

# Vadnais Engineering

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## Curriculum Vitae of **THOMAS H. VADNAIS, P.E.**

### *Expertise*

Consultant in the areas of tire applications and failures; legal photography, including nighttime, product liability, and other forensic photography; and commercial vehicle and passenger car accident reconstruction.

### *Formal Education*

5/78 - Bachelor of Science - Mechanical Engineering - University of Maryland

### *Experience*

10/81 - Present: Consulting engineer with Vadnais Engineering, Vadnais & Wood, and SEA Limited, on behalf of tire and vehicle dealers, tire service providers, truck lines, manufacturers, state and local municipalities, insurance companies, individuals, other experts, and law firms in the following areas:

- Tire failure analysis, maintenance, and applications including medium/heavy truck, light truck, and passenger tires.
- Professional photography including: product and product liability; testing and test setup; ambient and detail night photography; macro and close-up; incident/accident area or facility; vehicle documentation; photo analysis; image processing; photographic exhibit preparation; and, photography and image processing instruction.
- Commercial vehicle and passenger car accident reconstruction, including human factors.

05/78 - 09/81: Advanced Tire Development Engineer for B.F. Goodrich:

- Designed, developed, tested, and analyzed heavy duty truck and state-of-the-art automobile high-performance tires.
- Analyzed test, field, and competitor tires.
- Evaluated tire and vehicle performance as a qualified test driver.
- Modified production equipment and techniques.
- Provided technical support to road racing, field engineering, and programs.

10/04 - Present: Leader or co-leader for Great Smoky Mountains Institute at Tremont for both spring and fall photography workshops, annually.

12/18 - Present: Instructor for SAE International teaching *Photography for Accident Reconstruction, Product Liability, and Testing*.

### ***Memberships***

SAE International Life Member

Instructor: *Photography for Accident Reconstruction, Product Liability, & Testing*

Accident Reconstruction Certification

AIRP Heavy Truck Forum Group Past Chairman

Technical Paper Peer Reviewer

Human Factors & Ergonomics Society (HFES)

Technology & Maintenance Council (TMC) of the American Trucking Associations (ATA)

Commercial Driver's License (CDL) w/Doubles, Triples, & Tanker Endorsements

Tire Industry Association (TIA)

The Tire Society

BioCommunications Association (BCA)

Professional Photographers of America (PPA)

American Society of Media Photographers (ASMP) - Professional Member

Georgia Nature Photographers Association (GNPA) - Past President & Board Member

Roswell Photography Society (RPS) - Past President & Board Member

North Georgia Camera Club Council (NG3C) - Founding Member & Former Board Member

Carolina's Nature Photographers Association (CNPA)

Booth Photography Guild

North American Nature Photography Association (NANPA) - Co-Leader Regional Events

National Association of Professional Accident Reconstruction Specialists (NAPARS)

### ***Continuing Education***

02/87 - 3-D Occupant Simulation, SAE, Detroit, MI

02/87 - SAE International Congress & AIP Meetings, Detroit, MI

08/87 - Product Safety & Liability Prevention, University of Wisconsin, Madison, WI

02/88 - SAE International Congress & AIP Meetings, Detroit, MI

10/88 - STAPP Conference, Atlanta, GA

10/88 - SAE AIP Meetings, Atlanta, GA

02/89 - SAE International Congress & AIP Meetings, Detroit, MI

09/89 - SAE AIP Meetings & Technical Paper Presentations, Detroit, MI

02/90 - SAE International Congress & AIP Meetings, Detroit, MI

06/90 - Mechanics Of Heavy Duty Trucks, University of Michigan, Ann Arbor, MI

09/90 - Photogrammetry Workshop, SAE, Dearborn, MI

09/90 - SAE AIP Meetings & Technical Paper Presentations, Dearborn, MI

10/90 - Low Speed Crash Test, TRC, East Liberty, OH

02/91 - Tire Mechanics, SAE, Detroit, MI

02/91 - Brakes: Design & Safety, SAE, Detroit, MI

*Continuing Education - continued*

- 02/91 - SAE International Congress & AIP Meetings, Detroit, MI
- 10/91 - Accident Reconstruction Conference, IATAI, Normal, IL
- 11/91 - SAE Truck & Bus Meeting, Chicago, IL
- 11/91 - SAE AIP Meetings & Technical Paper Presentations, Chicago, IL
- 02/92 - SAE International Congress & AIP Meetings, Detroit, MI
- 03/92 - Pre- & Post-Crash Vehicle Dynamics, SAE, Dearborn, MI
- 04/92-07/92 - Nine multi-session photography classes, Southeastern Center for the Arts
- 06/92 - Commercial Vehicle Accident Reconstruction, Arkansas State University,  
Jonesboro, AR
- 08/92 - Crash Tests & Seminar, BH2VK Engineering, San Bernardino, CA
- 08/92 - SAE AIP Meetings, San Bernardino, CA
- 09/92 - Vehicle Dynamics, SAE, Dearborn, MI
- 03/93 - SAE International Congress & AIP Meetings, Detroit, MI
- 03/93 - Nikon School, Atlanta, GA
- 04/93 - Heavy Truck Rollovers, SAE, Atlanta, GA
- 05/93 - Biomechanics Of Impact, AAAM & IRCOBI, Atlanta, GA
- 03/94 - Tire Failure Workshop, SAE, Detroit, MI
- 03/94 - SAE International Congress & AIP Meetings, Detroit, MI
- 09/94 - Tractor Trailer Conference & Workshop, TAARS, College Station, TX
- 10/94 - Brake Colloquium, SAE, Atlanta, GA
- 11/94 - Crush Measurement Workshop, SAE, Charlottesville, VA
- 11/94 - SAE AIP Meetings, Charlottesville, VA
- 02/95 - SAE International Congress & AIP Meetings, Detroit, MI
- 10/95 - Crash Tests & Trajectory Analyses, SAE, East Liberty, OH
- 10/95 - Heavy Truck Skid Testing & Seminar, SAE, East Liberty, OH
- 10/95 - SAE AIP Meetings, East Liberty, OH
- 02/96 - SAE International Congress & AIP Meetings, Detroit, MI
- 09/96 to 11/96 - CDL Training, Daly's Truck Driving School, Atlanta, GA
- 04/97 - Motorcycle RiderCourse, Motorcycle Safety Foundation, Roswell, GA
- 11/97 - Perception, Reaction, & Conspicuity, University of Iowa, Iowa City, IA
- 11/97 - SAE AIP Meetings, Iowa City, IA
- 02/98 - SAE International Congress & AIRP Meetings, Detroit, MI
- 02/98 - Nikon School, Atlanta, GA
- 11/98 - SAE Truck & Bus Meeting, Indianapolis, IN
- 11/98 - SAE AIRP Meetings, Indianapolis, IN
- 01/99 - HVE Users Seminar, Engineering Dynamics Corp., Atlanta, GA
- 11/99 - EDC Simulations, Engineering Dynamics Corp., Coral Gables, FL
- 11/99 - Photography Seminar, Galen Rowell, Atlanta, GA
- 12/99 - Accident Reconstruction TOPTEC: State of the Art, SAE, Costa Mesa, CA
- 12/99 - SAE AIRP Meetings, Costa Mesa, CA
- 02/00 - Human Factors in Automobile Accidents, L&J Publishing, Las Vegas, NV
- 02/00 - Biomechanics & Accident Reconstruction, AAFS Annual Meeting, Reno, NV

*Continuing Education - continued*

- 05/00 - HVE Forum, Engineering Dynamics Corp., San Diego, CA
- 10/00 - Photography Workshop, Galen Rowell, Emeryville, CA
- 10/00 - Digital Photography Class, Moose Peterson, South San Francisco, CA
- 02/01 - Mastering Adobe Photoshop, Elizabeth Garrison, Atlanta, GA
- 03/01 - SAE International Congress & AIRP Meetings, Detroit, MI
- 03/01 - Photography Seminar, Rod Planck, Atlanta, GA
- 04/01 - Bendix Air Brake Systems Product School, Atlanta, GA
- 05/01 - HVE Forum, Engineering Dynamics Corp., Santa Fe, NM
- 05/01 - Fine Art Digital Printing, Bob Cornelis & Galen Rowell, Atlanta, GA
- 05/01 - Accident Reconstruction TOPTec: Special Topics, SAE, Tempe, AZ
- 05/01 - Fundamentals, Bob Bondurant School of High Performance Driving, Phoenix, AZ
- 05/01 - SAE AIRP Meetings, Tempe, AZ
- 10/01 - The Tire as a Vehicle Component, SAE, Greenville, SC
- 10/01 - Tire & Wheel Safety Issues, SAE, Greenville, SC
- 02/02 - Photoshop Seminar, NAPP, Atlanta, GA
- 03/02 - SAE International Congress & AIRP Meetings, Detroit, MI
- 03/02 - Heavy Truck Brake Testing, Phoenix, AZ
- 07/02 - Photoshop Intensive, Joseph Holmes, Oakhurst, CA
- 08/02 - Photography Workshop, Bruce Dale, Pecos, NM
- 03/03 - SAE International Congress & AIRP Meetings, Detroit, MI
- 04/03 - Commercial Vehicle Braking Systems, SAE, Troy, MI
- 05/03 - Photography Workshop, Charlie Waite, Tuscany, Italy
- 05/03 - HVE Forum, Engineering Dynamics Corp., Las Vegas, NV
- 06/03 - Photography Workshop, Jack Dykinga & John Shaw, Redwood NP, CA
- 08/03 - Photography & Photoshop Workshops, Bruce Dale, Pecos, NM
- 09/03 - 6<sup>th</sup> International Conference, ITAI, Stratford-upon-Avon, Warwickshire, England
- 10/03 - Photography & Photoshop Workshop, Bruce Dale, Pecos, NM
- 03/04 - SAE International Congress & AIRP Meetings, Detroit, MI
- 05/04 - HVE Forum, Engineering Dynamics Corp., San Francisco, CA
- 06/04 - SAE EDR Symposium, George Washington University, Ashburn, VA
- 08/04 - Heavy Truck Brake Testing, HTTG, East Liberty, OH
- 10/04 - Photography Master Class, Michael Reichmann, Algonquin Provincial Park, Ontario, Canada
- 10/04 - DDEC Reports & Data Extraction, Detroit Diesel, Detroit, MI
- 10/04 - Photography Workshop, Charlie Waite, Lake District, England
- 01/05 - Epson Printing Academy, JP Caponigro, Art Institute of Atlanta, Atlanta, GA
- 02/05 - HVE Forum, Engineering Dynamics Corp., Coconut Grove, FL
- 05/05 - Photography Master Class, Charlie Waite, Colfax, WA
- 11/05 - Accident Reconstruction Symposium, SAE, Ventura, CA
- 02/06 - NANPA Summit (including Charlie Cramer Photoshop Class), Denver, CO
- 02/06 - HVE Forum, Engineering Dynamics Corp., Mesa, AZ
- 04/06 - SAE International Congress & AIRP Meeting, Detroit, MI

*Continuing Education - continued*

- 05/06 - Photoshop Intensive, Charlie Cramer & Bill Atkinson, Santa Clara, CA
- 05/06 - Photography Master Class, Charlie Waite, Big Sur, CA
- 06/06 - Advanced Photoshop, Charlie Cramer & Bill Atkinson, Santa Clara, CA
- 10/06 - Photoshop Seminar, Jim DiVitalo, Atlanta, GA
- 12/06 - Epson Print Academy, Atlanta, GA
- 08/08 - Human Factors in Traffic Crash Reconstruction, Spartanburg, SC
- 11/08 - Photography Master Class, Charlie Waite, Kanab, UT
- 05/09 - SAE Heavy Truck Engineering Symposium, Greenville, SC
- 01/10 - Photography Seminar, John Shaw, Atlanta, GA
- 05/10 - Photography Master Class, Charlie Waite, Crescent City, CA
- 10/10 - Eastern Sierra Photography Master Class, Charlie Cramer & John Sexton, Lee Vining, CA
- 12/10 - Highway Engineering, Red Vector, Tampa, FL
- 03/12 - Master Printing Class, John Sexton & Charlie Cramer, Carmel Valley, CA
- 09/12 - International Tire Exhibition & Conference (ITEC 2012), Cleveland, OH
- 09/13 - Photography Master Class, Charlie Waite, Ouray, CO
- 12/14 - Brake Control Systems, SAE, Warrendale, PA
- 04/15 - Tire Forensic Analysis, SAE, Troy, MI
- 03/16 - Heavy Truck Acceleration Testing, Joplin, MO
- 05/16 - Accessing & Interpreting HVEDRs, SAE, Charlotte, NC
- 09/16 - Optics, Lighting, and Visibility, Clearly Visible Presentations, Indianapolis, IN
- 09/16 - Vehicle Crash Reconstruction Methods, SAE, Scottsdale, AZ
- 03/17 - Preserving & Analyzing Information from HVEDRs, Northwestern University, Marietta, GA
- 04/17 - WCX 17:SAE World Congress Experience, SAE, Detroit, MI
- 04/19 - Photography Seminar, John Gerlach, Norcross, GA
- 03/19 - Fundamentals of Color and Appearance, X-Rite, Atlanta, GA
- 04/19 - Photography & Photoshop Workshop, Charlie Cramer, Townsend, TN
- 09/19 - Photogrammetry & Analysis of Digital Media, SAE, Troy, MI
- 07/20 - Photogrammetry 4 Forensics, ai2-3D Forensics, Toronto, Canada, virtual
- 10/21 - Applied Vehicle Dynamics, SAE, Greer, SC
- 01/22 - Forensic Photography Symposium, ai2-3D Forensics, Toronto, Canada, virtual
- 03/22 - Accident Reconstruction Digital Summit, SAE International, virtual
- 07/22 - International Symposium on Biomedical and Scientific Photography, BioCommunications Association, virtual
- 09/22 - 51<sup>st</sup> Tire Mechanics Course, University of Akron, ITEC 2022, Akron, OH
- 01/23 - Forensic Photography Symposium, ai2-3D Forensics, Toronto, Canada, virtual
- 03/23 - Accident Reconstruction Digital Summit, SAE International, virtual
- 05/23 - BIOCMM 2023, BioCommunications Association, Santa Fe, NM
- 01/24 - Forensic Photography Symposium, ai2-3D Forensics, Toronto, virtual
- 02/24 - Accident Reconstruction Digital Summit, SAE International, virtual
- 01/24 - Forensic Photography Symposium, ai2-3D Forensics, Toronto, virtual

***Presentations, Classes, & Workshops***

- 09/98 - Speaker & panel discussion participant, ATA Litigation Conf., Scottsdale, AZ
- 09/99 - Speaker & panel discussion participant, ATA Litigation Conf., Beaver Creek, CO
- 02/00 - Speaker, Accident Reconstruction Scientific Session, AAFS, Reno, NV
- 05/01 - Speaker, Accident Reconstruction TOPTEC: Special Topics, SAE, Tempe, AZ
- 02/05 - White Paper Presentation, HVE Forum, Coconut Grove, FL
- 11/05 - Speaker, *Photography for Accident Reconstruction*, Accident Reconstruction Symposium, SAE, Ventura, CA
- 02/12 - Regional Event Co-Leader Everglades National Park, NANPA
- 05/15 - Regional Event Co-Leader Great Smoky Mountains National Park, NANPA
- 04/17 - Presenter, Technical Paper SAE 2017-01-1418, SAE WCX 17, Detroit, MI
- 12/18 - Instructor, *Photography for Accident Reconstruction, Product Liability, and Testing*, SAE Course C1729, Oxnard, CA
- 05/19 - Instructor, *Photography for Accident Reconstruction, Product Liability, and Testing*, SAE Course C1729, Troy, MI
- 08/19 - Instructor, *Photography for Accident Reconstruction, Product Liability, and Testing*, SAE Course C1729, Jacksonville, FL
- 02/20 - Instructor, *Photography for Accident Reconstruction, Product Liability, and Testing*, SAE Course C1729, Irvine, CA
- 08/21 - Instructor, *Photography for Accident Reconstruction, Product Liability, and Testing*, SAE Course C1729, Oxnard, CA
- 01/22 - Presenter, *Three Most Important Tools for Forensic Photography*, Forensic Photography Symposium, ai2-3D Forensics, Toronto, virtual
- 03/22 - Presenter, *Tripods, Polarizers, & Flash*, SAE Accident Reconstruction Digital Summit, virtual
- 07/22 - Instructor, *Photography for Accident Reconstruction, Product Liability, and Testing*, SAE Course C1729, Oxnard, CA
- 07/22 - Presenter, *Tripods, Polarizers, & Flash*, International Symposium on Biomedical and Scientific Photography, virtual
- 08/22 - Instructor, *Photography for Accident Reconstruction, Product Liability, and Testing*, SAE Course C1729, Yuma, AZ
- 01/23 - Presenter, *Perception and Viewing Distance*, Forensic Photography Symposium, ai2-3D Forensics, Toronto, virtual
- 03/23 - Presenter, *Perception and Viewing Distance*, SAE Accident Reconstruction Digital Summit, virtual
- 04/23 - Instructor, *Photography for Accident Reconstruction, Product Liability, and Testing*, SAE Course C1729, Troy, MI
- 12/23 - Instructor, *Photography for Accident Reconstruction, Product Liability, and Testing*, SAE Course C1729, Irvine, CA
- 01/24 - Instructor, *Photoshop for Forensic Photography Workshop*, Forensic Photography Symposium, ai2-3D Forensics, Toronto, virtual
- 02/24 - Presenter, *One Flash is Good; Two or More Can Be Better*, SAE Accident Reconstruction Digital Summit, virtual
- 05/24 - Instructor, *Photography for Accident Reconstruction, Product Liability, and Testing*, SAE Course C1729, Orlando, FL

***Presentations, Classes, & Workshops - continued***

- 05/24 - Presenter, *Tripods, Polarizers, & Flashes*, NAPARS Training Session, virtual
- 09/24 - Instructor, *Photography for Accident Reconstruction, Product Liability, and Testing*, SAE Course C1729, Anaheim, CA
- 01/25 - Instructor Presenter, *Using Flash Workshop*, Forensic Photography Symposium, ai2-3D Forensics, Toronto, virtual
- 01/25 - Presenter, *Using One or More Flashes*, Forensic Photography Symposium, ai2-3D Forensics, Toronto, virtual
- 2004 to Present: Photography & Photoshop presentations to multiple camera clubs
- 2004 to Present: Leader for both spring and fall photography workshops annually, Great Smoky Mountains Institute at Tremont, Great Smoky Mountains NP, TN
- 2010 to Present: Presenter, instructor, judge, portfolio reviewer, and workshop leader, Smoky Mountain (formerly Western North Carolina) Foto Fest, various locations

***Technical Papers & Awards***

- 02/00 - *Heavy Trucks Aren't Just Big Cars*, AAFS, Paper C65
- 02/05 - *Heavy Truck Brake Designer Validation Testing*, HVE Forum, WP-2005-2
- 04/06 - *Extracting Tire Modal Parameters from Test Data*, SAE 2006-01-1399
- 03/17 - *Acceleration Testing of 2016 Kenworth T680 with Automated Manual Transmission in Auto Mode*, SAE 2017-01-1418
- 03/17 - *Acceleration Testing of 2016 Freightliner Cascadia with Automated Manual Transmission in Auto Mode*, SAE 2017-01-1426
- 10/17 - *Influence of Taillight Width on the Ability to Recognize Closing Speed, Closing Distance, and Closing versus Separating*, HFES 2017 Annual Meeting
- 11/22 - Image of Merit, BioImages 2022, BioCommunications Association
- 11/23 - Two Images of Merit, BioImages 2023, BioCommunications Association