

ANDREW C. MULLEN

7003 6th Ave NE ◊ Seattle, WA 98115
(+1) 585 747 8358 ◊ acmullen@uw.edu

EDUCATION

- University of Washington, Seattle, WA** *June 2019 - Present*
M.D./Ph.D. - NIH Medical Scientist Training Program (MSTP)
Department of Computer Science and Engineering - ARCS Foundation Fellow
Advisor - Dr. Cole Trapnell
- Massachusetts Institute of Technology, Cambridge, MA** *Aug 2017 - Feb 2019*
Master of Engineering (M.Eng.) - Siebel Scholar
Department of Electrical Engineering and Computer Science
Thesis Title - *Techniques for the Characterization of Sedation Due to Opioid Administration*
Advisors - Dr. Emery Brown & Dr. Patrick Purdon
- Massachusetts Institute of Technology, Cambridge, MA** *Aug 2013 - June 2017*
Bachelors of Science (S.B.) - Eta Kappa Nu
Department of Electrical Engineering and Computer Science

RESEARCH EXPERIENCE

- Genome Sciences - Trapnell Lab (UW)** *June 2021 - Present*
Graduate Research Assistant
- Genome Sciences - Trapnell Lab (UW)** *June 2020 - August 2020*
Rotation Graduate Research Assistant
- Integrated single cell chromatin accessibility sequencing (sc-ATAC seq) data and high throughput fluorescence in situ hybridization data (seq-FISH) of prefrontal cortex *Mus musculus* using computational methods.
- Genome Sciences - Shendure Lab (UW)** *June 2019 - August 2019*
Rotation Graduate Research Assistant
- Generated embryonic transcription cell atlases of *Drosophila melanogaster* using single cell combinatorial indexing mRNA sequencing (sci-mRNA seq).
- Brain and Cognitive Sciences - NSRL (MIT-MGH)** *June 2017 - June 2019*
Graduate Research Assistant
- Generated statistical models to predict and analyze loss of consciousness due to opioid administration during general anesthesia.
 - Developed state-space autoregressive models as an alternative signal processing framework for neural oscillation extraction in the presence of artifacts to the electroencephalogram (EEG).
- Brain and Cognitive Sciences - Miller Lab (MIT)** *June 2015 - June 2017*
Undergraduate Research Assistant
- Prototyped a new paradigm of analog neurostimulation designed for closed loop control of neural ensembles in non-human primates.

PUBLICATIONS AND PATENTS

Widge AW, Boggess M, **Mullen AC**, Sheopory S, Loonis R, Freeman D, Miller EK "Altering Alpha-Frequency Brain Oscillations with Rapid Analog Feedback-Driven Neurostimulation." *PLOS One*

"Techniques for Closed-Loop Neurostimulation and Related Systems and Methods" *United States Patent Application 62/582,466*. Filed, Nov 2017

SELECTED SCIENTIFIC ABSTRACTS

Mullen AC, Donoghue JA, Purdon PL, Brown EN. "Analysis of the Frontal Electroencephalogram after Fentanyl Administration". Society for Neuroscience, San Diego, C.A. 2018.

Mullen AC, Orguc S, Chandrakasan AP. "Machine Learning for Embedded Analytics: Electromyography for Bruxism Detection". EECS Research and Innovation Scholar Showcase, Cambridge, M.A. 2017.

TEACHING EXPERIENCE

Kauffman Teaching Certificate Program (MIT) *Jan 2018 - Present*
Teaching & Learning Lab

- Course designed for graduate students and postdoctoral trainees interested in developing skills as educators.
- Designed a course, constructed a syllabi, created course materials, and practiced lecturing.

Computational Structures - 6.004 (MIT) *Aug 2017 - Dec 2017*
Graduate Teaching Assistant

- Developed recitation content and handouts covering fundamentals and advanced topics in digital design ranging from CMOS logic to pipelined processor architectures.
- Taught two biweekly recitation sections of ≈ 40 students.

Computational Structures - 6.004 (MIT) *Aug 2015 - June 2016*
Undergraduate Teaching Lab Assistant

- Hosted weekly office and lab hours assisting students with laboratory assignments often debugging basic operating systems or pipelined processor architectures.

AWARDS AND HONORS

ARCS Foundation Fellowship	<i>June 2021</i>
Siebel Scholar Fellowship	<i>August 2018</i>
Brigham and Women's Schlager Family Digital Innovation Grant Award (\$25,000)	<i>April 2018</i>
MIT Sandbox Innovation Grant Award (\$25,000)	<i>Sept 2017</i>
Eta Kappa Nu - Honor Society (MIT)	<i>May 2017</i>
EECS Research and Innovation Scholar	<i>Dec 2016</i>
Paul E. Gray Undergraduate Research Fellow	<i>June 2016</i>
HackMIT - Grand Prize	<i>Sept 2015</i>
McNear-Gaillard Fenway Fund Scholarship	<i>June 2015, June 2016</i>
National Merit Finalist	<i>June 2013</i>
National AP Scholar	<i>June 2013</i>

EXTRACIRCULAR LEADERSHIP AND MEMBERSHIP

Cryptospinners - CoFounder	<i>Feburary 2021 - Present</i>
Diagnox - CoFounder	<i>Aug 2017 - Present</i>
Posh Development - CoFounder	<i>Oct 2014 - Aug 2016</i>
Chamber Music Society	<i>Aug 2017 - Aug 2019</i>
Students for the Exploration and Development of Space - Director of Outreach	<i>Aug 2017- Aug 2019</i>
Chi Phi Fraternity - Social & Publicity Chair	<i>Jan 2014 - June 2017</i>
Interfraternity Executive Council - Director of Publicity and Programming	<i>Jan 2015 - Jan 2016</i>

COMMUNITY VOLUNTEER WORK

Boston Healthcare for the Homeless Program (BHCHP)	<i>May 2017 - August 2018</i>
Hospice Services of Massachusetts	<i>Jan 2016 - May 2016</i>