Arsh Ali

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EDUCATION

The University of Texas at Austin, Austin, Texas — May 2024
Bachelor of Science in Neuroscience · Minor in Philosophy of the Mind and Language
Certificate in Scientific Computation and Data Sciences
GPA: 3.94

San Jacinto College, Houston, TX — June 2020
Associates of General Studies (Honors Program)
GPA: 4.0

RESEARCH EXPERIENCES

UT Health Austin – Dell Medical School, Austin, TX — May 2022 – Present
Research Assistant / Research Associate

- Collaborate with a clinical research team on an Alzheimer's Association-funded project to update neuropsychological assessment of instrumental activities of daily living (iADLs) for those with known or suspected Alzheimer's disease or related disorders by acquiring, analyzing, and merging neuropsychological data
- Writing two scientific articles and presenting a research poster as a first-author assessing the applicability, difficulty, and sensitivity/specificity of introducing technology-based items into standard neuropsychology assessments.
- Build redcap databases for clinical and community aspects of research and aid in administration of instruments to evaluate the psychometric properties of items that capture daily technology related Activities of Daily Living (ADLs) in 135 older adults
- Shadowed clinical neuropsychologists on how to perform dementia-specific tests to prepare administering brief neuropsychology battery consisting of verbal list learning measure, trail making test, and verbal fluency.

The Brager Lab – **The University of Texas at Austin**, Austin, TX — August 2021 – Present
Undergraduate Research Assistant

- Studied a mouse model of Fragile-X Syndrome, focusing on determining functional and morphological properties of inhibitory interneurons relevant to the study by performing protocols ranging from processing as well as staining
- Obtained high-quality images of hippocampal brain slices using Zeiss Axio-Scope to complete detailed morphological analysis and neuronal tracings from wild-type and Fragile X mice using Neurolucida software
- Conducted data analysis using Neurolucida software and a Java-based program to complete dorsal ventral mapping by measuring hippocampal structures and properties of interneurons from wild-type and Fragile-X mice

Glow Worms Lab (UT Austin — Freshman Research Initiative), Austin, TX — August 2020 – May 2021
Research Student

- Successfully utilized CRISPER "knock-in" technology to add a fluorescent protein to a gene (cmk-1) of *Caenorhabditis elegans*, designing, generating, and isolating new strains targeting previously-untagged genes
- Gained familiarity with essential research techniques, including bacterial transformation, PCR, gel electrophoresis, microfluidics, cloning, and genetic screening

Baylor College of Medicine – **Texas Children's Hospital**, Houston, TX — October 2019 – January 2020
Intern

- Studied neurological complications resulting from injections from viruses that affect the brain by performing lab and training protocols under the supervision of Dr. Shannon Ronca
- Completed the extraction and purification of nucleic acid from a mouse model of West Nile virus using inactivated mice kidneys and qPCR, analyzing quantitative data sets and assays to detect the presence of virus in 6-9 samples

The Benge Lab (UTMB – Galveston National Lab), Houston, TX — January 2019 – April 2019
Intern

- Aided in the completion of research processes such as dissecting ticks by providing special instructions to tick tissues, inserting DNA coding into tick organs through plasmid transfections
- Designed schemes to expose tissues to different infectious conditions using live cell analysis – CellASIC Onix Microfluidic platform – to stimulate, manipulate, and deliver functional measurements (temperature, pressure, etc) obtained directly on intact tissue to analyze the tissue microenvironment

PROJECTS, POSTERS, & AWARDS

- Project/Award: Student Research Award on Tick Tissue Research at the Bente Lab - *Employed microfluidic tools to*

probe the interactions between tick tissue and infectious conditions– Galveston National Lab (GNL), May 2019

- Project: Performing Target Selection by Applying Next Generation Sequencing Analysis – *analysis of RNA-sequence data derived from novel sequencing experiments related to neuroinflammation – FireCyte Therapeutics (*micro-internship, August 2022)
- Project: Create Seamless Cloning Strategies for High-throughput Protein Engineering – c*reating a molecular cloning strategy to insert a high-throughput library of randomized sequences onto an AAV capsid gene – Dyno Therapeutics (*micro-internship, December 2022)
- Ali, A. (2020, February). The impact of childhood trauma and genetic factors on mental illness in adolescents [Poster Presentation]. 2020 San Jacinto College Research Symposium, Houston, TX, United States.
- Ali, A., Silva, K., Hilsabeck, R.C., González, E., Scullin, M.K., Kiselica, A.M., & Benge, J. F. (2023, February). Technology use in activities of daily living amongst older adults referred for memory clinic evaluation [Poster Presentation]. 2023 International Neuropsychological Society Annual Meeting, San Diego, CA, United States.
- Benge, J.F., Ali, A., González, E., Kiselica, A.M., Scullin, M.K., Hilsabeck, R.C. (2023, July). What causes difficulties with technology and non-technology based activities of daily living? [Poster Presentation]. 2023 Alzheimer's Association International Conference, Amsterdam, Netherlands.

LEADERSHIP & COMMUNITY INVOLVEMENT

Notable Neuros Youth Organization, Austin, TX August 2021 - Present
Presentation Director

- Assemble creative biweekly presentations for 700 high school students about neuroscience and psychology research topics by analyzing/synthesizing scientific publications, summarizing recent research findings, and applying neuroscience coursework
- Direct 3-5 weekly research sessions on zoom to present studies exploring branches of neuroscience while providing students opportunities to critically-think by hosting Q&As to provide advice on pursuing a STEM-related career

UT Austin Natural Sciences Council, Austin, TX July 2021 – Present
External Editor for Catalyst

- Manage the science + research column in student-led publication for College of Natural Sciences by reviewing/editing writers' articles to ensure content is accurate and meets criteria
- Develop personal articles about resourceful topics ranging from navigating research opportunities on campus to diverse bioscience research topics such as neurophilosophy, physics, consciousness, infectious disease biology

Texas Interdisciplinary Plan (TIP), Austin, TX July 2021 – Present
STEM Peer Mentor

- Serve as a mentor to five first-year neuroscience students, providing guidance and support in their adjustment to college by teaching lesson plans on networking and professional opportunities, health and wellness, and building a community
- Connect freshman with STEM resources on and off campus whilst creating a safe, inclusive space to share personal/professional experiences, providing effective feedback and advice on mentee's goals and queries about research involvement.

Women's Resource Agency (Student Government), Austin, TX July 2021 – Present
Agency Director

- Arranged services promoting the success of women and non-binary individuals by discussing pertinent gender issues, such as by organizing an annual crowd-sourced production called Amplify for students to share personal background and stories
- Develop outreach programs and initiatives expanding STEM resources, including UT Women in the Workforce workshops, panels, and seminars to discuss career advancement, networking, salary negotiations, bias in science, etc.

Chemistry Learning Assistant Program, Austin, TX June 2021 – Present
Learning Assistant

- Interact with 20-30 students during active learning periods and office hours to assist them with the chemistry course material by attending discussion sessions, guiding and prompting students to critically think about such concepts

Undergraduate Research Initiative, Austin, TX February 2020 – Present
Mentorship Facilitator/Officer

- Collaborate with clubs, faculty, and outside organizations to actively promote 10-13 student-driven events such as journal clubs well as leadership, mentorship, and networking opportunities within STEM to connect members to upperclassmen and research labs on-campus
- Spearheaded outreach programs including 4-5 annual talks, sessions, and panels of past alumni and current faculty across departments