

Alexander James (AJ) Palmer

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GOALS

My background in single-cell in vivo imaging and translational psychopharmacology has equipped me with quantitative and mechanistic approaches to studying brain function and psychopathology. I am seeking doctoral training in neuroscience with a focus on neurotechnology, including device design, signal processing, computational modeling, and neurophysiological data acquisition. My long-term goal is to develop engineering tools and analytical methods that enable objective biomarkers of psychiatric disease and therapeutic brain state.

EDUCATION

Roanoke College (August 2021–May 2023) Bachelor of Science: Biochemistry, Psychology	GPA: 3.986/4.000
Lord Fairfax Community College (August 2019–May 2021)	GPA: 3.578/4.000
Christopher Newport University (August 2017–February 2019)	GPA: 3.58/4.00

PUBLICATIONS

Palmer, A. J.*, Hietamies, T. M.*, Sikka, P., Casey, A. B., Zhao, W. J., Rijsketic, D., Rastegar, Z., Deverett, B., & Heifets, B. D. (2025), EEG Signatures of the psychedelic experience remain under anesthesia. (in prep) [authors contributed equally*]

Ito, W., **Palmer, J. A.**, Morozov, A. (2022). Social synchronization of conditioned fear in mice requires ventral hippocampus input to amygdala. *Biological Psychiatry*. doi.org/10.1016/j.biopsych.2022.02.382

RESEARCH EXPERIENCE

September 2023 – Present	Heifets Lab – Life Science Research Professional Stanford School of Medicine – PI: Boris Heifets MD/PhD Led the preclinical arm of a translational project investigating the safety and efficacy of giving psilocin under anesthesia. <ul style="list-style-type: none"> • Trained on mouse surgery for both optic fiber and EEG skull screw implantation • Pioneered novel dual EEG – Fiber photometry surgery in mice • Designed custom data processing scripts in Python for mouse EEG and fiber photometry • Engineered custom EEG scripts for processing human EEG data in python • Collaborated on a project studying the prosocial effects of MDMA and fear extinction in mice • Validated Three Chamber Test, a social paradigm for mice
June – August 2022	The National Institute of Mental Health (NIMH) – Summer Internship Program Section on Synapse Development and Plasticity – PI: Zheng Li PhD, James Johnson PhD Collaborated on a project investigating valence processing in the mouse auditory cortex <ul style="list-style-type: none"> • Utilized to use a two-photon microscope for in vivo behavioral imaging • Optimized machine learning protocol to quantify behavior using DeepLabCut software • Trained in surgical techniques such as head bar implantation and creation of a cranial window. • Built protocols for brain clearing and activity based immunohistochemical visualization
December 2021 – July 2023	Morozov Lab – Lab Technician Fralin Biomedical Research Institute at Virginia Tech – PI: Alexei Morozov PhD Contributed to a project investigating the neural mechanism behind synchronized fear in mice. <ul style="list-style-type: none"> • Designed and implemented a social behavioral experiment to develop a new paradigm. • Trained in survival animal surgery, cannula implantation, and data analysis using python.

INVITED TALKS AND LECTURES

Project: “Neurophysiological correlates of psychedelic experience are retained during general anesthesia”	
January 2025	Consciousness, Anesthesia and Evolutionary Biology GRS – Barga, Italy
September 2024,	International Society for Research on Psychedelics: Trainee Series, Virtual
December 2025	

Project: “Neural Dynamics Encode Valence in the Mouse Auditory Cortex”

September 2022 Summer Research Showcase, Roanoke College

POSTER PRESENTATIONS**Project: “Neurophysiological correlates of psychedelic experience are retained during general anesthesia”**

September 2025 5th Annual Precision Mental Health Symposium: Bridging Psychiatry Neuroscience, and AI – Stanford, CA – Outstanding Poster Award – \$150

January 2025 Consciousness, Anesthesia and Evolutionary Biology GRC, Barga, Italy

October 2024 Research Park Symposium, Stanford – Palo Alto, CA

September 2024 Translational Neuroscience Symposium, Stanford – Palo Alto, CA

August 2024 Anesthesia Research Retreat, Stanford – Monterey, CA

May 2024 Wu Tsai Neurosciences institute Retreat, Stanford – Santa Cruz, CA

Project: “Neural Dynamics Encode Valence in the Mouse Auditory Cortex”

April 2023 National Conference of Undergraduate Research, University of Wisconsin – Eau Claire

September 2022 Summer Research Showcase, Roanoke College, (2nd Place)

Project: “Social synchronization of conditioned fear in mice requires vHPC input to BLA”

April 2023 National Conference of Undergraduate Research, University of Wisconsin – Eau Claire

August 2022 The NIH Summer Poster Session, NIMH

LEADERSHIP AND COMMUNITY ENGAGEMENT

December 2024 – Present **Office of Substance Use Programs and Resources: (Volunteer)** – Stanford, CA

- Helped create an online drug education course for undergraduate students
- Led a discussion group on psychedelics in therapy for psychology graduate students

January 2018 – February 2019 **Psi Upsilon Fraternity (Chief Justice)** –Newport News, VA

- Led a judicial board making decisions regarding standards and punishment
- Navigated conflict resolution in formal, interpersonal relationships

March 2019 – December 2019 **Alzheimer’s Association (Volunteer)** – Rappahannock, VA

- Organized community events for small businesses to raise awareness and funds for Alzheimer’s disease

August 2019 – August 2021 **Rappahannock Food Pantry (Volunteer)** – Rappahannock, VA

- Maintained an inventory and delivered food for those who were immobile due to disabilities

RELEVANT WORK EXPERIENCE

June 2025 **Stanford Neurobehavior and Neuroscience Methods Workshop (Instructor)** – Palo Alto, CA

- Instructed PhD students, postdocs and PIs in diverse fields on mouse EEG and fiber photometry methodology including surgery, recording, and data analysis

May 2025 – Present **Ocellaris Inc; Stealth Startup Company (Executive Assistant)** – Palo Alto, CA

- Helped raise 750K of SAFE funding for the seed round

December 2019 – August 2020 **ProZenn (Founder)** – Washington, VA

- Ran an online business including designing and creating an online storefront, product development, advertising, product procurement, fulfillment, and customer service.
- Gross revenue: ~2,500 USD

August 2019 – Present (Seasonal) **Off the Grid (Chef/Server/Farmhand)** – Sperryville, VA

- Trained and managed a team of 3–5 front of the house staff to develop organizational systems to maximize efficiency while creating a warm and friendly customer experience
- Maintained farming systems and animals, including 50 chickens, six ducks, two goats, and a greenhouse

May 2013 – August 2019 (Seasonal) **Belle Meade Day Camp (Counselor)** – Etlan, VA

- Educated 60 children of ages 5–13 on pool safety and how to swim for six sequential summers
- Mitigated conflict between campers and taught skills for navigating difficulties in interpersonal relationships
- Created interactive aquatic games to engage all campers and challenge their comfort zones