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Michael C. Dahl

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Objective

Biomechanical Engineer with over five years of orthopaedic implant research experience seeking employment in the research and development section of a company specializing in orthopaedic medical devices, surgical tools, and prosthetics.

Education

Ph.D. in Mechanical Engineering (Biomechanics Focus) 3.90 GPA 2008
Dissertation: *The Efficacy of Using Vibrometry to Detect Osteointegration of the Agility Total Ankle.*
University of Washington, Seattle, WA

M.S. Mechanical Engineering (Biomechanics Focus) 3.92 GPA 2003
Dissertation: *An Alterative to Disc Fusion: The Dynamic Characteristics of the Bryan Cervical Disc System.*
University of Washington, Seattle, WA

- University of Washington College of Engineering Graduate Fellowship

B.S. Biomedical Engineering 3.88 GPA 2002
Washington University in St. Louis, MO

- President of the Biomedical Engineering Society
- Founder and president of the Alpha Eta Mu Beta Biomedical Engineering Honor Society
- Biomedical Engineering Departmental Award for Senior Academic Excellence
- Tau Beta Pi, Golden Key, and Alpha Eta Mu Beta Honor Societies
- Graduated Magna Cum Laude, Dean's List all semesters

B.A. Physics, Math Minor (Dual Degree Program) 2001
University of Puget Sound, Tacoma, WA

- Vice President of Sigma Pi Sigma
- Philanthropy and Social Chair of Sigma Nu

Technical Skills

• Material Testing (MTS)	• SolidWorks	• Wetlab / Cadaver Dissection
• Atomic Force Microscopy	• LabVIEW	• Mathematica
• High Speed Video Capture	• MATLAB	• Basic ANSYS
• Doppler Ultrasound	• 200 Hrs Machining Experience	• Fluoroscopy

Research Experience

The Implementation and Osteointegration of the Agility Total Ankle Prosthesis
Developed a novel device to non-invasively assess the amount of osteointegration present in the Agility Total Ankle Prosthesis. Constructed prototype equipment and formulated a clinical study to determine efficacy. Measured backside wear characteristics of the ankle prosthesis and its contribution to joint inflammation using Atomic Force Microscopy.

Determining the Dynamic Biomechanical Properties of the Bryan Cervical Disc System
Investigated the *in-vitro* dynamic mechanical properties of the Bryan Cervical Disc System using material testing systems and vibration analysis. Contracted by Medtronic-Sofamor-Danek to compare the dynamic stiffnesses and hysteretic properties of various implant cores for FDA approval.

Dahl MC, Rouleau JP, Papadopoulos S, Nuckley DJ, Ching RP. *Dynamic characteristics of the intact, fused, and prosthetic-replaced cervical disk.* **Journal of Biomechanical Engineering. 2006 Dec; 128(6):809-14.**

Analysis of Backside Polyethylene Wear in the Agility Total Ankle Using Atomic Force Microscopy
Developed a novel method to ascertain backside polyethylene wear using Atomic Force Microscopy.

Helmet and Shoulder Pad Removal in Football Players with Unstable Cervical Spine Injuries
Designed and executed an *in-vitro* study examining three prevalent techniques of equipment removal in cervically compromised football players. Supervised a team of surgeons from Harborview Medical Center to contrast the vertebral forces and translations characterized by each technique.

Submitted to: Journal of Applied Biomechanics. (2007)

Dynamic to Quasi-Static Stiffness Comparison of Cervical Spine Level C2-C3
Constructed an *in-vitro* cadaveric study to quantify the logarithmic relationship of the dynamic and quasi-static stiffness of the C2-C3 intervertebral cervical disc.

Poster Presentation at:
50th Annual Meeting of the Orthopaedic Research Society, March 7th-10th, 2004, in San Francisco, California.

Using Atomic Force Microscopy to Scan DNA Microarrays
Examined novel methods to scan DNA Microarrays using Atomic Force Microscopy. Developed a protocol to interpret DNA Microarray density and probe hybridization using gold nanoprobe hybridized DNA.

Ampullary Canals of Lorenzini
Initiated new research on the sensory canals of bamboo sharks by constructing prototypes and integrating technical signal analysis equipment.

Languages

•Basic German

Technical Work Experience

Graduate Teaching Assistant (Winter 2007, Summer 2007, Winter 2005, Fall 2002)
Mechanical Engineering Department, University of Washington Seattle, WA
Supervised and lectured for engineering dynamics, mechanics of materials, and orthopaedic biomechanics courses. Prepared, administered, and graded laboratory sections, homework and tests.

Bio-Technician Intern (Summer 2000)
Institute of Systems Biology (www.systemsbiology.org), Seattle, WA
Engineered, constructed, and operated sections of an Ink Jet Microarray Synthesizer used to construct multi-oligonucleotide arrays onto slides and synthetic membranes. Created the drafting and technical aspects of the apparatus. Initiated preliminary testing of ink-jet protein fractionation for mass spectrometry.

Honors and Achievements

•Collegiate All-American Scholar Award
•Entrepreneur Bootcamp at the University of Washington Center for Technology Entrepreneurship
•Herbert B. Jones Foundation Northwest Entrepreneur University Scholarship
•Eagle Scout

References available upon request