

Richard M. Stoner
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ACADEMIC

Education

Bioengineering PhD Candidate **2005 – Present**

University of Pittsburgh, Pittsburgh PA
Center for the Neural Basis of Cognition, Pittsburgh PA
Area of Concentration: Neural Engineering (Expected grad: August 2009)

Bioengineering B.S. **Spring 2005**

University of Pittsburgh, Pittsburgh PA
Area of Concentration: Biotechnology and Artificial Organs

Teaching Experience

BioE 1531/2531 Computer Applications in Bioengineering (*teaching assistant*) Fall 2008
Course Topics: C++, image processing, reusable code

BioE 2241 Issues in Bioengineering: Ethics and Concepts (*teaching assistant*) Spring 2008
Course Topics: Biomedical and research ethics, case studies

BioE 1002 Intramural Research Internship (*teaching assistant*) Spring 2007
Course Topics: Research project development and presentation skill

The Princeton Review MCAT Biology 2008 - 2009
Course Topics: Comprehensive Cell/Molecular Biology and Human Physiology

RESEARCH

General Interests

Integration of MEMS and microfluidic technologies to study neurobiology and synaptogenesis
Characterization of the molecular basis for spike-timing dependent plasticity
Linking new structural phenotypes in ASD patients to common and rare genetic risk alleles
Development and implementation of new diagnostic techniques and direct interventions for ASD with respect to current arguments presented in clinical and biomedical neuroethics

Experience

Graduate Research **2005 - Present**

Zeringue Research Group, University of Pittsburgh, Pittsburgh PA
Implemented a microfluidic platform to study chemotactic and axonal guidance cues in vitro with high precision and repeatability
Developed a computational model of neural network activity propagation in geometrically constrained networks
Developed a calcium reaction-diffusion model to study spike-timing dependent spatiotemporal profile detection using physiologically relevant pathways

Graduate Research

2004 - 2005

Musculoskeletal Research Center, University of Pittsburgh, Pittsburgh PA

Validated a 6-Degree-of-Freedom robotic test platform to measure cadaver knee joint kinetics and kinematics following different ACL surgical reconstruction techniques

Developed an indirect algorithm to measure torques within a double-bundle ACL graft using different graft fixation angles and tensions

Undergraduate Research

2003 - 2004

McGowan Institute for Regenerative Medicine, University of Pittsburgh, Pittsburgh PA

Evaluated the mechanical and material properties of porcine extracellular matrix scaffolds

Performed cell proliferation and DNA quantification assays

Peer-Review Publications

1. Freytes DO, **Stoner RM**, Badylak SF. Uniaxial and biaxial properties of terminally sterilized porcine urinary bladder matrix scaffolds. *J Biomed Mater Res B Appl Biomater*. 2008 Feb;84(2):408-14.

Presentations and Posters

1. A microphysiological simulation of spatiotemporal Calcium detection for synaptic plasticity - Invited speaker, Pitt/CMU Biophysical Journal Club
2. In silico and in vitro characterization of recurrent activity in patterned neural networks – Presented at Society for Neuroscience National Meeting, Washington, D.C. 2008
3. Physiologic detection of STDP-based spatiotemporal Calcium signals – Presented at Coherent Behavior in Neural Networks Workshop, Mallorca, ES 2007
4. The Effect of Terminal Sterilization on the Mechanical and Material Properties of Lyophilized UBM Sheets Presented at the Midwest Tissue Engineering Conference, Pittsburgh, PA 2003

Conference and Workshop attendance

Society for Neuroscience National Meeting – Washington, D.C.	November, 2008
BMES National Meeting – St. Louis, MO	October, 2008
International Society for Developmental Neuroscience Meeting - Asilomar, CA	June, 2008
Society for Neuroscience National Meeting – San Diego, CA	November, 2007
Coherent Behavior in Neural Networks Meeting– Mallorca, ES	October, 2007
Computational Methods for Spatially Realistic Microphysiological Simulations Workshop Pittsburgh, PA	August, 2007
Cold Spring Harbor Meeting: Synaptic Plasticity, Cold Spring Harbor, NY	April, 2007
BMES National Meeting – Chicago, IL	November, 2006
Regenerate World Congress – Pittsburgh, PA	April, 2005
BMES National Meeting – Philadelphia, Pa	October, 2004
Midwest Tissue Engineering Conference – Pittsburgh, PA	April, 2004

PROFESSIONAL

Experience

Software Developer

Q1 2009

Cerebrii - 3D Neuroanatomy Application for iPhone and iPod touch

Wrote and distributed an extensible three-dimensional anatomy atlas for iPhone/iPod touch built using technical and open-source software packages

Engineering Internship

Summer 2004

Alung Technologies, Inc., Pittsburgh PA

Developed an interface for fluid-free quality control testing of a pre-clinical intravenous membrane oxygenator within clean-room conditions

Consulted on the implementation of an FDA-compliant in-house documentation system

Network Consultant

2003 - 2005

University of Pittsburgh: Computer Systems and Services Department, Pittsburgh PA

Diagnosed and repaired student hardware, software, and network issues.

Conducted training seminars on spyware detection and virus removal methods

Professional societies and councils

Society for Neuroscience	<i>(member)</i>	2007-Present
Neuroethics Society	<i>(member)</i>	2007-Present
AAAS	<i>(member)</i>	2007-Present
Bioengineering Graduate Student Council (now BMES)	<i>(President, officer)</i>	2007-2008
Center for the Neural Basis of Cognition	<i>(member)</i>	2006-Present
Biomedical Engineering Society	<i>(member)</i>	2003-Present

Knowledgebase and Skill Set

Programming languages: Web languages, C++, C#, ObjC, Java, Python, Matlab, LabView, OpenGL

Development Platforms: PC, MAC, Linux/BSD, Mobile/Handheld/Embedded

Software: Adobe, Vector NTI, Solidworks, Multiple Statistics/Mathematics packages, Maya, Blender,

Engineering: Mechanical testing, Pathfinding algorithms, Systems design, Microfabrication

EXTRACURRICULAR

Volunteer Experience

Walk Now for Autism	<i>(team leader)</i>	June, 2008
Pittsburgh Tissue Engineering Mobile Laboratory Project	<i>(organizer)</i>	Spring, 2008
Pittsburgh Science and Engineering Fair		Spring, 2008
Bioengineering High School Outreach Program		2007-2008
Regenerate World Congress	<i>(student liaison)</i>	April, 2005