

SARAH E. NEYER
CURRICULUM VITAE

Mechanical Engineering Dept.
Carnegie Mellon University
5000 Forbes Ave
Pittsburgh, PA 15213

EDUCATION

Carnegie Mellon University, Pittsburgh, PA

Ph.D. Mechanical Engineering, NSF Graduate Research Fellowship

September 2008 - May 2014

Carnegie Mellon University, Pittsburgh, PA

B.S. Mechanical Engineering

January 2004- May 2008

RESEARCH EXPERIENCE

CMU - PhD Program in Mechanical Engineering

September 2010 - May 2014

RESEARCH ASSISTANT

Advisor: Hartmut Geyer (CMU Robotics institute)

- Modeling dynamics systems of human locomotion
- Developing controls for swing leg of neuromuscular human model

CMU - PhD Program in Mechanical Engineering

September 2008 - September 2010

RESEARCH ASSISTANT

Advisors: C. Fred Higgs III, Burak Ozdoganlar

- Modeling the Abrasive Wear of Chemical Mechanical Polishing looking at Microstructure
- Analyzing nanoscale single crystal and polycrystalline plastic deformation

CMU – NSF/Department Research Honors / Particle Flow & Tribology Laboratory (PFTL)

June 2007-May 2008

RESEARCH ASSISTANT

Advisor: C. Fred Higgs III

- Investigated solid lubrication of Micro Electro-Mechanical Systems
- Fabricated experimental surface-machined device using photolithography.

CMU – MRSEC/Intel First Year in Research

June 2005-May2007

RESEARCH ASSISTANT

Advisor: Michael M. McHenry

- Designed and analyzed ceramic crucible in planar flow casting machine to reduce cracking in high temperature environment using Thermal FEA analysis (COSMOS).
- Analyzed heat transfer of amorphous metallic thick films in the planar flow casting process.

CSUN- NASA/JPL Partnership for Awards and Integration of Research (PAIR)

June 2004-May 2005

RESEARCH ASSISTANT

Advisor: Alexander Alekseenko

- Designed an algorithm to track neural fibers in the brain with Diffusion Tensor Imaging (DTI).
- Developed, tested, and ran simulations of code in 2D and 3D of partial differential equations.

WORK EXPERIENCE

Aberdeen Test Center, US Army,

June - August 2008

Human Systems Integration, Mechanical Engineering Trainee

- Analyzed usability metrics for Unmanned Ground Vehicle (UGV) user interfaces
- Tested stress levels of military personnel due to UGV user interfaces using Electrocardiogram (EKG) and Electroencephalogram (EEG)

Ford Motor Company,

June - August 2006

Product Development Intern

- Eliminated local/non-standard operating processes for competitive vehicle benchmarking
- Provided framework for one-source corporate knowledge for competitive vehicle attribute data

U.S. Army, Active Duty
Sergeant (E-5), Nuclear – Biological - Chemical Specialist

September 2000 - December 2003

- Battalion Soldier of the Month, May 2002
- Awarded Army Commendation Medal

PUBLICATIONS

MRS Conference Proceeding Spring 2009

- “An Investigation of the Influence of Orientation on CMP through Nanoscratch Testing”

PRESENTATIONS

MRS Spring Meeting, April 2009

- “An Investigation of the Influence of Orientation on CMP through Nanoscratch Testing”

Sigma Xi Undergraduate Research Competition (2nd place) , May 2005

- “Analysis of the Discrete Anisotropic Diffusion Equation in Application to Neural Fiber Tracking”

AWARDS/HONORS

- National Science Foundation Graduate Research Fellowship 2010
- Materials Research Society Student Symposium Assistant

SKILLS

Laboratory

Nanoindentation, Scanning Electron Microscopy (SEM), Orientation Imaging Microscopy (OIM), Wafer Dicing, Photolithography, Ellipsometry, Optical Profilometry, Atomic Force Microscopy (AFM), Chemical Mechanical Polishing (CMP), Spin Casting, Zeta Potential Analyzing

Computational

Operating Systems: Windows, Unix, MacOS

Programming: Matlab, Mathematica, Java, VBA, HTML/CSS, LaTeX

Engineering Packages: SolidWorks, COSMOS, Autodesk Inventor, ANSYS, Adams

Software: Dreamweaver, Frontpage, MS Office, Adobe Illustrator

Graduate Courses: Biomechanics and Motor Control, Kinematics, Dynamics, and Controls, Fluid Mechanics, Tribology, Micro/Nano Robotics, Solid Mechanics, Behavior of Materials, Micro Electro-Mechanical Systems

PROFESSIONAL AFFILIATIONS

Materials Research Society (MRS), 2005 – present

Institute of Electrical and Electronics Engineers (IEEE), 2006-present

American Society of Mechanical Engineers (ASME), 2004 – present

Society of Women Engineers (SWE), 2004 – present