

JOHN W. MILLER

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EDUCATION

UNIVERSITY OF IOWA, Iowa City, Iowa

*Master of Science in **Electrical and Computer Engineering**, expected graduation May 2018*

- GPA: 4.04/4.00

GOSHEN COLLEGE, Goshen, Indiana

*Bachelor of Arts in **Physics**, minor in **English**, graduated April 2014, cum laude*

- GPA: 3.77/4.00
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WORK AND RESEARCH EXPERIENCE

UNIVERSITY OF IOWA – GARVIN OPHTHALMIC IMAGE PROCESSING LAB

Iowa City, IA

Masters Student

August 2016 – Present

- Developing novel segmentation algorithms and machine learning methods for the automatic characterization of optical coherence tomography scans of the optic disc

UNIVERSITY OF IOWA – HUMAN SPINAL CORD RESEARCH LAB

Iowa City, IA

Research Assistant

September 2014 – August 2016

- Designed and implemented *in-vivo* experiments investigating the mechanism and therapeutic effects of spinal cord stimulation in sheep models of neuropathic pain and spinal cord injury
- Collected and analyzed electromyographic and kinematic data during treadmill ambulation

NORTHWESTERN UNIVERSITY – MILLER LIMB LABORATORY

Chicago, IL

Summer Research Volunteer

May – August 2014

- Designed experiment to explore the effects of transcranial direct current stimulation (tDCS) on the discharge of single neurons in the motor cortex

UNIVERSITY OF PITTSBURGH – REHAB AND NEURAL ENGINEERING LAB

Pittsburgh, PA

Research Fellow

May – July 2013

- Applied principal component analysis in MATLAB to reveal underlying activity patterns in electromyographic data recorded from cats during locomotion
- NIH-sponsored research program through the Center for the Neural Basis of Cognition at the University of Pittsburgh and Carnegie Mellon University

GOSHEN COLLEGE – MAPLE SCHOLARS PROGRAM

Goshen, IN

Student Researcher

May – July 2011

- Worked full-time on the “Musician Maker” project – an intuitive, computer-controlled system of novel hardware instruments that allows non-musicians to improvise expressive music
 - Designed and built new musical instruments that transduced physical motions into Musical Instrument Digital Interface (MIDI) signals
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PEER-REVIEWED PUBLICATIONS

S. Wilson, K. Abode-Iyamah, **J. W. Miller**, et al., An Ovine Model of Spinal Cord Injury, (2016). *Journal of Spinal Cord Medicine*

S. Safayi, **J. W. Miller**, et al., Treadmill Measures of Ambulation Rates in Ovine Models of Spinal Cord Injury and Neuropathic Pain, (2015). *Journal of Medical Engineering & Technology*

PROGRAMMING/SOFTWARE

- MATLAB, Python, C++, C, Mathematica, Unix, Java, Arduino, LaTeX
- Photoshop, Illustrator, InDesign, Vicon Nexus, Microsoft Office, LISTSERV

AWARDS AND ACHIEVEMENTS

- Contest winner “Sensors Contest 2017”, *Instructables.com*
- Neuromodulation Travel Award, *University of Minnesota*
- Music Department Achievement Award, *Goshen College*
- Finalist, 2012 Guthman New Musical Instrument Competition, *Georgia Technical Institute*