JOHN W. MILLER

(847) 513-2475 | johnwmillr@gmail.com

johnwmillr.com
github.com/johnwmillr

Projects

LYRICS GENIUS — *Python wrapper for downloading lyrics and music metadata from the Genius.com API*
Python | github.com/johnwmillr/lyricsgenius SPRING 2017 - PRESENT

- Actively maintaining project on GitHub, coordinating multiple coordinators and pull requests
- Utilized the package in a lyrics analysis project that attracted over half a million views on Reddit.com

FACE DETECTION — *Implementation of active shape models for detection of faces in color images*
Matlab | github.com/johnwmillr/activeshapemodels SPRING 2017

- Trained a point distribution model to detect faces using over 3,000 publically available face images
- Provided guidance and technical support to students using project on *Mathworks's* code exchange

MUSCLE MUSIC — *Arduino device for translating muscle activity into electronic music*
Arduino | instructables.com/id/make-muscle-midi-music WINTER 2017

- Designed and built a circuit and program that generated and controlled music via muscle signals
- Winner out of 200+ entrants in the "Sensors Contest 2017" on *Instructables.com*

TWITTER POLITICAL — *Sentiment analysis on Tweets mined during the 2016 presidential election*
Python | github.com/amgerard/twitter-political FALL 2017

- Incorporated language and cluster analysis on 10k+ Tweets to predict user opinions of candidates

EXPERIENCE

MASTERS FELLOWSHIP — *Automated diagnostics for retinal diseases using machine learning*
Garvin Image Lab | University of Iowa AUG 2016 — MAY 2018

- Developed new combinations of shape and machine learning techniques for automated diagnostics
- Trained random forest classifiers to distinguish between causes of optic disc edema

RESEARCH ASSISTANT — *Neuroscience research and experiment design*
Human Spinal Cord Research Lab | University of Iowa SEP 2014 — AUG 2016

- Designed and implemented experiments investigating therapeutic effects of spinal cord stimulation
- Wrote and maintained a Matlab codebase for research team's analysis and visualization workflow

RESEARCH FELLOW — *Computational neuroscience research program*
Center for the Neural Basis of Cognition | Carnegie Mellon University MAY — JUN 2013

- Applied principal component analysis to reveal underlying activity patterns in EMG, 3D motion capture, and neurological data recorded simultaneously from cats during locomotion

EDUCATION

UNIVERSITY OF IOWA | COLLEGE OF ENGINEERING AUG 2016 — MAY 2018
Masters of Science in Electrical and Computer Engineering, GPA: 4.03/4.00

GOSHEN COLLEGE SEP 2010 — MAY 2014
Bachelor of Arts in Physics, minor in English, GPA: 3.77/4.00

- Bassist in Lavender Jazz and symphony orchestra

TECHNICAL SKILLS

- *Languages*: Python, Matlab, C++
- *Packages*: NumPy, Pandas, scikit-learn, matplotlib, seaborn, Jupyter
- *Data science*: Machine learning, image processing, natural language processing, data visualization