



TIMOTHY N. TRESIERRAS, Ph.D., P.E., CXLT

PROFESSIONAL BIOGRAPHICAL OUTLINE

BACKGROUND

Dr. Tresieras' areas of expertise encompass mechanical engineering, electro-mechanical systems, materials science, acoustic analysis, and prototype design. He has extensive experience in evaluating mechanical systems and components subjected to external forces, such as consumer appliances/products, heavy machinery, mechanical devices, and mechanical latch & fasteners. Dr. Tresieras has worked on cases involving the failure and faulty design of products like collapsible walkers and ambulance gurneys, vehicle chair lifts, powered doors and elevator related accidents, hydraulic ram failures, and corrosion/wear related failures. He is also well-versed in premises liability and slip, trip, and fall cases, with expertise in code review, dimensional analysis, and testing of flooring slip resistance. In addition to expertise in vehicle accident reconstruction, Dr. Tresieras has handled cases involving vehicle fraud and stolen vehicles. He is certified to perform vehicle downloads on "black-box" EDR and infotainment systems. Dr. Tresieras is also a certified SolidWorks associate, skilled in computer-aided part design, rapid prototyping, and dimensional analysis.

Dr. Tresieras completed his Ph.D. at the University of California, Berkeley, where his research focused on a modified theory of elastic rods. Earlier in his career, he served as a reserve specialist for community associations, developing budgets and replacement schedules for common area mechanical and structural components, including HVAC systems, pumps, and pool and spa heaters. Outside of direct litigation and expert witness work, Dr. Tresieras served as the Engineering Director for an MEP (Mechanical Electrical Plumbing) division, where he managed investigations and managed litigative support for residential high-rise towers and large community associations in the Miami-Dade and greater South Florida area.

AREA OF EXPERTISE

- Mechanical & Electro-Mechanical Systems
- Consumer Product Design/Failure
- Hydraulic Component Failures
- Industrial Pump & Valve Failures
- Heavy Machinery Failures/Accidents
- Pump, Valve, and Joint Failures
- Elevator/Lift Failures
- Tribology / Slip-Fall / Tip-Over
- Static & Dynamic Testing
- Acoustic Data Acquisition and Analysis
- Rigid-Body 3D Simulation
- Dimensional Analysis
- Rapid-Prototyping
- Accident Reconstruction
- Vehicle Forensics

PROFESSIONAL LICENSES & CERTIFICATIONS

- Licensed Professional Engineer, California, # 35763
- Licensed Professional Engineer, Florida, # 74970
- Certified SolidWorks Associate (CSWA), #C-8ER74RU47H
- CXLT (Certified XL Tribometrist), #1606615
- Bosch CDR Tool Technician of Vehicle EDR Imaging
- Berla Certification for Vehicle System Forensics & Infotainment

EDUCATION

- Ph.D., Mechanical Engineering, University of California, Berkeley, 2009
- M.S., Mechanical Engineering, University of California, Berkeley, 2006
- B.S., Mechanical Engineering, California State University, Northridge, 2003, honors

PROFESSIONAL EXPERIENCE

2024 – Present | ARCCA, LLC | Senior Mechanical Engineer

2023 – 2024 | m2e Consulting Engineers, Inc. | Engineering Director

- Managed the MEP (Mechanical Electrical Plumbing) division, overseeing investigations and litigative support for residential high-rise towers and large community association.

2018 – 2022 | ARCCA, Inc. | Senior Mechanical Engineer

- Provided mechanical engineering expertise in support of investigations and litigation.
- Developed expertise in premises liability, specializing in slip, trip and falls and related codes and standards.
- Developed expertise in vehicle accident reconstruction with a specialization in fraud and stolen vehicle cases.

2010 – 2018 | Exponent | Senior Engineering Consultant

- Provided mechanical engineering expertise in support of investigations and litigation.
- Provided engineering consultation to companies in need of design or failure analysis support for products.
- Developed expertise in acoustic analysis, such as measuring noise as it relates to human hearing.

2013 | University of Miami, Mechanical Engineering Department | Adjunct Professor

- Instruction of materials science course for mechanical engineering students. Course instruction covered the relationship of chemistry, physics, and engineering with respect to material such as metals, non-metals, and polymers. Emphasis was placed on design methods and failure modes.

2014 | U.S. Army Rapid Equipping Force (REF) | Prototype Engineer

- Worked in Afghanistan with field soldiers and high-ranking officers, solving complex multidisciplinary problems, utilizing technologies in: radio frequency (RF) transmission; welding and fabrication; 3D-printing, automated milling (CNC); computer networking; video/audio surveillance; programmable microcontrollers; batteries and basic circuitry.

2009 | University of California, Berkeley | Interim Professor

- Instructed an engineering design course with emphasis on CAD and design methods.

1998 – 2006 | Association Reserves, Inc. | Summer/Fall Intern & Project Coordinator

- Developed budgets and replacement schedules for common area mechanical and structural components.

AWARDS

- Certificate & Badge of Wartime Service (Operation Enduring Freedom, Afghanistan), presented by Lieutenant Colonel Keith Matiskella, U.S. Army, 2014
- Alfred P. Sloan Fellowship, 2005-2009
- California State University Presidential Scholar, 1997-2003

PUBLICATIONS

O'Reilly OM, Tresieras TN. On the evolution of intrinsic curvature in rod-based models of growth in long slender plant stems. *International Journal of Solids and Structures* 2011; 48:1239–1247.

O'Reilly OM, Tresieras TN. On the static equilibria of branched elastic rods. *International Journal of Engineering Science* 2011; 49:212–227.

O'Reilly OM, Tresieras TN. An evolution equation for plant growth. *Proceedings, ASME Summer Bioengineering Conference*, 2009.

O'Reilly OM, Tresieras TN, Senan NAF. Modeling the growth and branching of plants: A simple rod-based model. *Journal of the Mechanics and Physics of Solids* 2008; 5610.

PROFESSIONAL AFFILIATIONS

- American Society of Mechanical Engineers—ASME
- Society of Automotive Engineers—SAE International