Appaji Panchangam, Ph.D., P.Eng., ACTAR

204 E. 2nd Ave, Suite 241
San Mateo, CA 94401
(925) 344-1858
apanchangam@brillouinconsulting.com
www.brillouinconsulting.com

Brillouin

PROFESSIONAL PROFILE

Dr. Appaji Panchangam is a Biomechanical Engineer with Brillouin. Dr. Panchangam received a Ph.D. degree in Biomedical Engineering and two master's degrees in the disciplines of Physics and a B.Sc. in Mathematics, Physics, and Chemistry. Dr. Panchangam's primary areas of consulting expertise include injury causation biomechanics, human gait and balance, slips/trips and falls, vehicle accident reconstruction, occupant motion, and product and premises liability.

Over 16 years of forensic engineering experience, Dr. Panchangam's knowledge and broad range of skills enable him to answer complex engineering questions and solve unique problems. Previously, he has conducted research in multiple aspects of musculoskeletal injury with an emphasis on muscle mechanics and injury, and published numerous research articles in national and international organizations. He was awarded the "Young Investigator Award" in 2012 by the Canadian Society of Biomechanics for his research in muscle mechanics. Additionally, Dr. Panchangam has significant academic and industry experience in high-power laser optics, laser protection, and safety. He has expertise in testing and data analysis.

Dr. Panchangam is also an ACTAR-accredited Traffic Accident Reconstructionist. His assessments have included low- and high-speed collisions, rollovers, fatality collisions, collisions involving commercial vehicles, ATV, UTV, and farm and warehouse vehicles, pedestrian and bicycle collisions, driver determination, evaluation of seatbelt and other restraint use, site inspection and mapping, vehicle inspections, speed analysis, time-distance analysis, GPS data analysis, Event Data Recorder download and analysis, crash simulations, and nighttime visibility testing.

POSITIONS

Brillouin Consulting — **San Francisco, CA**
Principal — Mar 2026 - Present
Biomechanical, patent, product, medical device, premises liability, and accident reconstruction and expert focused on industrial and failure analysis files for corporate, government, private and legal clients. Dr. Panchangam also has extensive experience analyzing cases involving automotive crashes, pedestrian accidents, on-road and off-road vehicles, micro mobility scooters, industrial, and construction equipment, among numerous others.

Rimkus — **Concord, CA**
Biomechanical Practice Leader — Mar 2017 - Mar 2026
Evaluated and analyzed human injury and biomechanical systems, including voluntary and involuntary human motions. Performed human-injury impact analyses arising from vehicular accidents, pedestrian accidents, bicycle accidents, railroad accidents, slips/trips/falls, falling objects, workplace accidents, and other accidental events. Analyzed human motion to determine injury potential or biomechanical causation, seatbelt use, occupant positions, and effects of interactions with supplemental restraint systems like airbags and vehicular or non-vehicular structures. Performed vehicle accident reconstruction analysis in complex vehicular accidents by using analytical techniques, as well as computer and physical models, to reconstruct vehicular accidents and to determine the forces and injury levels. Performed slip testing, inspections, and gait biomechanical analyses on walkways, stairs, and ramps.

Talas Engineering, Inc. **Hayward, CA**
Biomechanical Engineer Aug 2015 - May 2017
Analyzed human injury mechanisms, causation and tolerances of various bodily injuries arising from motor vehicle accidents, slips, trips and falls, and pedestrian and bicycle accidents. Reconstructed motor vehicle accidents, pedestrian/bicycle accidents, and commercial vehicle accidents. Performed simulations of vehicle and occupant dynamics. Imaged event data recorders of passenger and commercial vehicles and analyzed the data for evaluation of accident circumstances and dynamics. Provided consulting services to law firms.

Sintra Engineering, Inc. **Calgary, AB**
Forensic Engineer/Scientist Feb 2011 - Jul 2015
Provided consulting services to insurance carriers, law firms, and corporate clients for the evaluation and analysis of human injury and biomechanical systems, including voluntary and involuntary human motions. Specific services included: human-injury impact analysis resulting from vehicular accidents, pedestrian accidents, bicycle accidents, railroad accidents, slips/trips/falls, falling objects, recreational accidents, and equipment failures; analysis of human motion to determine injury potential/causation, seatbelt use, effects of interactions with supplemental restraint systems like airbags, and vehicular and non-vehicular structures; determination of vehicular and occupant kinematics using various analytical techniques and simulations; collection and analysis of vehicular crash data accessed from event data recorders; and exemplar and surrogate studies, static and dynamic testing and analysis, and nighttime visibility studies.

University of Calgary **Calgary, AB**
Research Associate Oct 2008 - Sep 2012
Primary area of research included skeletal muscle injury and mechanics. Performed collaborative research in musculoskeletal injury. Lectured in undergraduate- and graduate-level courses. Trained and supervised undergraduate and graduate students.

Exponent **Los Angeles, CA**
Engineer Nov 2007 - Jul 2008
Analyzed human injury mechanisms, causation and tolerances of injuries arising from vehicular accidents, falls, and forklift failures. Reconstructed motor vehicle accidents and determined occupant motion and injurious effects of bodily interactions with vehicle interior.

University of Michigan **Ann Arbor, MI**
Research Assistant Nov 2003 - Jul 2007
Designed, constructed, and developed an imaging system to investigate cellular-level skeletal muscle injury mechanism. Conducted experimental research in skeletal muscle injury.

Lucent Technologies (known as OFS Fitel after Nov. 2001) **Sturbridge, MA**
Member of Technical Staff Sep 2001 - Apr 2003
Designed, developed, constructed, and maintained multi-mode fiber test and measurement systems. Acted as technical liaison among various technical groups and facilities within Lucent Technologies. Trained technicians and operators. Planned and executed a laser safety program.

Axsun Technologies, Inc. **Billerica, MA**
Engineer May 2000 - Sep 2001
Designed, developed, constructed, and maintained optical fiber test systems.

University of Massachusetts/U.S. Army Natick Soldier Systems **Boston, MA**
Research Assistant Jan 1998 - May 2000
Conducted experimental research in non-linear optics, optical image processing, and optical power limiting under the guidance of principal investigator.

ACADEMIC CREDENTIALS

University of Michigan — **Ann Arbor, MI**
Ph.D., Biomedical Engineering — 2007

University of Massachusetts — **Amherst, MA**
M.S., Applied Physics — 2000

University of Hyderabad — **Hyderabad, India**
M.Sc., Physics — 1997

Nagarjuna University — **Guntur, India**
B.Ed., Mathematics and Sciences — 1994

Nagarjuna University — **Guntur, India**
B.Sc., Mathematics, Physics and Chemistry — 1993

CERTIFICATIONS AND AWARDS

- Professional Engineer: Province of British Columbia and Alberta, Canada
- Traffic Accident Reconstructionist (ACTAR #3327): Accreditation Commission for Traffic Accident Reconstruction (ACTAR)
- Englihs XL Tribometrist (CXLT)
- Certified Crash Data Retrieval Analyst (Collision Sciences Institute)
- Young Investigator Award: Canadian Society of Biomechanics (2012)
- Finalist for Journal of Biomechanics Award: American Society of Biomechanics (2010)
- Post-doctoral Research Fellowship: NSERC CREATE Program (2009 – 2011)

CONTINUING EDUCATION

- Continuing Education Courses: Commercial Vehicle Crash Investigation (2025); Engineering Dynamics Corporation HVE Forum (2022), Injuries, Anatomy, Biomechanics, and Federal Regulations, SAE International (2019); Heavy Vehicle Crash Reconstruction, Northwestern University Center for Public Safety (2018); Workshop on Multifactorial Analysis of Slip and Fall Events, ASTM (2017); Crash Data Retrieval Technician and Analyst (2017); Pedestrian/Bicycle Crash Investigation, Institute of Police Technology and Management (2013); Traffic Accident Investigation 1, Northwestern University Center for Public Safety (2013)

PUBLICATIONS

- “Overextended sarcomeres regain filament overlap following stretch.” Journal of Biomechanics, 2012.
- “The three filament model of skeletal muscle stability and force production.” Molecular & Cellular Biomechanics, 2012.
- “Sarcomere overextension reduces stretch-induced tension loss in myofibrils of rabbit psoas." Journal of Biomechanics, 2011.
- “Non-uniform distribution of strain during stretch of relaxed skeletal muscle fibers from rat soleus muscle.” Journal of Muscle Research and Cell Motility, 2011.
- “Magnitude of sarcomere extension correlates with initial sarcomere length during injury to permeabilized single fibers from soleus muscles of rats.” Biophysical Journal, 2008.
- “A novel optical imaging system for investigating sarcomere dynamics in single skeletal muscle fibers.” Proceedings of SPIE, 2006.
- “Evaluation of experimental laser-induced-damage assessment techniques for solid state nonlinear optical elements.” Proceedings of SPIE, 2002.
- “Processing of medical images using real-time optical Fourier processing.” Medical Physics, 2000.
- *Author or co-author of over 25 publications as conference proceedings, abstracts, or posters at various national and international meetings.