

# Shane Devine McKeon

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## EDUCATION

### Bachelor of Science in Bioengineering

University of Pittsburgh, Pittsburgh, PA  
August 2015 – April 2019

Major: Bioengineering

Minor: Neuroscience

Certificate: Conceptual Foundations of Medicine

Cumulative GPA: 3.126

University Honors College, Dean's List

### PhD Bioengineering

University of Pittsburgh, Pittsburgh, PA  
August 2019 – Present Day

PhD Bioengineering Program, Fourth Year

Cumulative GPA: 3.613

Advisor: Dr. Beatriz Luna

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## RESEARCH EXPERIENCE

### Graduate Student Researcher

Laboratory of Neurocognitive Development  
The University of Pittsburgh  
Advisor: Dr. Beatriz Luna  
August 2019 – Present

Brain mechanisms underlying changes in neural oscillations through adolescent

- Preprocessed and analyzed EEG data from longitudinal data set
- Complete analysis using spectral event and FOOOF methodology

### Undergraduate Researcher

Geriatric Psychiatry Neuroimaging Lab  
The University of Pittsburgh  
May 2017 – August 2019

Co-registration of MRI- defined white matter hyperintensities with Ex-vivo histopathology

- Registered postmortem histology samples to in-vivo T1 and T2 weighted MRIs and ex-vivo T1 weighted MRI
- Analyzed MR images using MATLAB, ITK, SPM12, FSL and freesurfer

### Undergraduate Researcher

Clinical Applications of Neuroscience Lab  
The University of Pittsburgh  
January 2018 – May 2019

Analyzing the relationship between eye tracking and fMRI data during negative stimulus

- Developed a MATLAB script that analyses eye tracking data and reports the number of times the participant blinks, the average duration of a blink, the number of fixations, and the average time of a fixation.
- Assisted in the preprocessing of fMRI data

### Undergraduate Research Intern

The Biomedical Institute of NJ, Cedar Knolls NJ  
May 2016 – August 2016

Perinatal antibiotics and their impact on the microbiome

- Responsible for gel electrophoresis, western blots, PCR and data analysis
- Participated in H&E Staining, DNA extraction and behavioral tests through a radial arm

## Undergraduate Researcher

Milcarek Lab

The University of Pittsburgh

January 2016 – May 2016

The roles of ell2 and ell3 in plasma cell development

- Hypothesized that the transition in expression of ELL3 to ELL2 is important in the development of B cells into antibody secreting plasma cells (ASCs)
- Responsible for gel electrophoresis, western blotting and data analysis
- Used chemiluminescence to prove which cell lines contained ELL3 and/or ELL2

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## HONORS & AWARDS

### Graduate Career

#### NIH National Research Service Award (NRSA) / F31 Predoctoral Fellowship

Project entitled "Brain Mechanisms Underlying Changes in Neural Oscillations through Adolescent Cognitive Maturation" (1F31MH132246-01A1)

National Institute of Mental Health

April 2023 – Present

#### Flux Ambassador Award

Flux Society Annual Conference

Paris, France. 2022.

#### Bioengineering in Psychiatry T32

Bioengineering in Psychiatry Training Program (5T32MH119168-04).

National Institute of Mental Health.

April 2022 – Present

### Undergraduate Career

#### 3<sup>rd</sup> Place Undergraduate Poster

*Women in STEM Conference*

February 10, 2018

#### Swanson Undergraduate Research Internship

Awarded to students to conduct research at the University of Pittsburgh over the summer

Summer 2017

#### Best Undergraduate Research Paper

*Freshman Engineering Conference*

Awarded to 1 group of freshman engineers at the annual Swanson engineering conference

April 2016

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## PUBLICATIONS

1. **McKeon, S. D. et al.** Aperiodic EEG and 7T MRSI evidence for maturation of E/I balance supporting the development of working memory through adolescence. *BioRxiv*. (2023)  
doi: <https://doi.org/10.1101/2023.09.06.556453>
  2. **McKeon, S. D. et al.** Age-related differences in transient gamma band activity during working memory maintenance through adolescence. *NeuroImage* 120112 (2023) doi:10.1016/j.neuroimage.2023.120112
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## CONFERENCE PRESENTATIONS & ABSTRACTS

1. **S. McKeon**, M. Perica, A. Parr, F. Calabro, W. Foran, H. Hetherington, C. Moon, B. Luna. Aperiodic EEG and 7T MRSI evidence for maturation of E/I balance supporting the development of working memory through adolescence. *Flux Society*, Santa Rosa, California. September 2023. (Graduate Poster/Abstract).
2. **S. McKeon**, F. Calabro, M. Perica, B. Luna. Reliability of cortical signal processing is driven by glutamate maturation and supports working memory development. *Society for Psychophysiological Research*, Vancouver, Canada. September 2022. (Graduate Poster/Abstract).
3. **S. McKeon**, F. Calabro, M. Perica, B. Luna. Reliability of cortical signal processing is driven by glutamate maturation and supports working memory development. *Flux Society*, Paris, France. September 2022. (Graduate Poster/Abstract).
4. **S. McKeon**, F. Calabro, B. Luna. Maturation changes in EEG-derived spectral bursts through adolescence during working memory maintenance. *CuttingEEG*, Virtual Conference. October 2020. (Graduate poster/ abstract)
5. **S. McKeon**, F. Calabro, B. Luna. EEG-derived spectral processing and the development of working memory through adolescence. *Flux Society*, Virtual Conference. September 2020. (Graduate poster/ abstract)
6. **S. McKeon**, A. Rangarajan, M. Wu, N. Farhat, T. Santini, S. Wood, T. Ibrahim, M. Ikonovic, J. Kofler, O. Lopez, W. Klunk, H. Aizenstein. Co- registration of MRI- defined White Matter Lesions with Ex- Vivo Histopathology. *The Society for Neuroscience Annual Meeting*, San Diego, CA. November 2018. (Undergraduate poster/ abstract)
7. **S. McKeon**, A. Rangarajan, M. Wu, N. Farhat, T. Santini, S. Wood, T. Ibrahim, M. Ikonovic, J. Kofler, O. Lopez, W. Klunk, H. Aizenstein. Co- registration of MRI- defined White Matter Lesions with Ex- Vivo Histopathology. *Biomedical Engineering Society Annual Meeting*, Atlanta, GA. October 2018. (Undergraduate poster/ abstract)
8. **S. McKeon**, N. Joseph, A. Rangarajan, M. Wu, N. Farhat, T. Santini, S. Wood, T. Ibrahim, M. Ikonovic, J. Kofler, O. Lopez, W. Klunk, H. Aizenstein. Co- registration of In-vivo and Ex-vivo Human MRI Brain Images. *Women in STEM Conference*, University of Pittsburgh. February 2018. (Undergraduate poster/ abstract)
9. **S. McKeon**, N. Joseph, A. Rangarajan, M. Wu, N. Farhat, T. Santini, S. Wood, T. Ibrahim, M. Ikonovic, J. Kofler, O. Lopez, W. Klunk, H. Aizenstein. Co- registration of In-vivo and Ex-vivo Human MRI Brain Images. *SCIENCE 2017*, University of Pittsburgh. October 2017. (Undergraduate poster/ abstract)
10. **S. McKeon**, A. Rangarajan, M. Wu, T. Santini, T. Ibrahim, O. Lopez, H. Aizenstein. Evaluation of Segmentation Performance with 3T and 7T Magnetic Resonance Imaging using Freesurfer. *Biomedical Engineering Society Annual Conference*, Phoenix, AZ. October 2017. (Undergraduate poster/ abstract)

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## PEER REVIEWS

1. Reviewer. Brain and Cognition. 2023
  2. Ad hoc reviewer. Epilepsia. 2022
  3. Ad hoc reviewer. Developmental Cognitive Neuroscience. 2020
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## COMMUNITY & LEADERSHIP INVOLVEMENT

Graduate Teaching Assistant  
Spring 2019 – Fall 2020

Teaching assistant for Bioinstrumentation.  
Responsible for the laboratory, writing and grading all assignments, and exams

NICU Volunteer  
October 2019 – March 2020

Magee Women's Hospital UPMC Neonatal Intensive Care Unit  
Assist in stocking linens throughout the NICU, answer phones at reception, and helping the patient care technician in any way

Vice Regent  
Theta Tau Engineering Fraternity  
August 2018 – April 2019

Responsible for overseeing all chair positions, assisting in event planning, and helping the Regent meet all National requirements and day to day organizations for the fraternity

Undergraduate Teaching Assistant  
Laboratory Instructor  
Spring 2018

Laboratory instructor for Bioinstrumentation

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## WORK EXPERIENCE

South and Pine American Eatery, *Busser*  
Summer 2016

Morristown Parks and Recreation, *Lifeguard*  
Summer 2012 - 2015

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## AFFILIATIONS

Flux Society  
Spring 2020 – Present

Theta Tau Engineering Fraternity  
Fall 2016 – Present

Biomedical Engineering Society  
Fall 2015 – present

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## ADDITIONAL/ RELEVANT SKILLS

MATLAB; ImageJ; Microsoft Office; Image Analysis; SPM; Freesurfer; RStudio

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## RELAVENT COURSEWORK

Linear Algebra; Differential Equations; Linear Systems & Electronics; Signals & Systems; Biomedical Applications of Control; Synaptic Transmission; Biomedical Imaging; Mapping Brain Connectivity; Quantitative Systems of Neuroscience; Cognitive Neuroscience; Systems Neuroscience; Advanced Cellular Neuroscience; Applied Biostatistics; Analysis of Stochastic Processes; Multi-Modal Biomedical Imaging Technique; Psychopathology