David R. Connell

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Research engineer looking to use advancements in computer technology and statistical learning to better understand biological and artificial learning. Applying to PhD programs to maximize my capabilities in a research oriented career.

Education

Master of Science, Biomedical Engineering — **December 2017**
Illinois Institute of Technology, Chicago, IL — GPA: 3.88
Relevant Coursework: Random Signal Analysis, Biostatistics, Quantitative Physiology

Bachelor of Science, Bioengineering — **December 2015**
Miami University, Oxford, OH — GPA: 3.42
Relevant Coursework: Biomedical Signal Analysis, Molecular Biology, Biochemistry

Master Thesis

Using an Apple Watch for detection and prevention of Sudden Unexpected Death in Epilepsy (SUDEP)

- Detects the onset of SUDEP during sleep by collecting and processing pulse and motion data.
- Calculates test statistics in real time to determine whether user is in normal or seizure state.
- Sends notifications to nearby caretaker to intervene.
- Marks events and stores data on database for future SUDEP research.
- Wrote python module for accessing database.

Experience

Senior Research Engineer: *Rush University Medical Center* — **2018–present**
Rush Alzheimer's Disease Center

- Developed pipelines for automatically processing data added to a server.
- Reverse engineered signals to allow continuation of data collection with new devices.
- Designed Neural Networks for predicting onset of Alzheimer's disease
- Used machine learning techniques to detect Atrial Fibrillation.

Graduate Teacher Assistant: *Illinois Institute of Technology* — **2016–2017**
Department of Biomedical Engineering

- Physiology Lab — Fall 2017
- Instrumentation and Measurement Laboratory — Spring 2017
- Bioelectronics Laboratory — Fall 2016

Designed lab protocols, wrote programs, graded papers, setup lab instruments, held office hours, and tutored.

Student Research Assistant: *Miami University* — **2015**
Department of Electrical and Computer Engineering

- Derived algorithm for monitoring ECGs in MATLAB.
- Algorithm for automated detection of arrhythmia and ECG annotation.
- Found R-R interval, P-waves, T-waves, and QRS-complexes.
- Looked for missing waves and high or low heart rates.

Summer Student Research Assistant: *Ohio State University Medical Center* — **2012,2013,2016**
Anesthesia Research Lab

- Presented current anesthesia monitoring systems to anesthesiology staff.
- Wrote programs in VBA to modify Excel files.
- Retrieved data for studies on perioperative pressure ulcer prevention, foreign body ingestion by federal inmates, and the affects of tranexamic acid on blood loss during hip replacement surgery.

Computer Languages

MATLAB, Python, Bash, Lisp, Swift, LaTeX