



## Anish Mitra

Assistant Professor of Psychiatry and Behavioral Sciences (General Psychiatry and Psychology)

 Curriculum Vitae available Online

### CLINICAL OFFICE (PRIMARY)

- **Psychiatry**

401 Quarry Rd Ste 2114

MC 5723

Stanford, CA 94305

**Tel** (650) 725-5591

**Fax** (650) 725-3762

### Bio

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#### BIO

Anish Mitra is a neuroscientist and psychiatrist interested in understanding how neural activity in large-scale networks causes mental illness.

#### CLINICAL FOCUS

- Psychiatry

#### ACADEMIC APPOINTMENTS

- Assistant Professor - University Medical Line, Psychiatry and Behavioral Sciences
- Member, Bio-X
- Member, Wu Tsai Neurosciences Institute

#### HONORS AND AWARDS

- Hot Topics Award, International Society for Brain Stimulation (2023)
- Travel Fellowship Winner, Society of Biological Psychiatry (2023)
- Outstanding Resident Award, National Institutes of Mental Health (2021)
- James O'Leary Prize for Best Doctoral Research, Washington University Department of Neuroscience (2019)
- Ruth L. Kirschstein National Research Service Award, NIMH (2014-2019)

#### PROFESSIONAL EDUCATION

- Board Certification: Psychiatry, American Board of Psychiatry and Neurology (2023)
- Residency: Stanford University Adult Psychiatry Residency (2023) CA
- Medical Education: Washington University School Of Medicine Registrar (2019) MO

## Teaching

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### STANFORD ADVISEES

#### Postdoctoral Faculty Sponsor

Patrycja Dzialecka

#### Doctoral Dissertation Co-Advisor (NonAC)

Kaiwen Sheng

## Publications

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### PUBLICATIONS

- **Targeted neurostimulation reverses a spatiotemporal biomarker of treatment-resistant depression.** *Proceedings of the National Academy of Sciences of the United States of America*  
Mitra, A., Raichle, M. E., Geoly, A. D., Kratter, I. H., Williams, N. R.  
2023; 120 (21): e2218958120
- **Spontaneous Infra-slow Brain Activity Has Unique Spatiotemporal Dynamics and Laminar Structure** *NEURON*  
Mitra, A., Kraft, A., Wright, P., Acland, B., Snyder, A. Z., Rosenthal, Z., Czerniewski, L., Bauer, A., Snyder, L., Culver, J., Lee, J., Raichle, M. E.  
2018; 98 (2): 297-+
- **Lag threads organize the brain's intrinsic activity (vol 112, pg e2235, 2015)** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Mitra, A., Snyder, A. Z., Blazey, T., Raichle, M. E.  
2015; 112 (52): E7307
- **Propagated infra-slow intrinsic brain activity reorganizes across wake and slow wave sleep** *ELIFE*  
Mitra, A., Snyder, A. Z., Tagliazucchi, E., Laufs, H., Raichle, M. E.  
2015; 4
- **Optimized ultrasound neuromodulation for non-invasive control of behavior and physiology.** *Neuron*  
Murphy, K. R., Farrell, J. S., Bendig, J., Mitra, A., Luff, C., Stelzer, I. A., Yamaguchi, H., Angelakos, C. C., Choi, M., Bian, W., DiIanni, T., Pujol, E. M., Matosevich, et al  
2024
- **Mechanisms of Action of TMS in the Treatment of Depression.** *Current topics in behavioral neurosciences*  
Downar, J., Siddiqi, S. H., Mitra, A., Williams, N., Liston, C.  
2024
- **A comparison of machine learning classifiers for pediatric epilepsy using resting-state functional MRI latency data** *BIOMEDICAL REPORTS*  
Nguyen, R. D., Smyth, M. D., Zhu, L., Pao, L. P., Swisher, S. K., Kennedy, E. H., Mitra, A., Patel, R. P., Lankford, J. E., Von Allmen, G., Watkins, M. W., Funke, M. E., Shah, et al  
2021; 15 (3)
- **Global waves synchronize the brain's functional systems with fluctuating arousal.** *Science advances*  
Raut, R. V., Snyder, A. Z., Mitra, A., Yellin, D., Fujii, N., Malach, R., Raichle, M. E.  
2021; 7 (30)
- **Convolutional Neural Networks for Pediatric Refractory Epilepsy Classification Using Resting-State fMRI.** *World neurosurgery*  
Nguyen, R. D., Kennedy, E. H., Smyth, M. D., Zhu, L. n., Pao, L. P., Swisher, S. K., Rosas, A. n., Mitra, A. n., Patel, R. P., Lankford, J. n., Von Allmen, G. n., Watkins, M. W., Funke, et al  
2021
- **Probabilistic Flow in Brain-wide Activity.** *NeuroImage*  
Mitra, A., Snyder, A. Z., Raichle, M. E.  
2020: 117321

- **Plasticity and Spontaneous Activity Pulses in Disused Human Brain Circuits.** *Neuron*  
Newbold, D. J., Laumann, T. O., Hoyt, C. R., Hampton, J. M., Montez, D. F., Raut, R. V., Ortega, M., Mitra, A., Nielsen, A. N., Miller, D. B., Adeyemo, B., Nguyen, A. L., Scheidter, et al  
2020; 107 (3): 580
- **Local Perturbations of Cortical Excitability Propagate Differentially Through Large-Scale Functional Networks.** *Cerebral cortex (New York, N.Y. : 1991)*  
Rosenthal, Z. P., Raut, R. V., Yan, P., Koko, D., Kraft, A. W., Czerniewski, L., Acland, B., Mitra, A., Snyder, L. H., Bauer, A. Q., Snyder, A. Z., Culver, J. P., Raichle, et al  
2020
- **Electrically coupled inhibitory interneurons constrain long-range connectivity of cortical networks.** *NeuroImage*  
Kraft, A. W., Mitra, A. n., Rosenthal, Z. P., Dosenbach, N. U., Bauer, A. Q., Snyder, A. Z., Raichle, M. E., Culver, J. P., Lee, J. M.  
2020: 116810
- **Organization of Propagated Intrinsic Brain Activity in Individual Humans.** *Cerebral cortex (New York, N.Y. : 1991)*  
Raut, R. V., Mitra, A., Marek, S., Ortega, M., Snyder, A. Z., Tanenbaum, A., Laumann, T. O., Dosenbach, N. U., Raichle, M. E.  
2019
- **On time delay estimation and sampling error in resting-state fMRI** *NEUROIMAGE*  
Raut, R. V., Mitra, A., Snyder, A. Z., Raichle, M. E.  
2019; 194: 211–27
- **Role of resting state MRI temporal latency in refractory pediatric extratemporal epilepsy lateralization.** *Journal of magnetic resonance imaging : JMIR*  
Shah, M. N., Nguyen, R. D., Pao, L. P., Zhu, L., CreveCoeur, T. S., Mitra, A., Smyth, M. D.  
2019; 49 (5): 1347–55
- **Brain Networks How Many Types Are There?** *NEOCORTEX*  
Raichle, M. E., Raut, R. V., Mitra, A., Singer, W., Sejnowski, T. J., Rakic, P.  
2019: 97–108
- **Resting state signal latency predicts laterality in pediatric medically refractory temporal lobe epilepsy** *CHILDS NERVOUS SYSTEM*  
Shah, M. N., Mitra, A., Goyal, M. S., Snyder, A. Z., Zhang, J., Shimony, J. S., Limbrick, D. D., Raichle, M. E., Smyth, M. D.  
2018; 34 (5): 901–10
- **Principles of cross-network communication in human resting state fMRI** *SCANDINAVIAN JOURNAL OF PSYCHOLOGY*  
Mitra, A., Raichle, M. E.  
2018; 59 (1): 83–90
- **On the role of the corpus callosum in interhemispheric functional connectivity in humans** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Roland, J. L., Snyder, A. Z., Hacker, C. D., Mitra, A., Shimony, J. S., Limbrick, D. D., Raichle, M. E., Smyth, M. D., Leuthardt, E. C.  
2017; 114 (50): 13278–83
- **Resting-state fMRI in sleeping infants more closely resembles adult sleep than adult wakefulness** *PLOS ONE*  
Mitra, A., Snyder, A. Z., Tagliazucchi, E., Laufs, H., Elison, J., Emerson, R. W., Shen, M. D., Wolff, J. J., Botteron, K. N., Dager, S., Estes, A. M., Evans, A., Gerig, et al  
2017; 12 (11): e0188122
- **Visual experience sculpts whole-cortex spontaneous infraslow activity patterns through an Arc-dependent mechanism** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Kraft, A. W., Mitra, A., Bauer, A. Q., Snyder, A. Z., Raichle, M. E., Culver, J. P., Lee, J.  
2017; 114 (46): E9952–E9961
- **On the Stability of BOLD fMRI Correlations** *CEREBRAL CORTEX*  
Laumann, T. O., Snyder, A. Z., Mitra, A., Gordon, E. M., Gratton, C., Adeyemo, B., Gilmore, A. W., Nelson, S. M., Berg, J. J., Greene, D. J., McCarthy, J. E., Tagliazucchi, E., Laufs, et al  
2017; 27 (10): 4719–32
- **Data Quality Influences Observed Links Between Functional Connectivity and Behavior** *CEREBRAL CORTEX*  
Siegel, J. S., Mitra, A., Laumann, T. O., Seitzman, B. A., Raichle, M., Corbetta, M., Snyder, A. Z.

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2017; 27 (9): 4492–4502

- **Data Quality Influences Observed Links Between Functional Connectivity and Behavior.** *Cerebral cortex (New York, N.Y. : 1991)*  
Siegel, J. S., Mitra, A., Laumann, T. O., Seitzman, B. A., Raichle, M., Corbetta, M., Snyder, A. Z.  
2017; 27 (9): 4492–4502
- **Mapping visual dominance in human sleep** *NEUROIMAGE*  
McAvoy, M., Mitra, A., Tagliazucchi, E., Laufs, H., Raichle, M. E.  
2017; 150: 250–61
- **The Lag Structure of Intrinsic Activity is Focally Altered in High Functioning Adults with Autism** *CEREBRAL CORTEX*  
Mitra, A., Snyder, A. Z., Constantino, J. N., Raichle, M. E.  
2017; 27 (2): 1083–93
- **Human cortical-hippocampal dialogue in wake and slow-wave sleep** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Mitra, A., Snyder, A. Z., Hacker, C. D., Pahwa, M., Tagliazucchi, E., Laufs, H., Leuthardt, E. C., Raichle, M. E.  
2016; 113 (44): E6868–E6876
- **How networks communicate: propagation patterns in spontaneous brain activity** *PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY B-BIOLOGICAL SCIENCES*  
Mitra, A., Raichle, M. E.  
2016; 371 (1705)
- **Unmasking Language Lateralization in Human Brain Intrinsic Activity** *CEREBRAL CORTEX*  
McAvoy, M., Mitra, A., Coalson, R. S., d'Avossa, G., Keidel, J. L., Petersen, S. E., Raichle, M. E.  
2016; 26 (4): 1733–46
- **Resting-State Network Complexity and Magnitude Are Reduced in Prematurely Born Infants** *CEREBRAL CORTEX*  
Smyser, C. D., Snyder, A. Z., Shimony, J. S., Mitra, A., Inder, T. E., Neil, J. J.  
2016; 26 (1): 322–33
- **Partial covariance based functional connectivity computation using Ledoit-Wolf covariance regularization** *NEUROIMAGE*  
Brier, M. R., Mitra, A., McCarthy, J. E., Ances, B. M., Snyder, A. Z.  
2015; 121: 29–38
- **On the existence of a generalized non-specific task-dependent network** *FRONTIERS IN HUMAN NEUROSCIENCE*  
Hugdahl, K., Raichle, M. E., Mitra, A., Specht, K.  
2015; 9: 430
- **Resting-state Functional Magnetic Resonance Imaging Correlates of Sevoflurane-induced Unconsciousness** *ANESTHESIOLOGY*  
Palanca, B. A., Mitra, A., Larson-Prior, L., Snyder, A. Z., Avidan, M. S., Raichle, M. E.  
2015; 123 (2): 346–56
- **Lag threads organize the brain's intrinsic activity** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Mitra, A., Snyder, A. Z., Blazey, T., Raichle, M. E.  
2015; 112 (17): E2235–E2244
- **Lag structure in resting-state fMRI** *JOURNAL OF NEUROPHYSIOLOGY*  
Mitra, A., Snyder, A. Z., Hacker, C. D., Raichle, M. E.  
2014; 111 (11): 2374–91
- **Methods to detect, characterize, and remove motion artifact in resting state fMRI** *NEUROIMAGE*  
Power, J. D., Mitra, A., Laumann, T. O., Snyder, A. Z., Schlaggar, B. L., Petersen, S. E.  
2014; 84: 320–41