

**CURRICULUM VITAE OF  
RUDY DEGGER, ACTAR**

Direct: (530) 836-1654 Fax: (530) 836-1673  
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**PROFESSIONAL CERTIFICATION AND LICENSES**

A.C.T.A.R. full accreditation; registration number 447  
California Community Colleges Limited Service Teaching Credential  
P.O.S.T. - Basic, Advanced and Supervisory

**EDUCATIONAL BACKGROUND**

Associate of Arts, Administration of Justice, Diablo Valley College, 1974; related college classes outside of AS degree (one semester each) taken between 1971 and 1992: Plane Surveying 1971, Engineering Drawing 1971, Engineering Drawing 1972, Calculus 1972, Chemistry 1972, Fortran Language Programming 1977, Microcomputers 1989, Computers & data Processing 1990, and Physics 1992.  
Police Academy; Pleasanton, California, 1975  
California Community Colleges Limited Service Teaching Credential, University of California, Berkeley, 1986

**EMPLOYMENT**

Rudy Degger & Associates, Inc., 1992-present  
The Office of the Sheriff, Contra Costa County, Law Enforcement Training Center; 2002-present  
Los Medanos College, Pittsburg, California; 1987-2001  
University of California, at Riverside, Riverside, California; 1996-2000  
Sacramento City College, Sacramento, California; 1996-2000  
Contra Costa County Sheriff's Department, Martinez, California; 1975-1995  
RND Collision Analysis (sole proprietor), Lafayette, California; 1986-1992  
Richmond Police Department, Richmond, California; 1974-1975

**RELATED TECHNICAL EXPERTISE**

Police officer – 1975-1995, retired police Sergeant, Contra Costa County Sheriff's Department.

Police accident investigator and reconstructionist - Investigation of more than 1000 traffic accidents as the uniformed at-scene police-investigator, plus the investigation of more than 300 additional accidents, after-the-fact, as the follow-up police investigator and/or police supervisor for the purpose of determining primary collision factors, estimating speeds, determining pre- and post-impact trajectories and the general reconstruction of the accident, taking statements, photographs and measurements, collecting physical evidence, preparing proportional and scaled diagrams and collision reports, miscellaneous advanced technical assistance, and court testimony. Traffic accident investigations and reconstructions included non-injury, injury and fatality accidents involving: auto-auto, auto-object, auto-pedestrian, auto-bicycle, bicycle-object, auto-truck, truck-truck, truck-pedestrian, truck-motorcycle, truck-bicycle, truck-object, auto-motorcycle, motorcycle-motorcycle, and motorcycle-object.

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**Upper Northern California**  
PO Box 1647  
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Accident report review officer - The review of several thousand accident reports from 1984 through 1987 and 1989 through 1995, as the Department traffic accident report review officer and as a police sergeant, respectively.

Traffic Bureau supervisor - Traffic Bureau Supervisor for the Sheriff's Department Contract City of Danville from 1989 through 1995.

IMPACT (team) supervisor - Lead member and supervisor of the Department's Injury and Major Prosecution Accident Call-out Team (I.M.P.A.C.T.) responsible for the reconstruction of major traffic accidents, from 1987 through 1995

Private accident reconstruction - Principle of RUDY DEGGER & ASSOCIATES, INC., the reconstruction of more than 2000 traffic accidents as a private consultant, including: skid mark analysis; speed estimation from skid marks, slide, linear momentum, damage, projectile motion, and energy; damage evaluation; time distance studies; determination of whether injury producing forces exist in certain low-speed impact collisions, environmental, vehicle, and human factor comparisons; occupant kinematics; auto-pedestrian and auto-bicycle impact analysis; photography; investigation and analysis into causation and failure modes for bias-ply and radial tires.

### **SPECIALIZED TRAINING**

Accident Investigation Class, CHP Academy, 1979

Skid Mark Analysis, CHP Pacheco Office, 1980.

Driver Training, Los Medanos College, 1983

Speed Enforcement and Radar Operator Instructor, Los Rios Community College, 1985

Advanced Accident Investigation - Accident Reconstruction, Los Rios Community College, 1985

Drug and Alcohol Recognition Training, Los Medanos Community College, 1986

Traffic Program Management, California State Polytechnic University, 1986

Vehicle Dynamics, Traffic Institute, Northwestern University, 1986

Traffic Accident Reconstruction, Traffic Institute, Northwestern University, 1986.

Skid Mark Analysis, College of the Redwoods, 1987

Supervisory Technical Course, Los Medanos College, 1987

Incident Commander/On-Scene Manager, Hazardous Materials Spills, California Specialized Training Institute, San Luis Obispo, 1991.

Microcomputer Application Programs In Traffic Accident Reconstruction, Traffic Institute, Northwestern University, 1991.

Traffic Accident Reconstruction II, Traffic Institute, Northwestern University, 1991

Investigation of Motorcycle Accidents, Institute of Police Technology and Management, University of North Florida, 1992

Formula Race Car Driver Training (at Laguna Seca Raceway), Jim Russell Racing Drivers School, Salinas, 1992

Investigation of Pedestrian Accidents, Instruction by Gary Stephens, S.A.T.A.I. Conference, Los Angeles, 1993

Investigation of Pedestrian Accidents and Human Factors, Institute of Police Technology and Management, University of North Florida, Jacksonville, 1993

Special Problems In Traffic Accident Reconstruction (Analyzing Nighttime Accidents; Tractor Trailer Jackknife Problems; Accident Fraud; Vehicle Rollovers; Lamp Analysis; Mechanical Vehicle Inspection; Airborne Accidents; Friction and Energy Problems; Occupant and

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Pedestrian Injury Analysis), Institute of Police Technology and Management, University of North Florida, Jacksonville, 1993

Momentum and Crash 3 Applications, and Kinetic Energy and Speed Equivalent, Gary Cooper and Terry Day, S.A.T.A.I. Conference, Reno, 1993

Staged Collision and Speed From Damage Analysis, Thad Aycock, The Traffic Institute, Northwestern University, S.A.T.A.I. Conference, Phoenix, AZ., 1994

Low Speed Rear Impact Collisions, Society of Automotive Engineers, SAE TOPTEC, Irvine, CA, 1994

Critical Speed Analysis during Deceleration, Richard Chatman, W.A.T.A.I., A.C.T.A.R., S.A.T.A.I. Conference, Reno, NV, 1994

Work Zone Traffic Accidents, Arnold Wheat, S.O.A.R., A.C.T.A.R., S.A.T.A.I. Conference, Reno, NV, 1994

Low Impact Collision Seminar, National Institute of Forensic Studies, Pleasanton, CA, 1995

Computerized Collision Diagramming, Institute of Police Technology and Management, University of North Florida, Jacksonville, 1995

Special Problems in Traffic Accident Reconstruction (Accident Animation and Simulation: Legal Issues; Occupant Kinematics and Human Tissue Injury Analysis; Night Visibility and Human Factors; New Automotive Lamp Technology; Low Speed Impact Analysis; Physical Evidence vs. the Eye Witness; Bus Accident Reconstruction; Vehicle Fire Analysis; Friction and Tire Forces; Multi-Unit Commercial Vehicle Analysis; Headlight Pattern Analysis), Institute of Police Technology and Management, University of North Florida, Jacksonville, 1995

Tire Forensics for the Accident Investigator, Institute of Police Technology and Management, University of North Florida, Jacksonville, 1995

Low Speed and Minor Impact Investigations: Basic Fundamentals and Application of Collision Test Data Seminar, Mark Bailey, B.S. Mechanical Engineer, M.S. Metallurgy; Dave King, P.E., MacInnis Engineering Associates Ltd., Jeff Wheeler, M.S. Biomechanical Engineer; Biodynamics Engineering Inc., thirty-five low speed staged collisions with live human volunteer test subjects, S.A.T.A.I. Conference, Phoenix, AZ., 1995

The Insurance Institute of Highway Safety, Vehicle Research Center, VA.; the National Crash Analysis Research Center, George Washington University Extension, VA.; Visual Estimation of Estimating Vehicle Damage and Evaluating Repair Estimates, Mr. Shelton, Property Claim Trainer, State Farm Insurance, S.O.A.R./T.A.A.R.S./W.A.T.A.I. Combined Conference, Charlottesville, Virginia, 1995

Low Speed and Minor Impact Collision and ABS demonstrations: MacInnis Engineering Associates Ltd.; Biomechanics of Injury: Liptai Engineering. N.C.F.I.A. Conference, Monterey, 1996

Low Speed and Minor Impact Collision Testing, Mark Bailey, B.S. Mechanical Engineer, M.S. Metallurgy; Dave King, P.E., MacInnis Engineering Associates Ltd., fifteen low speed staged collisions, S.A.T.A.I. Conference, Phoenix, AZ., 1996

Motorcycle Crash Dynamics, Paul Olson, Faculty IPTM and Major with Bellevue Police Department Washington, S.A.T.A.I. Conference, Phoenix, AZ., 1996

Low Speed Collision Toptec: *Injury Biomechanics*, Mark Gomez, Ph.D.; *Understanding "Whiplash"*, Whit E. McConnell, M.D., Richard Harding, Ph.D., Thomas M. McNish, P.E., M.D., Alfred P. Bowles, P.E., M.D., Scott W. Krenrich, M.D. (all with Biodynamic Research Corporation) and Louis Y. Cheng, Ph.D., Failure Analysis Associates, Inc.; *Human Volunteer Testing*, Gunter Sigmund, P.E., MacInnis Engineering and John R. Brault, M.S., Biomechanics Research and Consulting; *Human Subject Responses to Various Acceleration Fields*, Thomas J. Szabo, P.E., Biomechanist and Judson Welcher, P.E., Biomechanist, (both with Biomechanical Research and Testing); *Structures and Injuries of the Neck*, Barry Ph.D., Biomechanist, Duke University Faculty of Medicine; *Dynamic Requirements of Automobile*

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- Seatbacks*, Doug Romilly, Professor of Mechanical Engineering, University of British Columbia; *Rear-end Collisions - Dummy Testing*, Mats Y. Svensson, Ph.D.; *Comparison of Different Car Seats*, Adreas Moser, Technical University of Graz, Austria; *Reconstructing Minor Collisions*, Mark N. Bailey, B.S. Mechanical Engineer, M.S. Metallurgy, MacInnis Engineering; *Low Speed Vehicle Impact Demonstration*, David King, B.S., MacInnis Engineering. Society of Automotive Engineers, SAE TOPTEC, Vancouver, B.C., Canada, 1996
- Damage Analysis and Speed Estimation from Crush, Timothy A. Moebes, P.E., Trantech Corporation, *two high speed barrier staged collisions*, S.A.T.A.I. Conference, Phoenix, AZ., 1997
- Close-Range Softcopy Photogrammetry In Accident Reconstruction, Harry W. Townes, P.E. (PhotoWin35), S.A.T.A.I. Conference, Phoenix, AZ., 1997
- Momentum and Energy Principles, Dr. Gordon Bigg, Ph.D. and Dr. Bruno Schmidt, Ph.D., M.A.T.A.I. Conference, Kansas City, MO., 1998
- Motorcycle Accident Investigation, Neil Robar; Vehicle Aerodynamics related to Accident Reconstruction, John Daly, P.E.; S.A.T.A.I. Conference, Phoenix, AZ., 1998
- Understanding Occupant Behavior in Vehicle Collisions, Dr. Richard Froede, M.D. and Laurence G. Cripe, BCFE, ACTAR; Lamp Examination, Ray Gieszl; S.A.T.A.I. Conference, San Diego, CA., 1998
- The Practical Application of Crush, James A. Neptune, P.E. (Neptune Engineering, Inc.), Terry D. Day, P.E. (Engineering Dynamics Corporation), George M. Bonnett (Reconstruction Technology and Rec-Tec software); FARO Conference, OR., 1999
- Speed from Crush; Donald J. Basham and James A. Neptune, P.E. (Neptune Engineering, Inc.); CA<sup>2</sup>RS Conference, CA, 1999
- Event Data Retrieval Technology ("black box") - Computerized Vehicle Diagnostics; Donald Floyd, P.E. (General Motors Corporation - Michigan) and Donald Gilman, P.E. (Vetronix Corporation); CA<sup>2</sup>RS Conference, CA, 1999
- Tire Damage Analysis; Michelin Tire Company; University of California – Riverside, CA, 2000.
- Light and Heavy Vehicle Acceleration Tests; CA<sup>2</sup>RS Quarterly Training meeting at Stockton P.D., Stockton, CA, 2000
- HVE Forum Workshop – HVE-2D / EDCRASH / EDSMAC; Terry D. Day, P.E. (Engineering Dynamics Corporation); Kenneth S. Baker and James P. Sneddon (Northwestern University Traffic Institute); San Diego, CA, 2000
- Accident Reconstruction and Litigation Seminar: Human Factors in Traffic Accident Reconstruction, Paul L. Olsen, PhD; The Effects of Drugs and Alcohol on Driving, James T. O'Donnell, Pharm.D., M.S.; Accident Investigation and Reconstruction: Occupant Kinematics, Dynamics and Biomechanics, Alan J. Watts, PhD; Inducing Error and Injury: Distractions, Reactions and the Brain, George A. Peters, J.D., P.E.; Human Factors and Emergency Vehicles, Stephen S. Solomon, B.S., O.D.; Anaheim, CA., 2001
- Tire and Wheel Related Reconstruction Issues, Harold Herzlich; Momentum, Gary Cooper; Pole Collisions, Joe Cofone; Southwestern Association of Technical Accident Investigators, Las Vegas, NV, 2001
- Human Factors in Accident Reconstruction, Dean Reichenberg, CHP Special Investigation Unit (former MAIT); California Association of Accident Reconstruction Specialists; Concord, CA, 2001
- Incident Management Concerns for the Traffic Collision Reconstructionist, Arnold Wheat; Roadway Issues in Accident Investigation, Jim Purcell, P.E., CHP MAIT; Critical Speed Testing Results and Analysis, Timothy J. Ruest, P.E.; Investigation of Staged Traffic Collisions, Joseph J. Del' Marmol; Momentum Basics, Tom Shelton, CHP MAIT (retired); Concord, CA, 2001

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Injury Mechanisms during Motor Vehicle Collisions, Sean D. Shimada, Ph.D.; California Association of Accident Reconstruction Specialists, Davis, CA, 2002

Accident Reconstruction of Heavy (Commercial) Vehicles; USDOT Motor Carrier Compliance, Hugo Segletes, Anaheim PD; Sixteen Crash Tests: Seven low speed rear-end impacts, three low speed broadside impacts, two low speed sideswipe impacts, one moderate speed rear-end impact, one high speed lateral impact against trailer axle, one rear-end trailer under ride impact and one lateral trailer under ride impact, David J. King, PE and Jonathan M. Lawrence, PE, MacInnis Engineering Associates; Instrumented Tractor-Trailer ABS Brake Testing, Commercial Vehicle Air Brake Testing, Commercial Vehicle Event Data Recorders and Vehicle Speed Calculation Using Running Gear Specifications, Timothy J. Reust, PE, Accident Science; Computer Application to Heavy vehicle Accident Reconstruction, Bill Cliff, PE, MacInnis Engineering; Determining Braking Efficiency (Heavy Vehicles), William M. Jones, Mr. Truck; Commercial Vehicle Mechanical Inspection, Alan D. Coulter, Motor Carrier Specialist, CHP MAIT, Border Division; Anaheim, CA, 2002

PC Crash: Introduction to PC Crash – Training Workshop, William E. Cliff, PE (MacInnis Engineering; Garden Grove, CA 2002

Tire Forensics, Mechanics and Inspection, Thomas R. Giapponi, PE (TRGtech Tire Consulting); California Association of Accident Reconstruction Specialists, Concord, CA 2003

Crash Data Retrieval System Operator's Certification Course; Collision Safety Institute, W.R. "Rusty" Haight; Concord, CA 2003

HVE Forum Workshop – HVE-2D / EDCRASH / EDSMAC / EDSVS / EDVTS; Terry D. Day, P.E. and J. Travis Garvey (Engineering Dynamics Corporation); Kenneth S. Baker and James P. Sneddon (Baker Sneddon Consulting); Wesley D. Grimes; Las Vegas, NV, 2003

ARC-CSI Crash Conference; Analyzing Events Where Vehicles Move Through the Air in a Fall, Gary W. Cooper, PE, Fricke Cooper Engineering; Collision Trauma Biomechanics, Jud Welcher, BSME, MSBE, Biomechanical Research & Testing, LLC; Current Research in Low Speed Impacts – Biomechanics and Reconstruction, Thomas J. Szabo, PE, Biomechanical Research & Testing, LLC; Commercial Vehicle Event Data Recorders, Timothy J. Reust, PE, Accident Science; Las Vegas, NV, 2003

Bicycles and In-line Wheeled Vehicles/Devices Conference; Razor Scooters/Bicycles, Tim Ruest, PE, Accident Science; Accident Reconstruction Using Excel Spreadsheets, Bruno Schmidt, Ph.D.; Personal Mobility Devices, Thomas Fugger, PE, Accident Research and Biomechanics; Skateboard and Roller Blade Speeds, Jerry Eubanks, Automobile Collision Cause Analysis; Biomechanical Injury causation, Sean Shimada, Ph.D., Biomechanical Consultants of California; Medical Field and Collision Investigations, Dr. Frederico Vaca, MD, UCI Medical Center; Anaheim, CA, 2003

Vehicle Lamp Analysis; James Domenoie, Captain Riverside County Sheriffs Office/Chief of Police City of Temecula; Pittsburg, CA 2004

HVE Forum Workshop – HVE-2D / EDCRASH / EDSMAC / EDSVS / EDVTS; Terry D. Day, P.E.; Kenneth S. Baker and James P. Sneddon (Baker Sneddon Consulting); Wesley D. Grimes; Joeseoph H. Canova; San Francisco, 2004

ARC-CSI Crash Conference; Crash Testing – A Historical Perspective, Wilton D. Nelson, BSCE; Crash Data Retrieval System Update, Rusty Haight; Legal Implications of CDR Data Retrieval and Use, Mike Horowitz, Esq.; Crush Measuring Protocol, Nicholas S. Tumbas; Evaluating and using Crash Test Data, James A. Neptune; Commercial Vehicle EDR Systems, Timothy J. Reust; Restraint Evaluation for Collisions, Donald Felicella; Crash Testing Data (low speed, barrier and two-car collisions); Las Vegas, NV, 2004

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Motorcycle Investigation and Reconstruction Conference – Motorcycle Design, Tire and Tiremark Interpretation and Rider Habits, Steve Anderson; Motorcycle Brake Systems, Albert Baxter; Motorcycle Helmets and Injury Prevention, David R. Thom, MS; Relevant Motorcycle Laws and Lane Sharing, Steve Haverkamp; Santa Rosa, CA, 2004

Crash Data Retrieval System - Operator's Certification Course Update, Rusty Haight (Collision Safety Institute); Las Vegas, NV, 2005

ARC-CSI Crash Conference; The Impact of Micro sleep (Fatigue) on the Driving Task, Whether Weather Influences Driver Response, and Perception and Reaction Times to Path Intrusions, Jeffrey W. Muttart, MA, ACTAR; When Do Airbags Deploy, Douglas A. Nunan (Delphi Electronics & Safety); Commercial Vehicle EDR Systems, Timothy J. Reust; Commercial Vehicle Brake Systems, Dave Stopper; Damage and Energy: How it Works / Why It Works, Bruno Schmidt, PhD; Child Safety Seat Issues in Crash Reconstruction, Mike McCullough; Analysis of Collisions Involving Pedestrians or Bicycles, Jerry Eubanks; Pedestrian Crash Case Studies, George Hall, PE; Pedestrian Crash Injuries, Jud Welcher, MME; Crash Data Retrieval System: Developments and Future Trends, Andrew Bunch (Vetronix Corporation); Las Vegas, NV, 2005

Investigating Emergency Vehicle Collisions Conference – Human Factors, Dr. Stephen S. Solomon, BS, OD; EDR Downloads from Emergency Vehicles, Tim Reust; Construction of Firefighting Vehicles, Alan Irwin; POST Guidelines on Code-3 and Pursuit Driving, James Holder; Vehicle and Scene Documentation, Greg Matthews; Legal Aspects of Emergency Vehicle Operations, Deputy DA Creg Datig, Riverside DA; Temecula, CA 2005

Crash Data Retrieval System Operator's Certification Course - Rusty Haight (Collision Safety Institute); Vallejo, CA, 2006

Crash Reconstruction – Roadway Design and Sightline Issues, Anna Ristau, The CAD Zone, Inc.; Crash Data Retrieval Systems, Steve Haverkamp; Vehicle Inspections, Dean Linnens, CHP MAIT; Autopsies and Medical Records, Dr. Sean Shimada, PhD; Interviewing Techniques, Toni Wolfe, LAPD; Lake Tahoe, CA 2006

Crash Reconstruction – Auto-Pedestrian, and Low and High Speed Auto-Auto Crash Testing; Automobile Insurance Fraud, Tony Torres, California Department of Insurance; New Approaches to Auto-Pedestrian Reconstruction, Jerry Eubanks, Automobile Collision Analysis; Nighttime Visibility, Dave King, MEA Forensic Engineers & Scientists; Commercial Vehicle Accident Reconstruction Factors, Tim Reust, Accident Science; Errors & Omissions in Reconstruction, Bruno Schmidt, PhD; Understanding Low Speed Collisions, David King, MEA Forensic Engineers & Scientists; High Speed Offset Collisions, David King, MEA Forensic Engineers & Scientists; Anaheim, CA 2007.

Crash Zone – Kent Boots, CAD Zone Inc., Menlo Park, 2007.

Advanced Crash Zone, Factual Diagram, Inc., Sacramento, CA 2008.

Traffic Signals: Nomenclature, Traffic Signal Timing and Phasing Diagrams, Pedestrian Signal Timing, Yellow times, Dilemma Zones, Advanced Loop Sensors, Perception Reaction Factors at Intersections, Last Look Phenomena, Path Intrusions, Gap Judgment and Start up Delay; Chris Kauderer, BSME, ACTAR; Vacaville, CA, 2008.

Measuring Drag Factor, Rick Jobe, Vericom Computers, Inc.; Narrow Object Impacts, Critical Speed and Yaw, Investigating Roll-Over Collisions, John Dailey, Jackson Hole Scientific Investigations, Inc.; Human Factors and Visibility, Momentum and Crush, John B. Kwasnoski, Legal Sciences; CAARS 10<sup>th</sup> Conference, Sacramento, CA, 2008.

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Human Factors in Traffic Crashes: Perception and Reaction Time (Path Intrusion, Cut-off, Lead Vehicle), Acceleration, Search Area, Gap Acceptance, Nighttime Response and Driver Choice Decisions; Jeffrey W. Muttart, M.A., ACTAR, Accident Dynamics Research Center; Sacramento, CA, 2009.

HVE Forum Workshop – HVE-2D+; Terry D. Day, P.E.; Kenneth S. Baker and James P. Sneddon (Baker Sneddon Consulting); Joeseeph H. Canova; San Antonio, TX, 2010

Rollover Crashes, Kurt D. Weiss, MSME, Automotive Safety Research; San Jose, CA 2010.

Crash Data Retrieval System Technician and Data Analyst Courses - Rusty Haight (Collision Safety Institute); Vallejo, CA, 2010.

Accident Reconstruction and Biomechanical Analysis of Pedestrian Collisions – Jesse Wobrock, Ph.D. and Tia Orton, B.S., Roseville, CA, 2010.

## RESEARCH AND DEVELOPMENT

High and Low-Speed Auto-Auto Crash Testing, Los Medanos College, 1987-2005

High and Low-Speed Skid Testing (coefficient of friction), Los Medanos College, 1987-2005

High-Speed Conventional and A.B.S. Skid Testing, Contra Costa County Sheriff's Department I.M.P.A.C.T. (team), 1993

Auto-Pedestrian Crash Testing, Contra Costa County Sheriff's Department I.M.P.A.C.T. (team), 1994

High-Speed Lateral-Impact Crash Testing, University of California Riverside, 1996

Low-Speed Rear, Lateral, Sideswipe and Front-Impact Crash Testing, University of California Riverside, 1996, 1997, 1998 and 1999

Lamp Analysis (on-off), Los Medanos College, 1997

Motorcycle Skid and Slide Testing (coefficient of friction), CA<sup>2</sup>RS, 1998 and 1999

High-Speed Crash Testing, Auto-Auto Lateral-Impact, CA<sup>2</sup>RS, 1998 and 1999

Auto-Pedestrian Crash Testing, CA<sup>2</sup>RS, 1999

Low-Speed Rear and Lateral-Impact Crash Testing, NCFIA, 1999

High-Speed Lateral-Impact Crash Testing, NCFIA, 1999

High Speed Crash Testing, Auto Barrier UNDER-RIDE; CA<sup>2</sup>RS, 1999

High Speed Crash Testing, Auto Barrier FULL and OFFSET, CA<sup>2</sup>RS, 1999

Acceleration Testing; Light and Heavy Vehicles, CA<sup>2</sup>RS, 2000

Acceleration / deceleration Testing; Buses, CA<sup>2</sup>RS, 2000

Acceleration / deceleration Testing; Tractor-trailer combination and Buses, CA<sup>2</sup>RS, 2002

Low-Speed Rear and Lateral Impact Crash Testing of Tractor-trailer and large buses versus Passenger Cars and light trucks versus passenger cars, CA<sup>2</sup>RS, 2002

High-Speed Rear, Passenger Car versus Tractor-trailer Combination and High Speed Lateral Trailer Under-ride, Passenger Car versus Trailer, Crash Testing, CA<sup>2</sup>RS, 2002

Deceleration Testing, 1948 "Historic" Streetcar, San Francisco, 2003

Auto-Pedestrian Crash Testing as follows: (1) Sacramento, 2003, (2) Anaheim, 2004, (3) Vallejo, 2006, and (4) Vallejo, 2009.

Motorcycle Crash Testing: Twenty-three motorcycle impact tests with twenty-three different motorcycles, using five different cars, Santa Rosa, 2004

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## EXPERT WITNESS TESTIMONY

Qualified as an Expert in Traffic Accident Reconstruction on at least 200 occasions in California State Superior and Municipal Courts and in Federal Court. Court locations include:

Alameda County	Butte County	Contra Costa County	Washoe County, NV
Fresno County	Kern County	Lake County	
Marin County	Mendocino County	Monterey County	
Napa County	Sacramento County	San Francisco County	
San Joaquin County	San Mateo County	Santa Clara County	
Santa Cruz County	Solano County	Sonoma County	
Stanislaus County	Tulare County	Yuba County	

Selected expert testimony:

**Accident speed determination by damage and/or energy analysis** – Established pre-impact vehicle speeds based upon crush analysis of damaged vehicles and/or trajectories

**Bicyclist impacted by motor vehicle** – Bicycle position and vehicle impact speed determined by vehicle deceleration, rider and bicycle trajectory, damage and related physical evidence

**Consistency of damage** - Analysis of the reported damage to determine if the vehicles were involved in a reciprocal collision, based on the damage profile, the damage magnitude, witness marks and balanced forces

**Environmental (roadway) factors** - Determination of whether the road edge contributed to the cause of the accident by its size and shape, empirical test data and the pre- and post-impact trajectory of the motor vehicle

**Failure to yield right-of-way at a controlled intersection** – Determination of red/green signal light for vehicles through human factors analysis, signal light timing and phasing and speed of the vehicles from physical and testimonial evidence

**Human factors** - Perception and reaction time and distance based on the event type, weather and time of day. Sight distance and conspicuity based on the roadway configuration, vehicle size, shape and color, contrast, weather and lighting conditions

**Injury probability and impact force** – Determination of change-in-velocity (delta-V), g-analysis, occupant kinematics and injury probability in low-speed rear-end, front-end, lateral and sideswipe collisions

**Lane change** - Determination of which vehicle made the lane change by the physical characteristics and physical evidence on the involved vehicles, the post-impact trajectory and by the use of computer software to create a 2-dimensional simulation of the accident

**Linear momentum analysis** – Determination of the pre-impact speeds of automobiles and trucks from the pre- and post impact trajectories and vehicle weights

**Motorcycle speed determination by damage** – Established a pre-impact motorcycle speed based on crush analysis of damage car, wheelbase deformation of the subject motorcycle and supporting crash test literature and documentation

**Pedestrian impacted by a motor vehicle** – Pedestrian's position and vehicle impact speed determined by vehicle deceleration, pedestrian trajectory and related physical evidence

**Police procedures** – Proper operation of an emergency vehicle for an officer who collided with a motor vehicle turning left at an intersection; specifically, speed and lane position; general procedures, requirements and definition of code-2 and code-3 response, proper and expected behavior and police procedures that relate to accident prevention; the equipment necessary to comply with the CVC laws

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**Time-distance analysis** – Motor vehicle, bicycle, motorcycle and pedestrian positions based on acceleration (positive, negative and zero) for the purpose of determining right-of-way, probable impact speeds and line-of-sight

**Tire skid mark analysis** – Speed determination of automobile and motorcycles from locked-wheel skidmarks and Critical Speed Scuff marks

**Two-dimensional computer simulations** - Time-distance, pre-impact speeds and vehicle interaction have been illustrated with the use of computer simulations using both static and dynamic displays

## TEACHING EXPERIENCE

Law Enforcement Training Center, The Office of the Sheriff, Contra Costa County, 1/2002 to present; Principle Instructor for the following classes: (1) Intermediate and Advanced Accident Investigation; (2) Traffic Accident Reconstruction Level 1 and Level 2; and (3) Speed Determination from Crush. Students attend in blocks of 40 or 80 consecutive hours (1 or 2 weeks). Each class is taught multiple times throughout the school year except TAR and Crush, which are typically offered only once. Subject matter includes: Accident investigation and reconstruction; Skid mark analysis and speed analysis from skid marks; Friction coefficient, velocity and acceleration concepts; Kinematics; Projectile motion, including pedestrian and motorcycle rider throw; Force and energy considerations; Applied physics; Algebra and Trigonometry; Vehicle dynamics; Conservation of linear momentum; Conservation of energy; Speed from crush; Minor and low speed impact analysis; Equation derivations; Scale diagramming; Seatbelts; Human and environmental factors relating to motor vehicle collisions; and, the principles of low speed impact investigations and reconstruction techniques.

Auto-Pedestrian Traffic Accident Investigation (40-hour class). Classes have been held as follows: (1) Sacramento, CA in 2003; (2) Anaheim, CA in 2004; (3) Vallejo, CA in 2006; (4) Vallejo, CA in 2009.

Los Medanos College, Northern California Criminal Justice Training Center, 1987-2001.

University of California at Riverside, 1996-2000. Classes taught: (1) Speed Determination from Crush, (2) Principles of Low-Speed Impact Investigations, (3) Intermediate and Advanced Accident Investigation, and (4) Traffic Accident Reconstruction.

Los Rios Community College and Sacramento City College, 1996-2000; Basic Accident Investigation. Subject matter included: Accident investigation techniques; Elementary skid mark and speed analysis from skid marks; Friction coefficient, velocity and acceleration concepts; Evidence diagramming; Seatbelts; Human and environmental factors relating to motor vehicle collisions.

Instructor for Contra Costa County Sheriff's Department from 1982 through 1995, subjects taught included: pursuit and code-3 driving; drug and alcohol recognition; radar error recognition; seatbelts; traffic control; and California Vehicle Code.

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## GUEST SPEAKER APPEARANCES

Northern California Fraud Investigators Association, *Low Speed Impacts*, Rohnert Park, 1995  
Palo Alto Police Department, *Accident Reconstruction Techniques*, Palo Alto, 1995  
Consortium of Accident reconstruction Specialists, *Reconstruction of Auto-Pedestrian Traffic Collisions*, San Jose, 1996  
Northwestern University Traffic Institute, *Energy Techniques in Accident Reconstruction*, Oakland 1996  
Northern California Fraud Investigators Association, *Photography for Low Speed Impact Investigations*, Monterey, 1997  
Northern California Fraud Investigators Association, *Low Speed Impacts*, Monterey, 1998  
The Litigation Committee of the Barristers Club of the San Francisco Bar Association, *Low Speed Impact Analysis*, San Francisco, 1997 and 1998  
California Chiropractic Association, *Accident Reconstruction and the Low Speed Impact*, Orange County, 1997 and Concord, 1998  
The American Corporate Council Association, *Low Speed Impact Analysis*, Washington, D.C., 1998  
Northern California Fraud Investigators Association, *Accident Reconstruction: The Low Speed Accident*, Monterey, 1999  
AC Transit, *Photography Techniques in Accident Investigation*, Emeryville, 1998.  
Forensic Accident Reconstructionists of Oregon, *The Practical Application of Crush*, 1999.  
AC Transit, *Report Writing: Accident Investigation and Reporting Techniques*, Emeryville, 1999.  
Lawyers & Judges Accident Reconstruction and Litigation Seminar, *Vehicle Crush Application: The Do's and Don'ts*, Anaheim, 2001  
Southwestern Association of Technical Accident Investigators, *Crush and Energy Application in Accident Reconstruction*, Las Vegas, NV, 2001  
California Association of Accident Reconstruction Specialists, *Back to Basics: Energy and Vehicle Crush Applications – The Do's and Don'ts*, Concord, CA, 2001  
California Association of Accident Reconstruction Specialists, *Time-Distance Review and Using PowerPoint for Presenting Time-Distance Analysis in the Courtroom*, Anaheim, CA, 2003  
Orange County Sheriff's Office MAIT Team, *Conservation of Momentum and Energy Reviewed; Varied Methodologies for Calculating Impact Speed From Crush*, Aliso Viejo, CA, 2003  
ARC-CSI Crash Conference, *Crush: Mass Reduction Factor and Delta-V*; Las Vegas, NV, 2003  
California Association of Accident Reconstruction Specialists, *Momentum Review: Using Momentum to Calculate Impact Speed*, Anaheim, CA, 2004  
California Association of Accident Reconstruction Specialists, *Case Study: Speed, Time and Distance Analysis plus Human Factors and Analysis of Driver Line of Sight for a Fire Engine versus Auto Crash while Fire Engine responding Code-3 to a Building Fire*; Temecula, CA, 2005  
California Association of Accident Reconstruction Specialists, *Two Case Studies: Momentum Analysis: The Left Turning Vehicle, and Momentum Analysis: The Broadside Impact*; Lake Tahoe, CA, 2006  
City of San Francisco, Assistant City Attorneys and Investigators, *Basic Accident Investigation Techniques*, San Francisco, CA 2007  
California Association of Accident Reconstruction Specialists, *Projectile Motion: Calculating Speed at Lift-off*; Long Beach, CA, 2007  
The Contra Costa County Law Enforcement Training Center, *Investigation Procedures, Human Factors, Physical Evidence, Vehicle factors, and Tire Friction Marks*, Concord, CA, 2007

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## PUBLICATIONS AND SELECTED PAPERS

- Traffic Collision Investigation Manual for Contract Cities*, Contra Costa County Sheriff's Department, 1985
- Concepts of Traffic Collision Reporting: A Study of the Cost, the Administration, the Extent of Investigation, and the Goals and Objectives Necessary for a Reporting Policy*, Lafayette Police Department, 1985
- A Review of Mathematics For Accident Investigation Students*, Los Medanos College, 1991
- A Review of Basic Physics For Accident Investigation Students*, Los Medanos College, 1992
- Derivations of Equations For Accident Investigation Students*, Los Medanos College, 1992
- The Analysis of Injury Potential in Low Speed Impact Collisions*, Northern California Fraud Investigators Annual Conference, Rohnert Park, 1995
- Traffic Accident Investigation Reconstruction 1 Level: Mathematics and Physics, Conservation of Energy, Conservation of Linear Momentum, Speed from Damage, Vehicle and Occupant Kinematics*, Student Text Book formerly for Los Medanos College and currently for the Office of the Sheriff of Contra Costa County, published by West Coast Accident Reconstruction Equipment and Education products, 1997, 2004 and 2005
- Principles of Low Speed Impact Investigations*, University of California at Riverside, Student Text Book, 1998
- The Crush Guidebook: The Practical Application of Crush*, Annual Conference - Forensic Accident Reconstructionists of Oregon, Participant Resource Book, 1999
- The Application of Momentum and Energy Principles in Motor Vehicle Accidents*, Skidmarks, Summer 1999, Volume 6, California Association of Accident Reconstruction Specialists
- Newton's Laws of Motion*, Skidmarks, Summer 2001, Volume 14, California Association of Accident Reconstruction Specialists
- Calculating Velocity from Critical Speed Scuffs*, Skidmarks, Fall issue 2002, Volume 19, California Association of Accident Reconstruction Specialists
- Calculating Impact Speeds Using Conservation of Energy*, Skidmarks, Fall 2002, Volume 19, California Association of Accident Reconstruction Specialists
- Drag Factor: Three Techniques for Calculating the Drag Factor When Brake Force at Each Wheel is Unequal*, Skidmarks, 2003, Volume 20, California Association of Accident Reconstruction Specialists
- Traffic Accident Investigation, Intermediate Level (Volume 1 of the Traffic Accident Investigation & Reconstruction Educational Series): Mathematics and Physics Review, Speed Estimation Concepts, Drag Factor and Coefficient of Friction, Formulae Derivations, Irregular Braking, Tire Mark Measurement, Documentation, Definition and Identification, Skids Testing Data, and Application*, Student Text Book formerly for Los Medanos College and currently for the Office of the Sheriff Contra Costa County, published by West Coast Accident Reconstruction Equipment and Education products, 2003

## COMPUTER SOFTWARE

Accident Reconstruction Calculator (ARC) for Windows 9x.x, NT, XP and Vista; ©1998, ©1999 ©2000. Designed and developed in conjunction with Sandoz Systems Solutions. Marketed and distributed under West Coast Accident Reconstruction Equipment (We.C.A.R.E.™).

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## RECONSTRUCTION TOOLS AND EQUIPMENT

DBD Crush Jig™ designed for measuring the crush on a damaged motor vehicle and for additional photographic evidence to illustrate the vehicle damage profile in high-speed impacts. Designed and developed in conjunction with Kerry A. Berg & Associates, Inc. Marketed and distributed under West Coast Accident Reconstruction Equipment (We.C.A.R.E.™).

## PROFESSIONAL AFFILIATIONS

Accreditation Commission for Traffic Accident Reconstruction  
Society of Automotive Engineers (S.A.E.)  
California Association of Accident Reconstructionist Specialists (C.A<sup>2</sup>.R.S.) – *Founding Board Member, April 13, 1998; ACTAR Governing Board of Directors 1999-2007*  
Society of Accident Reconstructionists (S.O.A.R.)  
National Association of Professional Accident Reconstruction Specialists (N.A.P.A.R.S.)  
Southwestern Association of Technical Accident Investigators (S.A.T.A.I.)  
Northern California Fraud Investigators Association (N.C.F.I.A.)

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