTE CONSULTING, LLC

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ROGER W. BARRETTE, MSE

PROFESSIONAL EXPERIENCE

- 1993 - **Traffic Crash Reconstruction Consultant**
Cooper Barrette Consulting, LLC., Woodstock, Illinois
f/k/a Fricke Cooper Engineering, LLC., Bannockburn, Illinois
- Consultant and expert witness to law enforcement agencies, attorneys, insurance companies, and others in the area of traffic accident investigation and reconstruction.
 - Research and write technical publications and reports. Develop, present and administrate educational programs in traffic accident investigation and reconstruction.
- 1990 - 1995 **Adjunct Instructor, Accident Investigation Division**
The Traffic Institute, Northwestern University, Evanston, Illinois
- 2007 - Pres **Center for Public Safety, Northwestern University, Evanston, Illinois**
- Instruction of crash investigation and reconstruction courses.
 - Crash Investigation I and II
 - Vehicle Dynamics
 - Traffic Crash Reconstruction I, II, III, Review, and for Engineers
 - Pedestrian/Bicycle Crash Reconstruction
 - Co-Author for the 3rd Edition of the *Traffic Crash Reconstruction Manual* (2018 to present).
 - Contributing author and reviewer for the 2nd Edition of the *Traffic Crash Reconstruction Manual* (2007 to 2010).
 - Contributing author and reviewer for the 11th Edition of the *Traffic Crash Investigation Manual* (2012 to 2014).
 - Traffic Crash Investigation/Reconstruction Curriculum Development.
- 2024 - Pres **Adjunct Professor - Lecturer**
Wayne State University, College of Engineering, Detroit, Michigan
- Online Graduate Program in Biomedical Engineering: Injury Biomechanics

1991 - 2011 Adjunct Faculty and Advisor

The College of Lake County, Grayslake, Illinois

- Instruct and develop courses in the Criminal Justice Degree Program.

1985-1993 Deputy Sheriff, Highway Patrol Division

Lake County Sheriff's Police, Waukegan, Illinois

- Enforce traffic and criminal laws of the State of Illinois.

Accident Investigation Unit (1986 - 1993)

- Investigate and reconstruct highway and waterway accidents for the Sheriff's Police, allied agencies, and the Lake County States Attorney's Office.
- Accident review board member (1988 - 1993)

1983 - 2024 Patrolman (Part-time)

Lake Villa Police Department, Lake Villa, Illinois (2004 - 2024)

Grayslake Police Department, Grayslake, Illinois (1995 - 1999)

Round Lake Park Police Department, Round Lake Park, Illinois (1983 - 1985)

- Crash investigator and reconstructionist.
Lake County Major Crash Assistance Team (2008 - 2024)
 - Promoted to Deputy Commander, March, 2016
 - Team Leader, Officer Involved Crash Team, January 2017

EDUCATION

M.S.B.M.E. degree, Masters of Science in Biomedical Engineering (2024)

Bridge Graduate Certificate in Injury Biomechanics (2023)

Wayne State University, Detroit, Michigan

M.S.E. degree, Masters of Science in Engineering (2009)

Traffic Engineering and Biomechanics

University of Wisconsin, Milwaukee, Wisconsin

B.S. degree, Mechanical Engineering Technology (2002)

Milwaukee School of Engineering University, Wisconsin

A.A.S. degree, Mechanical Engineering Technology (1995)

A.A.S. degree, Criminal Justice (1989)

College of Lake County, Grayslake, Illinois

Basic Police Training, 400 hours, Police Training Institute (1985)

University of Illinois, Champaign, Illinois

PROFESSIONAL CERTIFICATIONS

ACTAR Accredited Traffic Accident Reconstructionist

Accreditation Commission for Traffic Accident Reconstruction, Reg #88, 1993

Certified Accident Reconstruction Specialist

State of Illinois #PTB89071, March 1989

Remote Pilot, Small Unmanned Aircraft Systems (sUAS) Rating

Federal Aviation Administration (FAA), #3976658, March 2017

Illinois Certified Truck Enforcement Officer, Illinois Local Government Law Enforcement Training Board, NEMRT, October 2009.

Certified Law Enforcement Officer, Illinois Local Governmental Law Enforcement Officers Training Board, #850407, June 1985.

PROFESSIONAL AFFILIATIONS

1994- Society of Automotive Engineers, SAE.

1988- Illinois Association of Technical Accident Investigators, IATAI.
Vice-President, 1991 - 1995

1989- National Association of Professional Accident Reconstruction Specialists, NAPARS.

PROFESSIONAL AWARDS

NUCPS Fricke Cooper Achievement Award, Northwestern University, 2022

Investigator of the Year, Major Crash Assistance Team of Lake County, 2014
LCCPA Presidents Award, Lake County Chiefs of Police Association, 2015

Policeman of the Year, Lake County Sheriff's Police, 1992

Letters of Commendation, Lake County Sheriff's Police, 15 letters,
Scholastic Achievement Award (Graduated Top of Class), PTI, 1985

PROFESSIONAL ACTIVITIES

Expert Testimony:

Have qualified to give accident reconstruction testimony in over 135 trials in the States of Illinois, Iowa, Wisconsin, Indiana, Missouri, West Virginia, Florida, Michigan, and Ohio.

Publications:

Fricke, L.B., *Traffic Crash Reconstruction Manual*, 2nd Edition, Northwestern University Center for Public Safety, Evanston, Illinois, 2010, authored:
Chapter 15 - *Reconstruction of Heavy Truck Crashes* (pp 481-638)

Fricke, L.B. & Baker, J.S., *Traffic Crash Investigation Manual*, 11th Edition, Northwestern University Center for Public Safety, Evanston, Illinois, 2014, authored:
Chapter 14 - *Investigation of Hit and Run Crashes* (pp 535-572)

Barrette, R.W., Hyde, A.M., Lopata, I., and Taylor, S., "The Application of Unmanned Aerial Systems (UAS) and Aerial Photogrammetry to Crash Investigation," *NAPARS News*, Volume No. 2, July 2017.

Hyde, A.M. & Barrette, R.W., *Collision Magazine*, "Investigation of Traffic Crashes Involving the Inhalation of Difluoroethane," Collision Publishing, Kirkland, WA, Spring 2013, Vol. 8, Issue 1.

Collision Magazine, "Using the Monte Carlo Method with Crash Event Data," Collision Publishing, Kirkland, WA, Spring 2012, Vol. 7, Issue 1.

Massa, D.J. & Barrette, R.W., "Using Three-Dimensional Digitization to Model a Vehicle," SAE Congress and Exposition, February 1998, SAE Paper #980377

"Crash Test: The Use of Conservation of Momentum in Traffic Accident Reconstruction", 1995 IATAI Accident Reconstruction Conference.

POLICE Magazine, "Placing the Driver Behind the Wheel", 1989

Teaching experience:

Northwestern University Traffic Institute and Center for Public Safety. Instruction of courses in Crash Investigation and Reconstruction.

United Nations Development Program and Northwestern Center for Public Safety, Programs in Traffic Crash Reconstruction, Kuwait, May, 2017.

"MCAT New Member Orientation," April 9, 2012, Libertyville, Illinois; November 5, 2013, Antioch, Illinois; March 2016, Lake Zurich, Illinois.

"Traffic Law Enforcement", College of Lake County Criminal Justice degree program. Fall and spring semesters, 1991 to 2011.

"Vehicle Dynamics," College of Lake County, Criminal Justice Institute, Grayslake, Illinois: March/April 1999.

“Reckless Homicide Investigations,” College of Lake County, Criminal Justice Institute, April 6-7, 1998 and November 12-13, 1998.

“Traffic Accident Investigation for Patrol Officers,” College of Lake County, Criminal Justice Institute, Grayslake, Illinois; October 2-3, 1995.

“Measuring at Scenes and Drawing Accident Diagrams,” Lake County Chiefs of Police Association, Waukegan, Illinois; May 31, 1989.

“Basic Traffic Radar Training Course,” Lake County Chiefs of Police Association, Waukegan, Illinois; February 7, 1989.

Traffic Crash Investigation/Reconstruction Curriculum Development (NUCPS):

Pedestrian/Bicycle Crash Reconstruction Course, 2017, Principle

“Monte Carlo Analysis Methods Applied to Crash Reconstruction”, Traffic Crash Reconstruction III Course, 2011; TCR2, 2021

Traffic Crash Investigation I - Documenting Road Marks, 2016

Traffic Crash Investigation II - Documenting Vehicle Damage, Case Study, Technical Report Writing, Hit and Run Investigations, 2016

Traffic Crash Reconstruction - Intro to TCR, Vehicle Behavior, EDR Usage, Intro to Human Factors, 2018/2019

Traffic Crash Reconstruction 2 - Occupant Kinematics, Heavy Vehicle Event Data Recorder, Case Studies, 2018/2021

Presentations:

“Pedestrian Crash Reconstruction Methodologies,” CAARS Conference, Lake Tahoe, California, October 26-27, 2023.

“Rollover Crash Dynamics, Occupant Kinematics and Injury Patterns,” Presentation to Graduate Biomedical Students at Wayne State University, December 9, 2021.

“CAARS 2021 Conference,” various topics, Lake Tahoe, California, October 20-23, 2021.

“Pedestrian Crash Reconstruction,” SATAI Conference, Glendale, Arizona, January 26, 2018.

“Emerging Issues in Reconstruction - Aerial Photogrammetry for Crash Scenes,” Law Enforcement and Prosecutor Training Conference, Governor’s Office of Highway Safety, Phoenix, Arizona, July 28, 2017.

“Pedestrian and Bicyclist Involved Crash Reconstruction,” with Case Studies and CDR Application, CAARS Fall 2015 Conference, Anaheim, California, October 17-18, 2015

“Identification and Documentation of Marks on the Roadway,” CAARS Crash Reconstruction Conference, California, October 24, 2014

“Crash Investigation Workshop with Crash Testing,” MCAT of Lake County, College of Lake County, Grayslake, Illinois, September 4-5, 2014

“Commercial Vehicle Safety,” William Charles Construction Annual Safety Meeting, Rockford, Illinois, February 19, 2014.

“Motorcycle Crash Reconstruction,” MATAI Traffic Crash Reconstruction Conference, Wisconsin Dells, Wisconsin, June 11, 2013.

“Alcohol Awareness Show,” WIIL Radio, FM 95.1, Next Media, Pleasant Prairie, Wisconsin, December 21, 2012.

“Crash Reconstructions, What They Can Prove,” Illinois Traffic Safety Leaders Conference, Grayslake, Illinois, May 11, 2012.

“Using the Monte Carlo Method with Crash Event Data,” CDR User’s Summit, Houston, Texas: January 2012.

“Practical Uses of Monte Carlo Simulations,” IATAI Reconstruction Conference (Breakout Session), Bloomington, Illinois; September 22, 2011.

“Ask a..... Crash Reconstructionist,” WIIL Radio, FM 95.1, Next Media, Pleasant Prairie, Wisconsin, July 27, 2011.

“Monte Carlo Analysis Methods Applied to Crash Reconstruction,”:

- SATAI Conference, Glendale, Arizona, January 18, 2019
- CAARS Conference, Lake Tahoe, California, October 24, 2014
- WATAI Conference, Seattle, Washington, October 17, 2012
- IATAI Conference, Bloomington, Illinois, September 22, 2011
- SATAI Conference, San Diego, California, November 5, 2010

“Pedestrian and Bicyclist Involved Collisions,” Major Crash Assistance Team, MCAT, Grayslake University Center, Illinois: August 18, 2009.

“Travel Forecasting at Signalized Intersections Using the Highway Capacity Manual,” Transportation Workshop, UW-Milwaukee, April 27, 2009.

“Utilizing ECM Data in Crash Reconstructions,” Major Crash Assistance Team of Lake County, MCAT, Lake Zurich, Illinois: December 12, 2008.

“The Privatization of America’s Transportation Infrastructure,” UW-Milwaukee Traffic Planning and Operation Workshop: Milwaukee, Wisconsin: May 7, 2008.

“Crash Reconstruction at Traffic Signal Intersections,” Major Crash Assistance Team, MCAT, Lake Zurich, Illinois; November 15, 2007.

“Documenting Vehicle Damage”, Illinois Association of Technical Accident Investigator’s 21st Conference, Bloomington, Illinois; September 20, 2007.

“Freeway Ramp Capacity,” UW-Milwaukee Traffic Planning and Operation Workshop; Milwaukee, Wisconsin; April 12, 2007.

“Low Speed and Fraud Accident Reconstruction,” Fraud Day - 2005, MetLife Insurance Company, Freeport, Illinois; April 23, 2005.

"Critical Speed Yaw Analysis," Lake County Accident Investigators Seminar, Lincolnshire, Illinois: 1992.

“Use of Computer Programs in Railroad Accident Reconstruction,” Illinois Railroad Trial Lawyers Association, Chicago, Illinois: 1991.

“Accident Investigation/Report Writing with Practical Exercise,” Lake County Sheriff’s Marine Unit Training Program, Illinois: March 28, 1989.

ACADEMIC PRIMARY RESEARCH PROJECTS

Barrette, R. & Gall, J., “Risk of Concussion using Linear and Angular Accelerations,” Wayne State University, Detroit, Michigan, July 2024.

“Injury Mechanism of the ‘Butterfly’ Fracture: Assessing Impact Direction,” Wayne State University, Detroit, Michigan, November 2023.

“Analysis of Frontal Crash Tests from the NHTSA Vehicle Crash Data Base,” Wayne State University, Detroit, Michigan, June 2023.

“Automobile-Occupancy and Time-of-Day Characteristics Used in Travel Estimation: An Update to NCHRP 365,” UW-Milwaukee, May, 2009.

Barrette, R., Dajani, L., Linde, E., Orozco, C., & Zhu, Y. “University of Wisconsin-Milwaukee and Hartford Elementary School Urban Transportation Design Strategy,” University of Wisconsin, Milwaukee, October 2006.

Barrette, R. & Bunyan, S. "Effects of Measurement Techniques and Participant Task Constraints on Maximal Countermovement Jump Height and Velocity at Take-Off," University of Wisconsin, Milwaukee, May 2006.

"Hip Joint Loading During Level, Upstairs, and Downstairs Walking," University of Wisconsin, Milwaukee, April 2006.

"A Literary Review of Human Subject Testing in Low Speed Rear-End Crashes," University of Wisconsin, Milwaukee, December 2005.

"An Examination of Traffic Safety Issues and Recommended Actions," South 27th Street Traffic Safety Study, City of Milwaukee and UWM, May 2004.

"A Safety Device to Detect a Stuck Throttle Condition in a NASCAR Racing Engine," Senior Design Project, MSOE Library, November 2001.

"A Remotely Controlled Vehicle Disabling System For Law Enforcement Use in Police Pursuits," Milwaukee School of Engineering, June 2001.

PROFESSIONAL TRAINING

Attended over 3700 hours of courses and seminars in traffic safety, to include:

The Traffic Institute, Northwestern University, Evanston, Illinois:

Injury Biomechanics in Traffic Crash Reconstruction, 2022

Advanced Crash Reconstruction with Human Factors, 2013

Traffic Crash Reconstruction III, 2012

Identification and Treatment of High Hazard Locations, 2006

Traffic Engineer Technical Assistants Training, 1992

Microcomputer Assisted Accident Reconstruction (EDCRASH), 1990

Traffic Accident Reconstruction II, 1989

Traffic Accident Reconstruction I, 1988

Vehicle Lamp Examination, 1988

Vehicle Dynamics, 1988

Technical Accident Investigations, 1987

DWI/Reckless Homicide Conference, 1987

Selective Traffic Enforcement, 1987

At-Scene Accident Investigations, 1986

IPTM, University of North Florida, Jacksonville, Florida
Pedestrian / Bicycle Crash Investigation, 2017
Motorcycle Accident Investigations, 1990
Inspection of Commercial Vehicles in Accidents, 1989
Commercial Vehicle Accident Investigations, 1989

Engineering Dynamics Corporation (EDC), Beaverton, Oregon
HVE Forum: 2003, 2004, 2006, 2007, 2009, 2010
HVE Simulations (EDHIS, EDVDS, EDHVS), 1995
EDC Simulations (EDSMAC, EDVTS, EDSVS), 1994
EDC Reconstruction (EDCRASH), 1990

Society of Automotive Engineers, SAE, Warrenton, Pennsylvania
Reconstruction and Analysis of Rollover Crashes of Light Vehicles, 2016
Reconstruction and Analysis of Motorcycle Crashes, 2016
Accessing and Interpreting HV Event Data Recorders: 2011, 2018, 2024
Fundamentals of Heavy Truck Dynamics, 2009
Commercial Vehicle Braking Systems, 2007
Braking Performance of Heavy Commercial Vehicles, 2001
World Congress and Exposition, 1991, 1993, 1994, 1996

Collision Safety Institute, San Diego, California
Crash Data Retrieval Data Analyst Course, 2014
CDR User's Summit/CDR Conference: 2012, 2014, 2016
Crash Data Retrieval Technician Course, 2008
Crash Data Retrieval (CDR) System Operator Course, 2005
Crash Data Retrieval System Operator's Certification Course, 2002

University of Wisconsin, Milwaukee - Traffic Engineering Graduate Courses,
Leading to a Masters of Science in Engineering Degree, 2009
Traffic Engineering, 2003
Traffic Control, 2004
Urban Transportation Policy and Planning, 2004
Transportation Facility Design, 2006
Traffic Planning and Operations, 2007
Transportation Policy and Planning, 2008

Methods of Transportation Analysis, 2009

Pavement Analysis and Design, 2009

Thesis: Reconstruction of Heavy Truck Crashes, Published, 2009

Post graduate education in the field of Injury Biomechanics:

Quantitative Physiology, WSU

Biomedical Engineering, WSU

Mathematical Applications in Biomedical Engineering, WSU

Advanced Biomechanics, UWM

Interdisciplinary Themes in Biomechanics, UWM

Musculoskeletal Biomechanics, WSU

Accident Analysis and Reconstruction, WSU

Analysis of Low Speed Collisions, Texas A&M

Injury Biomechanics in Traffic Crash Reconstruction, NUCPS

Impact Biomechanics and Human Injury Tolerance, WSU

Advanced Topics in Impact Biomechanics, WSU

Vehicle Safety Engineering, WSU

Directed Study: Occupant Kinematics, WSU

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