Anusha Allawala

PhD Candidate · Biomedical Engineering

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Education

Brown University — *Providence, RI*

PhD Biomedical Engineering — *09/2017 - present*

- Co-advisors: Dr. David Borton and Dr. Sameer Sheth

San Jose State University — *San Jose, CA*

BS Biomedical Engineering — *01/2009 - 12/2014*

- Undergrad Research Advisor: Dr. Katherine Wilkinson

Professional Experience

2021-Present	**NIH Blueprint Diversity Specialized Predoctoral to Postdoctoral Advancement in Neuroscience (DSPAN) Scholar**, Brown University
2017-2021	**NSF Graduate Research Program Fellow**, Brown University
2017	**Consultant**, In Vivo Strategies, LLC
2015-2017	**Research Associate**, Circuit Therapeutics, Inc.
2012-2014	**McNair Scholar and Undergraduate Research Assistant**, San Jose State University

Publications

Published

Adkinson J., Tsolaki E., Sheth S.A., Oswalt D., Metzger B., McIntyre C., Mathura R.M., Waters A.C., Robinson ME, **Allawala A.**, Noecker A.M., Malekmohammadi M., Chiu K., Mustakos R., Goodman W., Borton D., Pouratian N., Bijanki K. 2022. Imaging versus electrographic connectivity in human mood-related fronto- temporal networks. Brain Stimulation. doi:https://doi.org/10.1016/j.brs.2022.03.002

Allawala A., Bijanki K., Goodman W., Cohn J.F., Viswanathan A., Yoshor D., Borton D.A., Pouratian N., Sheth S.A. 2021. A Novel Framework for Network-Targeted Neuropsychiatric Deep Brain Stimulation. Neurosurgery. doi: https://doi.org/10.1093/neuros/nyab112

Sheth S.A., Bijanki K., Metzger B., **Allawala A.**, Pirtle V., Adkinson J., Myers J., Mathura R., Oswalt D., Tsolaki E., Xiao J., Noecker A., Strutt A., Cohn J., McIntyre C., Mathew S., Borton D.A., Goodman W., Pouratian N. 2021. Deep brain stimulation for depression informed by intracranial recordings. Biological Psychiatry. doi: https://doi.org/10.1016/j.biopsych.2021.11.007

Dastin-van Rijn E., Provenza N.R., Calvert J.S., Gilron R., **Allawala A.**, Darie R., Syed S., Matteson E., Vogt G.S., Avendano-Ortega M., Vasquez A.C., Ramakrishnan N., Oswalt D., Bijanki K., Wilt T., Starr P.A., Sheth S.A., Goodman W., Harrison M.T., Borton D.A. 2020. Uncovering biomarkers during therapeutic neuromodulation with PARRM: Period-based Artifact Reconstruction and Removal Method. Cell Reports Methods. doi: https://doi.org/10.1101/2020.10.02.322743

Powell M., Romeo J.A., Gilron R., Provenza N.R., **Allawala A.**, Silva D., Bijanki K., Oswalt D., Adkinson J., Pouratian N., Sheth S.A., Goodman W., Jones S.R., Starr P.A., Borton D.A. 2020. NeuroDAC: An Open-Source Arbitrary Biosignal Waveform Generator. Journal of Neural Engineering. doi: https://doi.org/10.1088/1741-2552/abc7f0

Black C.J., **Allawala A.**, Bloye K., Vanent K.N., Edhi M.M., Saab C.Y., Borton D.A. 2020. Automated, conscious and rapid self-report of nociception in transgenic mice. Journal of Neural Engineering. doi: https://doi.org/10.1038/s41598-020-70028-8

Provenza N,R., Matteson E.R.,**Allawala A.B.**, Barrios-Anderson A., Sheth S.A., Viswanathan A., McIngvale E., Storch E., Frank M.J., McLaughlin N.C.R., Cohn J.F., Goodman W.K., Borton D.A. 2019. The Case for Adaptive Neuromodulation to Treat Severe Intractable Mental Disorders. Frontiers in Neuroscience. doi: https://doi.org/10.3389/fnins.2019.00152

Zaytseva D., **Allawala A.,**, Franco J.A., Putnam S., Abtahie A.M., Bubalo N., Criddle C.R., Nguyen T.A., Nguyen P., Padmanabhan S., Bremer M., Abramson T., Wilkinson K.A. 2018. Lipopolysaccharaide-induced inflammation does not alter muscle spindle afferent mechanosensation or sensory integration in the spinal cord of adult mice. Physiological Reports. doi: https://doi.org/10.14814/phy2.13812

In Prep

Allawala A., Oswalt D., Adkinson J., Tsolaki E., Mathura R., McIntyre C., Noecker A., Chiu K., Malekmohammadi M., Mustakos R., Mathew S., Goodman W., Pouratian N., Bijanki K., Sheth S.A., Borton D.A. 2022. Dual-target deep brain stimulation drives differential engagement of networks underlying treatment-resistant depression.

Xiao J., Provenza N.R., Asfouri J., Myers J., Mathura R.K., Metzger B., Adkinson J.A., **Allawala A.B.**, Pirtle V., Oswalt D., Shofty B., Robinson M.E., Mathew S., Goodman W.K., Pouratian N., Schrater P.R., Patel A.B., Tolias A.S., Bijanki K.R., Pitkow X., Sheth S.A. 2022. Decoding depression severity from intracranial neural activity.

Awards, Fellowships, & Grants

2021 - 2027	**F99/K00 - D-SPAN Award**, National Institutes of Health
2021	**Neuroscience Scholars Program (NSP) Associate**, Society for Neuroscience
2020	**Trainee Professional Development Award**, Society for Neuroscience
2017 - 2021	**Graduate Research Fellowship Program**, National Science Foundation
2014	**Travel Award**, California State University Program for Education and Research in Biotechnology
2014	**Honorable Mention, Sally Casanova Pre-doctoral scholarship**, California State University Program for Education and Research in Biotechnology
2013 - 2014	**Ronald E. McNair Scholarship**, San Jose State University
2013	**Travel Award**, Annual Biomedical Research Conference for Minority Students
2016	**Travel Award**, Annual Biomedical Engineering Society (BMES) Meeting
2013	**Undergraduate Research Award**, Office of the Provost, San Jose State University
2013	**Intuitive Surgical Inc. Scholarship**, San Jose State University
2013	**Department Service Award, Department of Biomedical, Chemical and Materials Engineering**, San Jose State University
2012 - 2014	**National Science Foundation Engineering Leadership Pathways Scholars Program**, San Jose State University
2012	**Barnum-Everett Memorial Scholarship**, San Jose State University
2011	**Varian Scholarship**, San Jose State University

Presentations

** presenting author; + mentored undergraduate*

Conference Presentations

Allawala A., Adkinson J., Oswalt D., Tsolaki E., Mathura R., McIntyre C., Noecker A., Chiu K., Malekmohammadi M., Mustakos R., Goodman W., Pouratian N., Bijanki K., Sheth S., Borton D. 2022. Dual-target, current-steered deep brain stimulation drives differential engagement of networks in treatment-resistant depression. Eight Annual BRAIN Investigators Meeting. Washington, DC. (Poster)

Allawala A., Adkinson J., Oswalt D., Mathura R., Goodman W., Pouratian N., Bijanki K., Borton D. Sheth S. 2022. Dual-target deep brain stimulation drives differential engagement of networks underlying treatment-resistant depression. American Society for Stereotactic and Functional Neurosurgery, Atlanta, GA. (Poster)

Allawala A., Adkinson J., Bijanki K., Vartany S., Mathew S., Goodman W., Pouratian N., Sheth S., Borton D. 2021. Modulation of Cognitive Control Network in Treatment-Resistant Depression with Deep Brain Stimulation. Society for Neuroscience Global Connectome, Virtual. (Poster)

Vartany S,*+, **Allawala A**, Ritz, H., Adkinson J. Mathura R., Bijanki K., Shenhav A., Goodman W., Pouratian N., Sheth S., Borton D. 2021. Deep Brain Stimulation in Treatment-Resistant Depression Modulates Oscillations Above 1/f Spectral Noise in Cognitive Control Networks. Neuromatch Conference 4.0

Allawala A., Adkinson J., Myers J., Pirtle V., Goodman W., Mathew S., Pouratian, N., Borton D, Bijanki K., Sheth S. 2020. Domain-Based Conceptualization of Mood-Regulating Networks: Implications for DBS for Depression. American Society for Stereotactic and Functional Neurosurgery, Virtual. (Poster)

Allawala, A., Adkinson J., Myers J., Pirtle V., Goodman W., Mathew S., Pouratian N., Borton D.A., Bijanki K., Sheth S.A. 2020. Modulation of the Cognitive Control Network in Treatment-Resistant Depression with Deep Brain Stimulation. Sixth Annual BRAIN Initiative Investigators Meeting, Virtual. (Poster)

Allawala A., Black C., Saab C., Borton D.A. 2018. Towards Interneuron Characterization in the Spinal Cord. Society for Neuroscience Annual Meeting. (Poster)

Nguyen-Vu T.D., Leung L., **A.Allawala***, Arnold C., Zwilling D., Sawatzki R., Kaplitt M. 2016. Optogenetic Inhibition of STN Rescues Motor Defects in Parkinsonian Rodents. Society for Neuroscience Annual Meeting, San Diego, CA. (Poster)

Allawala A., Wilkinson K. 2014. The Characterization of Muscle Sensory Receptors Following Inflammation in Adult Male Mice. Annual Biomedical Research Conference for Minority Students, San Antonio, TX. (Oral Presentation)

Allawala A., Wilkinson K. 2014. The Effect of Inflammation on Muscle Sensory Function in Adult Female Mice. Annual Experimental Biology Meeting, San Diego, CA. (Poster)

Allawala A., Wilkinson K. 2013. The Effect of Inflammation on Muscle Sensory Function in Adult Female Mice. Biomedical Engineering Society Annual Meeting, Seattle, WA (Poster)

Conference Proceedings

Allawala A., Adkinson J., Oswalt D., Tsolaki E., Mathura R., McIntyre C., Noecker A., Chiu K., Malekmohammadi M., Mustakos R., Goodman W., Pouratian N., Bijanki K., Borton D., Sheth S. 2022. Dual-target deep brain stimulation drives differential engagement of networks underlying treatment-resistant depression. Biological Psychiatry(Proceedings of the Society for Biological Psychiatry Meeting, New Orleans, LA. doi: `https://doi.org/10.1016/j.biopsych.2022.02.608`

Allawala A., Behnke S., Zaytseva D., Wilkinson K. 2014. Characterization of changes in muscle afferent response to stretch following inflammation in male and female mice. The FASEB Journal. doi: `https://doi.org/10.1096/fasebj.28.1_supplement.1128.1`

Teaching Experience

Fall 2021	**Sheridan Teaching Seminar - Reflective Teaching**, Certificate completion	*Brown University*
Summer 2018	**Biomedical Engineering and Device Design – Brown PreCollege Program**, Course instructor	*Brown University*

Mentoring

2020-2022	**Stephanie Vartany**, Undergraduate student, Neuroscience, Brown University
2019-2021	**Michelle Akerman**, Undergraduate student, Biomedical Engineering, Brown University
2021	**Ron Gadot**, M3 Medical student, Baylor College of Medicine
2020	**Venkata Jonnakuti**, MD/PhD Rotation student, Baylor College of Medicine

Research Experience

Brown University - School of Engineering *Providence, RI*

Co-Advisors: Dr. David Borton and Dr. Sameer Sheth *Sept. 2017 - Present*

- Dissertation: “Modulation of oscillatory dynamics in cognitive control using deep-brain stimulation: implications for psychiatric neuromodulation ”

Brown University - School of Engineering *Providence, RI*

Advisor: Dr. David Borton *Sept. 2017 - Dec. 2018*

- Project (Rotation): “Towards Interneuron Characterization in the Spinal Cord”

Circuit Therapeutics, Inc. - CNS therapy *Menlo Park, CA*

Supervisor: Dr. Barbara Nguyen-Vu *March 2015 - July. 2017*

- Projects: "Optogenetic modulation of the STN and evaluation of motor deficits in Parkinsonian Rodents"

San Jose State University - Dept of Biology *San Jose, CA*

Advisor: Dr. Katherine Wilkinson *2012-2014*

- Thesis: "The Characterization of Muscle Spindle Afferents to Inflammation in Adult Male Mice"

San Jose State University - Dept of Biology *San Jose, CA*

Advisor: Dr. Katherine Wilkinson *Summer 2013*

- National Science Foundation Research Experience for Undergraduates (NSF-REU) Program Project: "The use of Capsaicin as a pharmacological tool to silence pain receptor afferents"

Outreach & Professional Development

Service and Outreach

2018 - 2022 **Skype a Scientist Program**, Volunteer
2020 - 2021 **Peer Mentor**, BME PhD Program, Brown University
2018-2019 **Peer Mentor, Organizer**, Graduate School Center for Students of Color, Brown University
2012-2013 **Vice President**, Biomedical Engineering Society, San Jose State University Chapter
2018-2019 **Peer Mentor, Organizer**, Graduate School Center for Students of Color, Brown University

Professional Memberships

Society for Neuroscience
Society for Biological Psychiatry

Skills

Software AutoCAD, Fusion 360, MATLAB, Python, ProE/Creo, Adobe Illustrator, Photoshop

Electrical/Mechanical Arduino, soldering, circuit design and analysis

Biological Microscopy (Confocal, Bright Field), sectioning on cryostat and microtome, slide preparation, rodent stereotaxic and intraspinal surgery, immunohistochemistry