

Robson Forensic

Engineers, Architects, Scientists & Fire Investigators

RUHI ARSLANOGLU, PH.D.

Biomedical Engineer / Biomechanics and Tissue Engineering

Investigates and analyzes injuries from a biomechanical and biomedical perspective; determines how injuries were caused; evaluates design and use of medical equipment, devices and implants.

Assesses Injuries: Applies physics, anatomy and physiology principals to assess:

- traumatic brain injuries and skull fractures;
- neck, back and spinal cord injuries;
- orthopedic and neurologic injuries;
- vascular ruptures;
- abdominal organs;
- heart, lungs, skin (including burns) and other organs;
- musculo-skeletal injuries including joints (i.e., shoulders, knees, ankles and elbows), soft tissues (i.e., rotator cuff, tendons and ligaments), and fracture patterns (torso, long bone, hand, foot or skull).

Determines Cause: Applies engineering principles to determine:

- the manner in which tissue failed: the type of loading, the direction of loading and magnitude or size of the load that caused the injury;
- if injury patterns are causally related or consistent with the hazardous condition or circumstances claimed;
- whether there was sufficient force in the right direction to cause an injury;
- the presence of pre-existing conditions and how they affect the injury;
- who and/or what action contributed to the injuries;
- what could have been done to prevent the injuries.

Typical Personal Injury Cases Involve:

- motor vehicle collisions;
- slips, trips and falls;
- medical malpractice or device failures;
- occupational and work place injuries;
- sports and recreational injuries.

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PROFESSIONAL EXPERIENCE

2011 to **Robson Forensic, Inc.**

present *Associate*

Provide technical investigations, analysis, reports, and testimony toward the resolution of personal injury litigation involving injury analysis and causation, medical equipment, medical devices, and procedures.

2007 to **Blackstone Medical - Orthofix Spine**, New Jersey

2010 Non-Fusion Technology Group, Research and Development

Research Engineer and Sr. Research Engineer

Scope of Responsibilities:

- Computational analysis for new product development and failure analysis of existing products.
- Materials testing and characterization.
- Product testing, failure analysis, biocompatibility.
- Interacting with surgeon consultants and external research laboratories.
- Provide interaction between cross-functional research groups to provide continuity of research.
- Selecting medically acceptable materials.
- Provide support for selecting manufacturing methodologies.
- Manage pre-clinical studies and provide support for clinical research.

2001 to **University of California San Diego**

2005 Department of Bioengineering, Cardiac Mechanics Research Group

Research Fellow (National Institute of Health Grant)

Scope of Responsibilities:

- Certified to work in a micro-fabrication facility to make micro-fluidic devices.
- Developing the concept, fabrication, testing and modifying in order to improve to achieve the goals of research protocols and carrying out the relevant experimentation.
- Adapting purpose built experimental apparatuses to be used in other areas of research and provided instructions and trained other researchers for their particular experiments.
- Leading assigned projects with a team of engineers, biologist, and lab technicians.
- Teaching and assisting numerous graduate and undergraduate level courses.
- Preparing and publishing manuscripts and publications of scientific findings.
- Reviewing technical and scientific manuscripts submitted for publication to science journal.
- Developing and preparing instructions for protocols to conduct science experiments.

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- Conducting and participating in experimental surgeries.
- Trained and certified to work in medical research environments and handling live animal subjects to comply with all institute policies and procedures in compliance with all relevant laws and regulations.

2001 **Tate Britain and Imperial College of Technology And Medicine, London, U.K.**

Department of Conservation Science

Leverhulme Research Fellow

Scope of Responsibilities:

- Initiated a state of the art computational method to study mechanical behavior of old master paintings and art objects (laminated composite structures with multiple heterogeneous layers) to understand the effects of environmental variables and physical damage due to accidents or various other factors.
- Developed a systemic computational methodology to perform preliminary predictive analysis of paintings due to environmental variables.
- Provided engineering consultation for various material handling and transportation issues.
- Provided expert opinion on damaged art work to determine the extent of damage and possible repair approaches.

1999 to **University of London, Queen Mary and Westfield College, Department of**
2001 **Biomaterials, & University of Surrey, Department of Physics, Materials and**
Medical Physics, Surrey, U.K.

Research Fellow (Interdisciplinary Materials Research Center)

Scope of Responsibilities:

- Designed and supervised the fabrication of a new tool to produce standard polymeric drug delivery specimens.
- Conducted experimental studies to determine diffusion characteristics of various polymeric materials.
- Designed an improved composite structure polymeric implantable drug delivery device to enhance the controlled release of drugs.
- Supervised undergraduate and graduate students.
- Conducted experiments to determine diffusion profiles of polymers using micro-ion beam accelerator.

1988 to **The University of Texas Health Science Center, San Antonio, Texas**
1999 **Orthopedic Biomechanics Lab**

Research Fellow

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The University of Texas at Austin, Austin, Texas
Department of Aerospace Engineering and Engineering Mechanics
Research Assistant

Mechanics Software Inc., Austin, Texas
Computational Analysis Engineer

The University of Texas at Austin, Austin, Texas
Fusion Research Center, IGNITEX Project
Graduate Research Assistant

The University of Texas at Austin, Austin, Texas
Department of Aerospace Engineering and Engineering Mechanics and
Department of Mathematics and Computer Science
Teaching Assistant

EDUCATION

Ph.D., Biomedical Engineering (Orthopaedic Biomechanics & Tissue Engineering),
The University of Texas at Austin, Austin, Texas
M.Sc., Engineering Mechanics and Aerospace Engineering (Computational
Mechanics), The University of Texas at Austin, Austin, Texas
Diploma of Institute of Graduate Studies, Aerospace Engineering, Istanbul Technical
University, Istanbul, Turkey
B.Sc., Aerospace and Aeronautical Engineering, Istanbul Technical University,
Istanbul, Turkey

Additional Education, Training and Certifications:

International Workshop on Human Subjects for Biomechanical Research,
NHTSA/Human Injury Research Division, 2011
STAPP Car Crash Conference, 2011
Biological Safety Specialist, NAMSA Advisory Services' Certification: Developing a
Biocompatibility Evaluation Plan, Orlando, FL, 2009
Spine Specialist Training, Denver, CO, 2007
Testing and Analysis of Elastomers, Ann Arbor, MI, 2007

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PROFESSIONAL MEMBERSHIPS

ASTM, Producer Member, 2009
Institute of Materials, U.K., Member, 2000
International Association for Dental Research, Member, 2000
Association for Dental Research, U.K., Member, 2000
Tissue and Cell Engineering Society, U.K., Member, 1999
Society for Biomaterials, U.K., Member, 1999
ITU-MD, Vice-Chair, London Branch, 1998-2001
Biomedical Engineering Society, Member, 1993
ITU-MD, Founder Member, By-Law Committee, 1993
Texas Mineralized Tissue Society
Graduate Engineering Council, University of Texas at Austin, Engineering
Mechanics and Aerospace Engineering Department, Elected Representative,
1990-1991
Texas Institute of Computational Mechanics, 1989
American Institute of Aeronautics and Astronautics, Member, 1989

SCHOLARSHIPS and FELLOWSHIPS

Leverhulme Research Fellow, 2001
Graduate Study for Ph.D. Degree in Science Scholarship, The Republic of Turkey,
Institution for Higher Education (tuition, fees and living expenses), 1983-1989
Graduate Study for M.S. Degree in Engineering Scholarship, The Republic of
Turkey, Institution for Higher Education, (tuition, fees and living expenses),
1988-1989

EXTRA-CURRICULAR ACTIVITIES

EMT (New Jersey)
NAUI Scuba Diver (Divemaster, Rescue Diver)
Amateur Radio Operator (Technician License)
Woodworker (cabinet and furniture building)
Model glider builder and remote control flying
American Cancer Society, Bike-A-Thon Motorcycle Safety Officer

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REVIEWED PUBLICATIONS, ABSTRACTS, CONFERENCE PRESENTATIONS

A. S. Clough, M. Braden, **Arslanoglu, R.** and M.P. Patel “Polymeric Drug Release Systems and Micro Nuclear Reaction Analysis,” 9th International Conference on Polymers in Medicine and Surgery, Danube University, Krems, Austria, September 11-13, 2000.

A. S. Clough, R. Hollands, **Arslanoglu, R.**, M. Braden, and M.P. Patel “Water Uptake Profiles of Polymeric Drug Release Systems Using Micro Nuclear Reaction Analysis,” Sixth World Biomaterials Conference, Hawaii, U.S.A., May 15-20, 2000.

Arslanoglu, R., A. S. Clough, R. Hollands, M. Braden, and M.P. Patel “Water Uptake of Polymeric Drug Release Systems,” International Association of Dental Research Conference 2000, Washington D.C., U.S.A., April 5-8, 2000.

Arslanoglu, R. “Mathematical Modeling and Experimental Aspects of Cellular Mechanotransduction,” Ph.D. Thesis, University of Texas at Austin, January 1999.

Arslanoglu, R. and K.A. Athanasiou “Constitutive Modeling of Cellular Mechanotransduction,” Biomedical Engineering Society, 1994 Annual Fall Meeting, Arizona State University, Tempe, Arizona, October 14-16, 1994.

Arslanoglu, R. and K.A. Athanasiou “Constitutive Modeling and Experimental Verification of Cellular Mechanotransduction,” Sixth Conference and Workshop, Texas Mineralized Tissue Society, San Antonio, Texas, May 13-15, 1994.

Arslanoglu, R. “Mathematical Modeling of Cellular Mechanotransduction,” State/Industry Cooperative Research Center, The University of Texas Health Science Center at San Antonio, Center for the Enhancement of the Biology/Biomaterials Interfaces Annual Meeting, April 21-22, 1994.

Arslanoglu, R. “Constitutive Modeling of Cellular Mechanotransduction Based on Mixture Theories,” Southwest Research Institute at San Antonio, Center for Biomaterials and Biomechanics Research, C. Williams Hall Lecture, 9/12/1993.

Arslanoglu, R. “Constitutive Modeling and Experimental Verification of Cellular Mechanotransduction,” The University of Texas at Austin, Biomedical Engineering Program, Department of Engineering Graduate Student Paper Competition, 10/25/93.

Arslanoglu, R. “Preliminary Design Analysis of IGNITEX Vacuum Vessel.” Thesis, University of Texas at Austin, 1991.

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Dong, J.Q., **Arslanoglu, R.**, Becker, E., Carrera, R., Khayrudinov, R., Walls, A., Weldon, W.F.
Preliminary Analysis of the Vacuum Vessel in the Fusion Ignition Experiment IGNITEX. 1990
IEEE International Conference on Plasma Science, Oakland, CA, May 21-23, 1990.

EXPERT NOT RETAINED