



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

PROFESSIONAL BIOGRAPHICAL OUTLINE

BACKGROUND

Dr. Tresieras' areas of expertise include mechanical engineering, electro-mechanical systems, materials science, vibrational and acoustic analysis, and prototype design. He specializes in impacts, collisions, load and vibrational analysis on structures, the mechanical behavior of materials (e.g., stress analysis on parts, fatigue and wear), and the study of systems under the action of external forces (e.g., gear trains, appliances/machines, power transmission). Dr. Tresieras also has experience in electro-mechanical systems with practical skills in basic analog and digital circuit analysis. Dr. Tresieras is an experienced accident reconstructionist, and is certified to perform vehicle downloads on "black-box" EDR and infotainment systems.. Dr. Tresieras is certified as a SolidWorks associate, for use in computer aided part design and rapid prototyping.

Dr. Tresieras completed his Ph.D. at the University of California, Berkeley, where his research focused on creating a modified theory of elastic rods. During his undergraduate and graduate study, Dr. Tresieras served as a reserve specialist for community associations, where he developed budgets and replacement schedules for common area mechanical and structural components (e.g., HVAC, pumps, pool, and spa heaters).

AREA OF EXPERTISE

- Mechanical & Electro-Mechanical Systems
- Consumer Product Design/Failure
- Hydraulic Component Failures
- Industrial Pump & Valve Failures
- Heavy Machinery Failures/Accidents
- 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
- CXL (Certified XL Tribometrist), #1606615
- Bosch CDR Tool Technician of Vehicle EDR Imaging
- Berla Certification for Vehicle System Forensics & Infotainment

EDUCATION & AWARDS

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

PROFESSIONAL EXPERIENCE

2018 – Present | ARCCA, Inc. | Senior Engineer

2010 – 2018 | Exponent | 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 the area of acoustic and vibrational 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.

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
- ASME Paper Reviewer
- Society of Automotive Engineers—SAE International
- Member of the Spray Polyurethane Foam Alliance—SPFA