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## **Elaine J. Chiu, M.D., Ph.D., FACEP**

### **Professional Profile**

Dr. Elaine Chiu specializes in the biomechanics and dynamics of human injury including vehicle collisions, industrial injuries, falls and sporting accidents. Dr. Chiu brings a dual background in trauma medicine and bioengineering. Her work includes analysis of traumatic injuries and biomechanical reconstruction. By combining her engineering and clinical backgrounds Dr. Chiu provides a unique perspective and cross-disciplinary approach to her work. Dr. Chiu has clinical training which includes two years of Orthopedic Surgery and ten years of Emergency Medicine. Dr. Chiu is board certified in Emergency Medicine and currently works at the County Hospital in Monterey, California. Dr. Chiu has done research on the human intervertebral disc using MRI and mechanical testing, with modeling of disc creep behavior. Dr. Chiu's research work also includes work with a hand replantation expert, study of saw injury patients in San Francisco, and Brief Intervention Interviewing of intoxicated trauma patients at the University Medical Center in Fresno, California.

Prior to joining InSciTech, Dr. Chiu worked at Exponent, Failure Analysis Associates, in Menlo Park.

### **Academic Credentials and Professional Honors**

Ph.D., Bioengineering, Medical Imaging, University of California, San Francisco/Berkeley  
Bioengineering Graduate Group, 1998  
M.D., University of California, San Francisco, 1988  
A.B., Biophysics, University of California, Berkeley, 1982

Resident, Department of Emergency Medicine, UCSF Fresno, 2003  
Intern and Resident, Department of Orthopaedic Surgery, UCSF, 1990

Regents Fellowship, UC San Francisco; Student Research Award, UC San Francisco; Mentorship Fellowship, UC San Francisco; Graduate Opportunity Fellowship, UC San Francisco; Chevron Corporation Scholarship, outstanding engineering students, CCSF; Honors Graduate, UC Berkeley; James H. Hjul Honorarium Scholarship, freshman academic recognition, UC Berkeley

## **Licenses and Certifications**

Board Certified, American Board of Emergency Medicine  
Physician and Surgeon License, Medical Board of California  
Drug Enforcement Agency, U.S. Department of Justice  
Amateur Radio License (HAM radio), Technician class

## **Publications**

Magnetic resonance imaging measurement of relaxation and water diffusion in the human lumbar intervertebral disc under compression in vitro. *Spine* 2001; 26(19):E437-E444. E. J. Chiu, D.C. Newitt, M.R. Segal, S. S. Hu, J.C. Lotz, S. Majumdar

Magnetic resonance imaging of trabecular bone structure in the distal radius: relationship with x-ray tomographic microscopy and biomechanics. *Osteoporosis International* 1996; 6(5):376-385. S. Majumdar, D. Newitt, A. Mathur, D. Osman, A. Gies, E. Chiu, J. Lotz, J. Kinney, H. Genant

Evaluation of technical factors affecting the quantification of trabecular bone structure using magnetic resonance imaging. *Bone* 1995; 17(4):417-430. S. Majumdar, D. Newitt, M. Jergas, A. Gies, E. Chiu, D. Osman, J. Keltner, J. Keyak, H. Genant

Treatment of infected non-unions and segmental defects of the tibia with staged microvascular muscle transplantation and bone-grafting. *J Bone Joint Surg* 1988; 70-A(3):377-386. L. Gordon, E.J. Chiu

## **Presentations and Published Abstracts**

Acute Radiographic Interpretation. California Association of Physician Assistants, Annual Meeting, Santa Rosa, CA, February 2008. E. J. Chiu

Acute Patient Presentations and Review of Common ED Radiographs. California Emergency Physicians regional meetings, Midlevel Lectures, San Jose & San Diego, CA, Spring 2007. E.J. Chiu

Lectures to UCSF Family Practice Residents, Natividad Medical Center, Salinas, CA, topics: acute neurologic presentations, physics of medical imaging/indications for usage, acute orthopedic presentations/splinting techniques, common symptoms with serious diagnoses not to be missed, acute emergency procedures: intubation, cryothyroidotomy, tube thoracostomy, ultrasound guided central line placement, November 2005–present.

Educational Director Emergency Department, Saint Francis Memorial Hospital, monthly presentations to emergency physicians, physician assistants and nursing staff; quarterly LLSA (lifelong learning self-assessment) meetings for emergency physicians, January 2006–May 2008.

Brief intervention with alcohol-related trauma patients at University Medical Center, Fresno: A study testing the effectiveness of a brief intervention interview to change behavior with hospitalized patients involved in accidents while under the influence of alcohol. Western SAEM meeting, Scottsdale, AZ, April 2003. E.J. Chiu

MRI measurement of water diffusion in the human intervertebral disc with compression. 43rd Annual Meeting of the Orthopaedic Research Society, San Francisco, CA, February 10, 1997. E.J. Chiu, D.C. Newitt, S.S. Hu, J.C. Lotz, S. Majumdar

Correlation of intervertebral disc hydration with MR-derived diffusion coefficients and relaxation times. 43rd Annual Meeting of the Orthopaedic Research Society, San Francisco, CA, February 12, 1997. E.J. Chiu, D.C. Newitt, S.S. Hu, J.C. Lotz, S. Majumdar

High resolution and diffusion weighted MRI to study the human intervertebral disc in vitro. Inmon/Abbott Conference, University of California, San Francisco, Department of Orthopaedic Surgery, May 1-3, 1996. E. Chiu, J. Lotz, S. Majumdar

Characterization of the human intervertebral disc with high resolution and diffusion weighted magnetic resonance imaging. The Society of Magnetic Resonance, Nice, France, August 1995. E. Chiu, J. Lotz, S. Majumdar

Comparison of trabecular structure measured using MR microscopy and 18 micron X-ray tomographic microscopy. The Society of Magnetic Resonance, Nice, France, August 1995. S. Majumdar, A. Gies, E. Chiu, D. Osman, D. Newitt, M. Jergas, J. Kinney, J. Lotz, H. Genant

High resolution magnetic resonance imaging and measurement of water diffusion in the human intervertebral disc under compression. 41st Annual Meeting of the Orthopaedic Research Society, Lake Buena Vista, FL, February 1995. E. Chiu, J. Lotz, S. Majumdar

### **Professional Affiliations**

- Society of Automotive Engineers (member)
- American College of Emergency Medicine (fellow)
- American Board of Emergency Medicine (member)

### **Specialized Training**

Bloodstain Pattern Analysis Course, IAI and IABPA approved  
San Bernardino County Sheriff's Department, 40 hours / Feb 28 – Mar 4, 2011