CURRICULUM VITAE

Matthew Schmit
5708 E. 6th Street
Tucson, AZ
520-258-8766

Education:

2016 Started Neuroscience PhD - University of Arizona – August 2016
Minor: Neuroscience
Advisor: Dr. Haijiang Cai
Comprehensive Exam Committee: Dr. Katalin Gothard (Chair), Dr. Haijiang Cai, Dr. Calvin Zhang-Molina, Dr. Stephen Cowen
Graduate GPA: 4.0

2014 B.S. Neuroscience and Cognitive Science - University of Arizona – May 2014
Undergraduate GPA: 3.466

2014 B.S. Molecular and Cellular Biology - University of Arizona – May 2014
Undergraduate GPA: 3.466

Publications:

Rodrigues Sanchez, M., Wang, Y., Cho, T.S., Schnapp, W.L., **Schmit, M. B.,** Fang, C., Cai, H, Dissecting a disynaptic central amygdala parasubthalamic nucleus neural circuit that mediates cholecystokinin-induced eating suppression**,** (2022), *Molecular Metabolism – Brief Communication doi: https://doi.org/10.1016/j.molmet.2022.101443*

Zhang-Molina, C., **Schmit, M. B.**, & Cai, H. Neural circuit mechanism underlying the feeding controlled by insula-central amygdala pathway (2020) *ISCIENCE, doi: https://doi.org/10.1016/j.isci.2020.101033*

Burton, A., Obaid, S. N., Vázquez-Guardado, A., **Schmit, M. B.**, Stuart, T., Cai, L., Chen, Z., Kandela, I., Haney, C. R., Waters, E. A., Cai, H., Rogers, J. A., Lu, L., & Gutruf, P. (2020). Wireless, battery-free subdermally implantable photometry systems for chronic recording of neural dynamics. *Proceedings of the National Academy of Sciences*, *10*, 201920073.

Wang, Y., Kim, J., **Schmit, M. B.**, Cho, T. S., Fang, C., & Cai, H. (2019). A bed nucleus of stria terminalis microcircuit regulating inflammation-associated modulation of feeding. *Nature Communications*, *10*(1), 2769.

Ye, T., Bartlett, M. J., **Schmit, M. B.**, Sherman, S. J., Falk, T., & Cowen, S. L. (2018). Ten-Hour Exposure to Low-Dose Ketamine Enhances Corticostriatal Cross-Frequency Coupling and Hippocampal Broad-Band Gamma Oscillations. *Frontiers in Neural Circuits*, *12*.

Awards and Honors:

Awarded ***ARCS (Achievement Rewards for College Scientists) Fellowship*** – *2022-2023*

Awarded ***Carter Travel Grant*** – University of Arizona - 2021

Awarded ***Galileo Circle Scholarship*** – University of Arizona - 2021

Recipient of ***Undergraduate Biology Research Program Outstanding Graduate Student Mentor*** – University of Arizona - 2020

Recipient of ***Comrie Fellowship***– University of Arizona - 2020

Awarded ***Galileo Circle Scholarship*** – University of Arizona - 2020

Selected as ***Graduate Interdisciplinary Program in Neuroscience Student Representative*** – University of Arizona - 2020

Awarded ***Neuroscience Department Travel Grant*** – University of Arizona - 2015

Awarded ***2nd Place - Poster Presentation at Student Showcase*** - University of Arizona - 2013

Awarded ***Honors College Summer Travel Grant*** – University of Arizona - 2013

Awarded ***Honors College Summer Research Grant*** – University of Arizona - 2013

Grant Applications:

2020 - NIH F31 submitted to NIDDK received a score of 27 (On a scale of 10-100)

Guest Lectures:

Schmit, M. B., "*The role of PKCδ+ neurons in eating behaviors, and how to build knowledge in Science"* – Guest Lecture for Neuroscience 418, University of Arizona, 2/25/2022

Schmit, M. B., "*Sensory Systems",* Guest lecture for Neuroscience and Cognitive Science 200, University of Arizona, 2/23/2021

Schmit, M. B., "*Sensory Systems",* Guest lecture for Neuroscience and Cognitive Science 200, University of Arizona, 2/28/2020

Schmit, M. B., "*Sensory Systems",* Guest lecture for Neuroscience and Cognitive Science 200, University of Arizona, 2/14/2019

Mentorship:

Undergraduate Biology Research Program Graduate Student Mentor for Hannah Voc– 2022

Students Taking Advantage of Research (STAR) Lab Mentor for Zachary Keys – 2021-2022

Undergraduate Biology Research Program Graduate Student Mentor for Mayra Rivera and Gizem Ozturk – 2020 (See awards)

Undergraduate Biology Research Program Graduate Student Mentor for Kevin Vo – 2019

Presentations:

Schmit, M. B., "*The Activity of Central Amygdala PKCδ+ Neurons during Food Approach, Satiety, and Hunger",* Graduate Interdisciplinary Program in Neuroscience & Department of Neuroscience Colloquium, 4/22/2022

Schmit, M. B., "*Exploring the Response Dynamics of Central Amygdala PKCδ+ Neurons to Different Feeding-Related Stimuli",* Graduate Interdisciplinary Program in Neuroscience & Department of Neuroscience Colloquium, 2/16/2021

Schmit, M. B., " *Central Amygdala PKCδ+ Neurons Respond to Eating and Hunger in Novel Ways",* Graduate Interdisciplinary Program in Neuroscience & Department of Neuroscience Colloquium, 8/21/2020

Schmit, M. B., "*Understanding the role of CeA PKC-δ cells in fasted feeding",* Comprehensive Exam Presentation, 8/7/2019

Schmit, M. B., "*The Central Amygdala's neural representation of hunger and feeding",* Neuroscience Community Data Blitz, 1/29/2019

Posters:

Schmit, M.B., Vu, H. N., Johnson, C., Rivera, M.K., Ozturk, G., Cai, H., (2022*) The Activity of CeA PKCδ+ Neurons during Food Approach, Satiety, and Hunger* , ARCS Research Conference, Phoenix

Schmit, M. B., Rivera, M., Ozturk, G., Hasneen, T., Vo, K., Cai, H., (2021), *Central Amygdala PKCδ+ Neurons Respond to Internal and External Stimuli,* GIDP Student Showcase, University of Arizona, Tucson

Ozturk, G., **Schmit M. B.,** Cai, H., (2021), *The Effect of a Novel Environment on PKC-δ+ Neuron Activity at Baseline and During Food Approach,* Undergraduate Biology Research Program Conference, Tucson

Rivera, M., **Schmit M. B.,** Cai, H., (2021), *Overlap between Lithium Chloride, Cholecystokinin and feeding activated PKC δ(+) Neurons in the Central Amygdala,* Undergraduate Biology Research Program Conference, Tucson

Vo, K., **Schmit M. B.**, Rivera, M., Cai, H. (2020), *The Effect of PKC-δ+ Neurons on the Latency to Approach Food and Termination of Feeding*, Undergraduate Biology Research Program Conference, Tucson

Hasneen, T., **Schmit M. B.**, Cai, H. (2020), *Rewarding properties of PKC-δ+ neuron stimulation in different hunger states*, Undergraduate Biology Research Program Conference, Tucson

Schmit, M. B., Ye, T, Bartlett M. J., Falk, T., Cowen, S (2016), *Directional Propagation of Ketamine induced High-Frequency Oscillations between the Striatum, Hippocampus, and Motor Cortex,* Society for Neuroscience Conference, San Diego

Schmit, M. B., Dollish, H., Falk, T., Cowen, S. L., (2016), *BRIAN: The Brains of Neuroscience Outreach,* Society for Neuroscience Conference, San Diego

Schmit M., Wiegand, J.P., Ye, T., Cowen, S., (2015) *Systems Level Organization of Ketamine-Induced Oscillations*, *ASU/ UofA Conclave*, Tucson AZ

Meyer, A, **Schmit, M.**, Lee, J., Stickel, A, Ryan, L., (2015) *White Matter Integrity Associations With Body Fat in Cognitively Healthy Older Adults*, *ASU/ UofA Conclave*, Tucson AZ

Lee, J., **Schmit, M.**, Meyer, A, Stickel, A, Ryan, L., (2015) *White Matter Integrity and Cognition in Late Middle Age and Older Adults*, *ASU/ UofA Conclave*, Tucson AZ

Schmit, M., Kawa, K., Stickel, A., Ryan, L.(2015). *Fractional Anisotropy in the Left Uncinate Fasciculus and the Inferior Cingulum Differentially Predict Memory and Executive Functions in Older Adults*, *Society for Neuroscience* Annual Meeting. Chicago, IL.

Ye, T., Bartlett, M. J., Wiegand, J.P., **Schmit, M.**, Sherman, S. J.,Falk, T, Cowen, S. (2015) *Modulation of High-Frequency Oscillations and Beta Coherence in Striato-Cortico-Limbic Circuits Following Repeated Sub-Anesthetic Ketamine Exposure*, *Society for Neuroscience* Annual Meeting. Chicago, IL.

Kawa, K., **Schmit, M.**, Stickel, A., Cardoza, J., Glisky, E., & Ryan, L. (2015). *Age Related Differences in Networks of Brain Activation Across Two Executive Functioning Domains – Updating and Task-Switching*, *Society for Neuroscience* Annual Meeting. Chicago, IL.

Kawa, K. H., Cardoza, J. C., Stickel, A. M., **Schmit, M. B.,** Lozano, M. S., Glisky, E. L., & Ryan, L. (2014). Comparing regional activations between older and younger adults on an fMRI task-switching and memory updating paradigm. *Cognitive Aging Conference. Atlanta, Georgia.*

Schmit, M., K. Cooke, K. Kawa, Ryan, L., (2013) Familiarity and the Context-Shift Decrement in Younger and Older Adults. *Cognitive Aging Conference. Atlanta, Georgia.*

Schmit, M., Ryan, L., (2013) Familiarity and the Context-Shift Decrement in Younger and Older Adults, *Graduate and Professional Student Council Student Showcase*

Education/Teaching Experience:

August 2019-December 2019
Teaching Assistant Neuroscience and Cognitive Science 311 - Scientific Programming Using MATLAB with Dr. Charles Higgins

January 2019- May 2019
Teaching Assistant Neuroscience and Cognitive Science 200 – Fundamentals of Neuroscience & Cognitive Science with Dr. Julie Miller and Dr. Jessica Andrews-Hanna

August 2018-December 2018
Teaching Assistant Neuroscience and Cognitive Science 311 - Scientific Programming Using MATLAB with Dr. Charles Higgins

January 2014- May 2014
AVID College Preparatory Tutor, Valencia Middle School

Experience:

2016 -Present Dr. Haijiang Cai Laboratory
Graduate Student, University of Arizona Neuroscience Department
Optogenetics, in-vivo calcium imaging, surgery, behavioral testing, computational modeling

2014 - 2016 Dr. Stephen Cowen Laboratory
Volunteer: Matlab programming, Granger causality, Spike2 for analysis, Cyclic Voltammetry, Electrophysiology in behaving rodents
Dr. Stephen Cowen, Assistant Professor, University of Arizona

2014 - 2015 Cognition and Neuroimaging Laboratory
Managing preparation for study of cognition and heart failure
Dr. Lee Ryan, Professor, University of Arizona

2012 - 2014 Cognition and Neuroimaging Laboratory
Honors Thesis
fMRI, DWI, image processing, statistical analysis, participant screening, neuropsychological testing
Dr. Lee Ryan, Professor, University of Arizona

Outreach Experience

Tucson Insect Festival: Matthew participated in the neuroscience demonstrations, interacted with young students and adults, presenting at multiple levels all day.

Junior Science and Humanities Symposia (JSHS) Program: Judged science fair projects of local high school students competing for scholarships.

B the BRAIN: B the Brain (Originally Brian the Brain) is an electrophysiology teaching tool designed to give students hands on electrophysiology experience and practice developing research questions. Built and programmed by Matthew Schmit and Dr. Stephen Cowen in 2016, B is a gelatin brain on an electrode attached to a Rasberry Pi, injecting electrical impulses into the gelatin to simulate neural spikes. The spiking rate is dependent on input from the environment via sensors on the device. Students first use electrodes to find the 'neuron', and then perform experiments to determine what it responds to. Along with Hannah Dollish, Matthew Schmit developed a presentation and curriculum for presenting B to different audiences. Presentations of B include, but are not limited to:

Tucson Festival of Books: All day demonstrations open to the public and all ages. March 2016, 2017, 2018, 2019, 2022.
Desert Shadows Middle School, Nogales, AZ: Evening demonstration for middle school students and parents. Underserved community. March 2019
Tucson Insect Festival: All day demonstrations open to the public. April 2017, 2018
Expanding Your Horizons at Sahuarita Middle School, Tucson AZ: 1 hour presentation to 7^{th} and 8^{th} grade students. November 2017
Flandreau Planetarium: Demonstrations open to all visitors at Flandreau Planetarium. August 2017

UA Blast Off Camp: 1 hour presentation for middle school students through university outreach camp. June 2017

Roberts-Naylor K-8 Elementary School: 1 hour presentation to 6th and 8th grade students. May 2017

St. Cyril's Middle School, Tucson AZ: 1 hour presentation to 7th grade and 8th grade classes. May 2015.