Aya Musleh

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EDUCATION

University of Southern California, Keck School of Medicine   Los Angeles, CA
M.S. Neuroimaging and Informatics   *Class of 2021*
Relevant Coursework: *NIIN520 Experimental Design for Neuroimaging, NIIN 540 Neuroimaging Data Processing Methods, NIIN 550 Computational Modeling in Neuroimaging, NIIN 580 Introduction to Data Science, NIIN600 Science Communications*
GPA: *3.78*

University of Redlands   Redlands, CA
B.S. Biology with Honors Cum Laude   *Class of 2019*
Minors: *Chemistry & Religious Studies*
Honors: *Cum Laude, Hunsaker Scholar*
GPA: *3.47*

RESEARCH INTERESTS

Neuroimaging, neurodevelopment, neurodegeneration, and computational neuroscience

AWARDS AND SCHOLARSHIPS

Neural Information Processing Systems Google Scholarship | Google Conference Scholarship | 2021

Brains and Games International Design Fiction Competition VR + Neurotech + Health Runner-Up | BRAINS@PLAY | 2021

HackSC 2021 Vertical: Device Winner | HackSC 2021 | 2021

Hunsaker Scholarship | University of Redlands | 2015-2019

Mind & Life International Symposium for Contemplative Research Travel Scholarship | Mind & Life Institute | 2018

Annual Biomedical Research Conference for Minority Students (ABRCMS) Travel Award | ABRCMS | 2018

Association for Women in Science Chicago Award | Chicago Public Schools Student Science Fair | 2013

EXPERIENCE & RESEARCH

University of Southern California   Los Angeles, CA
Graduate Research Assistant   *September 2019 – August 2021*
Topic: Neuroimaging data analysis, Neurodevelopment
Goal*:* Analyze neuroimaging data collected in neonates inflicted with Hypoxic-ischemic encephalopathy (HIE) to link abnormal brain development with cognitive impairment in school-aged children.
- Actively analyze literature on machine learning methodologies in neuroimaging in relation to HIE
- Attended lab meetings to present and discuss current literature in the neuroimaging and machine learning spheres

University of Redlands   Redlands, CA
Undergraduate Laboratory Research Student   *January 2018 – April 2019*
Topic: Behavioral Neuroscience, Autism Spectrum Disorder
Goal*:* Investigate the 5-HT system by using the BGC 20-761 antagonist to determine its ability in alleviating overall anxiety-like and repetitive behaviors of C58 mice.
- Conducted a year long intensive literature research on the project and wrote a final honors Thesis on research topic and data that was evaluated by the honors committee.
- Collaborated on higher order repetitive behavior research via novel object behavioral assay
- Utilized programming software including EthoVision and Noldus the Observer to score and analyze behavior
- Awarded Cum Laude honors based on research thesis.

University of Chicago   Chicago, IL
Leadership Alliance Research Intern   *June 2018 – August 2018*
Topic: Neurobiology
Goal: Analyze the synaptic morphology of fundamental cerebellar and somatosensory cortex cells in an autism spectrum disorder mouse model using patch clamp electrophysiology and Golgi staining.
- Conducted rodent brain dissections in rodent models for autism.
- Developed proficiency in confocal microscopy imaging and Zen 2008 software.
- Conducted literature review and wrote an end of summer thesis paper on research. Independently applied to the NSF Grant Fellowship with this research.

University of Redlands   Redlands, CA
Undergraduate Laboratory Research Student   *May 2016 – September 2016*
Topic: Neurophysiology, Gratitude & Self Compassion
Goal*:* Investigate the relationship between salivary amylase and psychological traits in 104 Redlands students alongside Dr. Lisa Olson.
- Conducted over 800+ ELISA assays and dedicated 8 hours a week conducting data analysis.
- Developed a proficiency in laboratory techniques, including ELISA assays, data acquisition, and processing.
- Presented research findings in 2016 and 2018.

RELEVANT PROFESSIONAL EXPERIENCE

University of California, Irvine   Irvine, CA
Laboratory Assistant   *January 2020 – September 2021*
- Managed and propelled the data acquisition of 6+ projects simultaneously
- Utilize and optimize lightsheet microscopy methodology to image sagittal view of over 500+ rodent brains for lab wide projects
- Work in Linux (Ubuntu) environment and use bash to quality control brains, ensuring optimal data collection via Clearmap
- Use Python scripts to optimize data collection of cell counts in rodent brains for several projects

University of Chicago   Chicago, IL
Collegiate Scholars Program Teaching Assistant   *June 2017-August 2017*
- Provided Dr. Ted Steck of the University of Chicago and Dr. Yvonne Lange of Rush University teaching assistance for approximately twenty-two students in a high school level biological science course
- Graded papers, took attendance, worked one-on-one with students, and held office hours as needed
- Taught a neuroscience lesson and created an assignment based on my lecture.

PUBLICATIONS

Manuscript Published:

Amodeo DA, Oliver B., Pahua A., Hitchcock K., Bykowski A., Tice D., **Musleh A.**, Ryan BC (2020) "Serotonin 6 receptor blockade reduces repetitive behavior in the BTBR mouse model of autism spectrum disorder." *Pharmacology Biochemistry and Behavior*. 200(2021): 173076

Bañuelos MS, **Musleh A.,** Olson L. (2017) "Measuring Salivary Alpha-Amylase in the Undergraduate Neuroscience Laboratory." *Journal of Undergraduate Neuroscience Education.* 16(1):A23-A27

Presentations – Oral:

Musleh AI., Tice D. "5-HT_6 Antagonist and Autistic-like Behaviors in the C58 Mouse."
Oral session presented at: The University of Redlands Senior Seminar & The University of Redlands Biology Honors Defense; 2019 April 4th, April 11th; Redlands, CA

Musleh AI. "Analysis of Dendritic Spines in Cerebellar Purkinje Cells and Neocortical Pyramidal Cells in a Mouse Model of Autism." Oral session presented at: The Leadership Alliance National Symposium & The University of Chicago's Summer Research Symposium; 2018 July 27-29, Hartford, CT; 2018 August 3, Chicago, IL

Musleh AI., Haji F., Diab L., Salih H. "Racialization of Modesty: Middle Eastern vs. Western Feminism." Oral session presented at: The University of Redlands Race on Campus; 2017 May 23rd; Redlands, CA.

Presentations – Poster:

Musleh AI. "Analysis of Dendritic Spines in Cerebellar Purkinje Cells and Neocortical Pyramidal Cells in a Mouse Model of Autism." Poster session presented at: University of Redlands Stauffer Center's Summer Research Symposium & The Annual Biomedical Research Conference for Minority Students; 2018 September 26, Redlands, CA; 2018 November 14-17, Indianapolis, IN.

Musleh AI., Olson L. "A Salivary Stress Marker Inversely Correlates to Forgiveness and Self-Compassion." Poster session presented at: Southern California Conferences for Undergraduate Research, University of Redlands Stauffer Center's Summer Research Symposium & Mind & Life International Symposium for Contemplative Research; 2016 September 26, Redlands, CA.; 2016 November 12, Riverside, CA.; 2018 November 8-11, Phoenix, AZ.

Media Appearance:

"Learning in the U.S.A." *K SIC*, Broadcasting Corporation, 11 June 2013. Reference link:
https://sickapa.pt/programas/learningintheusa/2016-01-31-2-Programa---dia-8-de-junho

RELEVANT TRAINING

Neuromatch Academy   Trabuco Canyon, CA
Interactive Student Track   *July 2020*
- Learned about model fitting, machine learning, dimensionality reduction, bayesian statistics, linear systems, dynamic networks, and deep learning in relation to neuroscience research
- Modeled data from neuroscience experiments ranging from neuronal activity in humans to animal behavior.

TECHNICAL SKILLS & LEADERSHIP

Programming Languages: MATLAB, Bash, Python, R

Neuroimaging Software: FSL, FreeSurfer, ITK-SNAP

Leadership: Found Well Fellow: Found Well Entrepreneurial Mindset, Compassion Advocacy Respect & Enlightenment (C.A.R.E.), Multi-faith Student Association, Code On!, Lean In: Mentor Her, USC Found Well Entrepreneurial Fellowship, Race on Campus Founding Member

Volunteer: Brains@Play, ABRCMS, Compassion Advocacy Respect & Enlightenment (C.A.R.E.), UCI Medical Affiliates Student Volunteer