

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: 4.03/4.00

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 Fellowship

August 2016 – Present

- Developing novel combinations of graph algorithm and machine learning techniques for the automatic classification of optic disc edema, measured through optical coherence tomography
- Participated in Iowa's deep learning journal club, including a three-day NVIDIA workshop

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 3D motion capture data during treadmill ambulation
- Performed range of core technical, administrative, and communications duties supporting lab function

NORTHWESTERN UNIVERSITY – MILLER LIMB LABORATORY

Chicago, IL

Research Volunteer

May – August 2014

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

CARNEGIE MELLON UNIVERSITY – CENTER FOR THE NEURAL BASIS OF COGNITION

Pittsburgh, PA

Research Fellow, *Rehab Neural Engineering Labs, University of Pittsburgh*

May – July 2013

- Used principal component analysis to reveal underlying activity patterns in electromyographic and kinematic motion capture data recorded from cats during locomotion

GOSHEN COLLEGE – MAPLE SCHOLARS PROGRAM

Goshen, IN

Research Scholar

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 digital music signals
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PROJECTS AND ACTIVITIES

IOWA MARINE AUTONOMOUS RACING CLUB (2017 – present) – Programmer, computer vision team (Java)

NATIONAL ADVANCED DRIVING SIMULATOR (2017 – present) – Developing classifier for drowsiness detection (Python)

FACE DETECTION (2017) – Implementation of active shape models algorithm for face detection (MATLAB)

GENIUSAPI (2017) – Python wrapper for downloading song lyrics and annotations from Genius.com (Python)

TWITTERPOLITICAL (2016) – Hackathon project for sentiment analysis of Tweets scraped from Twitter (Python)

PROGRAMMING/SOFTWARE

- MATLAB, Python, C++, Java, Mathematica, Arduino, Unix
- Photoshop, Illustrator, InDesign, LaTeX
- Agile methodology, GitHub workflow

AWARDS AND ACHIEVEMENTS

- Contest winner “Sensors Contest 2017,” *Instructables.com*
- Neuromodulation Travel Award, *University of Minnesota*
- Finalist, 2012 Guthman Musical Instrument Competition, *Georgia Technical Institute*
- Two peer-reviewed publications, seven conference presentations