



Anirudh Wodeyar

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EDUCATION

- Postdoctoral Research Fellow** 2023-Present
Massachusetts General Hospital/Harvard Medical School, Boston, MA, USA
PI: Catherine J. Chu and Mark A. Kramer
Research on cortical, thalamic and hippocampal rhythms in sleep and their function in sleep-dependent memory consolidation.
- Research Affiliate in Neurology** 2021-2023
Massachusetts General Hospital, Boston, MA, USA
PI: Catherine J. Chu
Research on thalamic involvement in sleep brain rhythms and their dysfunction in epilepsy.
- Postdoctoral Associate in Mathematics and Statistics** 2019-Present
Boston University, Boston, MA, USA
PI: Mark A. Kramer and Uri T. Eden
Built real-time estimator of phase using a state-space model and compared multiple estimators of phase.
- Ph.D. in Psychology with Concentration in Cognitive Neuroscience** 2014-2019
University of California, Irvine, Irvine, CA, USA
PI: Ramesh Srinivasan
Thesis: Linking Structure to Function in Resting State Macroscale Neural Activity.
- M.S. in Statistics** 2014-2018
University of California, Irvine, Irvine, CA, USA
- B.E. Honors in Computer Science (with Distinction)** 2010-2013
BITS Pilani, K.K. Birla Goa Campus, Goa, India
PI: Rajesh Kasturirangan and Nishanth Seth
Thesis: Phenomenology of Neurofeedback.

FUNDING

- 2023 (\$75000) New England Epilepsy Foundation Blue Sky Award (co-Investigator)
- 2018 (\$10200) Associate Dean's Fellowship, University of California, Irvine

HONORS/AWARDS

- 2018 (\$3000) Falmagne Fellowship, University of California, Irvine
- 2016 (\$1000) Yellott Fellowship Honorable Mention, University of California, Irvine
- 2016 (\$500) Student Travel grant to Challenges in Functional Connectivity Modeling and Analysis, Statistical and Applied Mathematics Institute, NCSU
- 2013 (\$500) Student Travel grant to Cosmology and Consciousness Conference, Dehra Dun, India

PUBLICATIONS

1. A. Wodeyar and R. Srinivasan, “[Structural Connectome constrained Graphical Lasso for MEG Partial Coherence](#)”, *Network Neuroscience* , (2022).
2. W. Rasheed, A. Wodeyar, R. Srinivasan and R.D. Frostig, “[Sensory stimulation-based protection from impending stroke following MCA occlusion is correlated with desynchronization of widespread spontaneous local field potentials.](#)”, *Scientific Reports* , 1-11 (2022).
3. J.M. Cassidy, A. Wodeyar, S. C. Cramer and R. Srinivasan, “[Coherent neural oscillations inform early stroke motor recovery](#)”, *Human Brain Mapping* , 1-12 (2021).
4. A. Wodeyar, M. Schatza, A. S. Widge, U. T. Eden, M. A. Kramer, “[A State Space Modeling Approach to Real-Time Phase Estimation](#)”, *eLife* , (2021).
5. E. G. Wann, A. Wodeyar, R. Srinivasan and R. D. Frostig, “[Rapid development of strong, persistent, spatiotemporally extensive cortical synchrony and underlying oscillations following acute MCA focal ischemia](#)”, *Scientific reports* **10**, 1-14 (2020).
6. J.M. Cassidy, A. Wodeyar, W. Jennifer, K. Kaur, A. K. Masuda, R. Srinivasan and S. C. Cramer , “[Low-frequency oscillations are a biomarker of injury and recovery after stroke](#)”, *Stroke* **51**, 1442–1450 (2020).
7. A. Wodeyar, J.M. Cassidy, S. C. Cramer and R. Srinivasan, “[Damage to the structural connectome reflected in resting-state fMRI functional connectivity](#)”, *Network Neuroscience* **4**, 1197–1218 (2020).

PREPRINTS AND CONFERENCE PROCEEDINGS

1. A. Wodeyar, D. Chinappen, D. Mylonas, B. Baxter, D. S. Manoach, U. T. Eden, M. A. Kramer*, and C. J. Chu*, “[Human Thalamic Recordings Reveal that Slow Waves Drive Competing Spikes and Spindles](#)”, *bioArxiv* (2023).
2. A. Wodeyar, F. A. Marshall, C. J. Chu, U. T. Eden and M. A. Kramer, “[Different methods to estimate the phase of neural rhythms agree, but only during times of low uncertainty](#)”, *bioArxiv* (2023).
3. A. Wodeyar and R. Srinivasan, “[Network Structure During Encoding Predicts Working Memory Performance](#)”, *bioArxiv* (2018).

4. A. Wodeyar, and R. Srinivasan, “[Functional Connectivity Using Complex-Gaussian Graphical Models of EEG](#)”, *Computational Cognitive Neuroscience Meeting 1*, (2018).

INVITED TALKS

- Using State Space Models to Estimate Phase,
Workshop on Time Domain Analysis of Neural Oscillations, The 16th International Conference on Brain Informatics, Hoboken, New Jersey, USA, 2023
- Using State Space Models to Estimate Phase,
New England Statistical Society, Boston, USA, 2023
- Human Thalamic Recordings Reveal Competing Spikes and Spindles,
MGH-MIT iBrain Human Intracranial Neuroscience Symposium, Boston, USA, 2022
- Fronto-Occipital Fasciculus: A Structural and Functional Connectivity analysis,
Department of Cognitive Science, University of California, Irvine, USA, 2018
- Complex Gaussian Graphical Models of Electroencephalographic Data,
Workshop on Big Data in Brain Science, University of California, Irvine, USA, 2017
- Estimation of Sparse Directed Brain Networks underlying Memory Encoding, Retention and Retrieval,
Department of Cognitive Science, University of California, Irvine, USA, 2016

PRESENTATIONS

- Triple-coupling of sleep oscillations across the Pre-frontal Cortex, Thalamus and Hippocampus,
Stickgold Science of Sleep Series, Boston, USA, 2023
- Modeling Brain Rhythms as Damped Harmonic Oscillators Driven by Noise,
Cognitive Rhythms Collaborative Working Group, Boston, USA, 2023
- Cortical Slow Oscillations Facilitate Spikes that can Disrupt Spindles,
Stickgold Science of Sleep Series, Boston, USA, 2022
- Phenomenology of Neurofeedback,
International Symposium of Neuroscience, Allahabad, India, 2013

POSTER PRESENTATIONS

- Human Thalamic Recordings Reveal that Cortical Slow Waves Coordinate Competing Spikes and Spindles,
Poster presented at AES, Nashville, USA, 2022
- On the Difficulty of Measuring Phase for Complex Neural Signals,
Virtual Poster presented at BRAIN, 2022
- Measuring, Modeling and Modulating Cross-Frequency Coupling: A State Space Modeling Approach to Real-Time Phase Estimation,
Virtual Poster presented at BRAIN, 2021

- EEG functional connectivity reflects MRI estimates of damage to the Fronto-Occipital Fasciculus,
Poster presented at Organization for Human Brain Mapping, Singapore, 2018
- Functional Connectivity Using Complex Gaussian Graphical Models of EEG,
Poster presented at Computational Cognitive Neuroscience, Columbia University, New York, USA, 2017
- Separating the Effects of Attention and Retention on Visual Short Term Memory,
Poster presented at Society for Neuroscience, San Diego, USA, 2016
- Using Single Trial Estimates of Attention to Predict Retention in Short Term Memory,
Poster presented at Challenges in Functional Connectivity Modeling and Analysis, SAMSI, NCSU, Raleigh, USA, 2016

TEACHING

- Winter 2015, Spring 2019: **Psychology Fundamentals**
Teaching Assistant
Conducted discussion sections (tutorial-style lectures), met with students upon request and graded all written work.
- Winter 2016, 2018, 2019: **MATLAB course in Social Science**
Teaching Assistant
Conducted code review lab sessions, and met with students to clarify doubts.
- Fall 2017: **Computational Research in Social Sciences**
Teaching Assistant
Conducted lab sessions, reviewed lectures, met with students, and graded all work.
- Summer 2017: **Computational Models of Macroscale Electrophysiology Seminar**
Organizer/Speaker
Curated papers, brought in presenters and presented research.
- Spring 2015: **Probability and Statistics in Social Science III**
Teaching Assistant
Conducted lab sessions, reviewed lectures, met with students, and graded all work.
- Fall 2014: **Introduction to Psychology**
Teaching Assistant
Conducted discussion sections (tutorial-style lectures), met with students upon request and graded all written work.

MENTORING

- Summer 2023
Ana Howland, Undergraduate
Sleep staging of overnight sEEG recordings

- Summer 2021 - Spring 2022
NeuroMatch Academy (Funda Yilmaz, Nissrin Amrani El Yaakoubi, Şeyma Nur Ertekin, Nikolay Kotoyants), Masters Students
Investigating neural signatures of working memory in frontoparietal electrocorticography
- Fall 2017 - Spring 2018
Farid Banki, Undergraduate
Unsupervised Classification of Schizophrenic Patient Subgroups using Evoked Response and Rhythmic Features

REVIEWER

Scientific Reports, PLOS Comp Bio, Brain Topography, J. Neuroscience, Neurorehabilitation and Neural Repair, J. Neuroscience Methods

SKILLS

- Technical: *MATLAB, Python, R, C, Latex, Shell, SPSS*
- Languages: *English and Kannada (native), Hindi and Dutch (intermediate), French and Spanish (basic)*
- Completed the Teaching Assistant Professional Development (TAPDP) Training in 2014:
<https://dtei.uci.edu/ta-professional-development-program/>.

PHOTOGRAPHY

- Video shown at Coolidge Corner Short Film Showcase 2019,
<https://vimeo.com/456051422>
- Picture Showcased on *StreetSweeper* website 2020- 'Plastic Velvet Curtains',
<https://streetsweepermagazine.com/ani-wodeyar/>
- Boston University Silber Way Exhibition 2021/2022 - 'Free-ly Fenced',
<https://www.bu.edu/arts/silber-way-exhibition/>
- Participated in Art of Neuroscience Competition 2021 - 'Time Silently/Saliently Decaying',
<https://vimeo.com/559961383>
- Exhibited in Allston Open Studios 2022,
<https://allstonarts.org/2022-participating-artists--businesses.html>
- Picture Showcased by *MAP Bangalore* 2022,
<https://www.instagram.com/p/CikQ8cQvkoq/>