



Babak Razavi, MD, PhD

Clinical Associate Professor, Neurology & Neurological Sciences

CLINICAL OFFICE (PRIMARY)

- **Stanford Neuroscience Health Center**

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Bio

BIO

Dr. Razavi's clinical interests are in medically refractory epilepsies and using high density EEG (electroencephalogram) for better localization of seizure foci. His research areas include using advanced digital signal processing and engineering techniques for analyzing EEG and using seizures as a model for understanding consciousness.

Dr. Razavi is the Founder and Director of DEL - Distributed EEG Lab. DEL's vision is to make EEG easy as 1, 2, 3. We turn complexity into simplicity. We are distributed in time and space. DEL was founded in the spirit of cloud computing, networking, and the notion that research in collaboration is more exciting and fruitful than in isolation. Everyone contributes - no matter how small; everyone wins - no matter how big. It was inspired by the mentorship of Dr. Kimford Meador and Dr. Robert Fisher. All you need is access to a computer and the internet.

DEL is the ideal collaborative environment for students (undergraduate and graduate) and faculty who would like to: (1) apply ready-to-use advanced analytical techniques to test specific hypotheses in cognition, neuroscience and epilepsy, and (2) develop and test new algorithms for analyzing EEG and other biological signals.

CLINICAL FOCUS

- Epilepsy

ACADEMIC APPOINTMENTS

- Clinical Associate Professor, Neurology & Neurological Sciences

ADMINISTRATIVE APPOINTMENTS

- Director, Responsive Neuro-Stimulation Clinic, Stanford Neurology, (2021- present)
- Director, Neurology Fellowship Programs, Stanford Neurology, (2015- present)
- Member, Wu Tsai Neurosciences Institute, Stanford University, (2015- present)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Member, American Academy of Neurology (2010 - present)
- Member, American Epilepsy Society (2012 - present)

PROFESSIONAL EDUCATION

- PhD Training: University of Rochester School of Medicine Registrar (2009) NY
- Fellowship: Stanford University Clinical Neurophysiology Fellowship (2015) CA
- Chief Resident, UC Davis Medical Center , Neurology (2013)
- Residency: UC Davis Neurology Residency (2013) CA
- Internship: University of Rochester Internal Medicine Residency (2010) NY
- Medical Education: University of Rochester School of Medicine Registrar (2009) NY
- Board Certification: Epilepsy, American Board of Psychiatry and Neurology (2017)
- Board Certification: Neurology, American Board of Psychiatry and Neurology (2013)
- PhD, University of Rochester , Biomedical Engineering (2009)

LINKS

- Get a Second Opinion: <https://stanfordhealthcare.org/second-opinion/overview.html>

Research & Scholarship

RESEARCH INTERESTS

- Brain and Learning Sciences
- Data Sciences
- Research Methods
- Science Education
- Technology and Education

Publications

PUBLICATIONS

- **A systematic review on functional electrical stimulation based rehabilitation systems for upper limb post-stroke recovery.** *Frontiers in neurology*
Khan, M. A., Fares, H., Ghayvat, H., Brunner, I. C., Puthusserypady, S., Razavi, B., Lansberg, M., Poon, A., Meador, K. J.
2023; 14: 1272992
- **Predicting Sedation Level using Surface and Intracranial EEG with Convolutional Neural Networks during Emergence from Anesthesia**
Han, L., Purger, D., Eagleman, S., Halpern, C., Buch, V., Razavi, B., Meador, K., Drover, D.
LIPPINCOTT WILLIAMS & WILKINS.2023: 583-585
- **Transcranial Direct Current Stimulation for Focal Status Epilepticus or Lateralized Periodic Discharges in Four Patients in a Critical Care Setting.** *Epilepsia*
Fisher, R. S., McGinn, R. J., Von Stein, E. L., Wu, T. Q., Qing, K. Y., Fogarty, A., Razavi, B., Venkatasubramanian, C.
2023
- **A Robust eLORETA Technique for Localization of Brain Sources in the Presence of Forward Model Uncertainties.** *IEEE transactions on bio-medical engineering*
Noroozi, A., Ravan, M., Razavi, B., Fisher, R. S., Law, Y., Hasan, M. S.
2022; PP
- **High-resolution hippocampal diffusion tensor imaging of mesial temporal sclerosis in refractory epilepsy.** *Epilepsia*

- Chau Loo Kung, G., Chiu, A., Davey, Z., Mouchawar, N., Carlson, M., Moein Taghavi, H., Martin, D., Graber, K., Razavi, B., McNab, J., Zeineh, M.
2022
- **Impact of high-density EEG in presurgical evaluation for refractory epilepsy patients.** *Clinical neurology and neurosurgery*
Li, Y., Fogarty, A., Razavi, B., Ardestani, P. M., Falco-Walter, J., Werbaneth, K., Graber, K., Meador, K., Fisher, R. S.
2022; 219: 107336
 - **Magnetic resonance imaging-guided laser interstitial thermal therapy for refractory focal epilepsy in a patient with a fully implanted RNS system: illustrative case.** *Journal of neurosurgery. Case lessons*
Buch, V. P., Mirro, E. A., Purger, D. A., Zeineh, M., Wilmer-Fierro, K., Razavi, B., Halpern, C. H.
2022; 3 (21): CASE22117
 - **Vinpocetine, cognition, and epilepsy.** *Epilepsy & behavior : E&B*
Meador, K. J., Leeman-Markowski, B., Medina, A. E., Illamola, S. M., Seliger, J., Novak, G., Lin, C., Ivanisevic, M., Razavi, B., Marino, S., Boyd, A., Loring, D. W.
2021; 119: 107988
 - **Quantitative EEG during alteration of consciousness in psychogenic non-epileptic seizures**
Werbaneth, K., Lai, S., Seliger, J., Meador, K., Razavi, B.
LIPPINCOTT WILLIAMS & WILKINS.2021
 - **Intracranial electroencephalography reveals selective responses to cognitive stimuli in the periventricular heterotopias.** *The Journal of neuroscience : the official journal of the Society for Neuroscience*
Akkol, S., Kucyi, A., Hu, W., Zhao, B., Zhang, C., Sava-Segal, C., Liu, S., Razavi, B., Zhang, J., Zhang, K., Parvizi, J.
2021
 - **Real-world experience with direct brain-responsive neurostimulation for focal onset seizures.** *Epilepsia*
Razavi, B., Rao, V. R., Lin, C., Bujarski, K. A., Patra, S. E., Burdette, D. E., Geller, E. B., Brown, M. M., Johnson, E. A., Drees, C., Chang, E. F., Greenwood, J. E., Heck, et al
2020
 - **3D Printed Models of Brain and Intracranial Electrodes for Epilepsy Education and Surgical Planning**
Ardestani, P., Gifford, K., Bogart, K., Walters, S., Zeineh, M., Fleischmann, D., Razavi, B.
LIPPINCOTT WILLIAMS & WILKINS.2020
 - **Diagnostic Utility of Reduced Electroencephalography for Seizure Detection: A Systematic Review**
Gururangan, K., Razavi, B., Popat, R.
LIPPINCOTT WILLIAMS & WILKINS.2020
 - **Epileptogenic network of focal epilepsies mapped with cortico-cortical evoked potentials.** *Clinical neurophysiology : official journal of the International Federation of Clinical Neurophysiology*
Guo, Z. H., Zhao, B. T., Toprani, S. n., Hu, W. H., Zhang, C. n., Wang, X. n., Sang, L. n., Ma, Y. S., Shao, X. Q., Razavi, B. n., Parvizi, J. n., Fisher, R. n., Zhang, et al
2020; 131 (11): 2657–66
 - **Comparative neuropsychological effects of carbamazepine and eslicarbazepine acetate** *EPILEPSY & BEHAVIOR*
Meador, K. J., Seliger, J., Boyd, A., Razavi, B., Falco-Walter, J., Le, S., Loring, D. W.
2019; 94: 151–57
 - **Comparative Neuropsychological Effects of Carbamazepine and Eslicarbazepine Acetate**
Meador, K., Seliger, J., Razavi, B., Falco-Walter, J., Le, S., Loring, D.
LIPPINCOTT WILLIAMS & WILKINS.2019
 - **Assessment of Resident Opinions and Knowledge of Neurology Subspecialty Fellowship Application**
Ahmad, S. R., Razavi, B.
LIPPINCOTT WILLIAMS & WILKINS.2019
 - **Comparative neuropsychological effects of carbamazepine and eslicarbazepine acetate.** *Epilepsy & behavior : E&B*
Meador, K. J., Seliger, J., Boyd, A., Razavi, B., Falco-Walter, J., Le, S., Loring, D. W.
2019; 94: 151–57

- **Treatment of drug-resistant epilepsy in patients with periventricular nodular heterotopia using RNS® System: Efficacy and description of chronic electrophysiological recordings.** *Clinical neurophysiology : official journal of the International Federation of Clinical Neurophysiology*
Nune, G. n., Arcot Desai, S. n., Razavi, B. n., Agostini, M. A., Bergey, G. K., Herekar, A. A., Hirsch, L. J., Lee, R. W., Rutecki, P. A., Srinivasan, S. n., Van Ness, P. C., Tcheng, T. K., Morrell, et al
2019; 130 (8): 1196–1207
- **Tripolar concentric EEG electrodes reduce noise.** *Clinical neurophysiology : official journal of the International Federation of Clinical Neurophysiology*
Aghaei-Lasboo, A. n., Inoyama, K. n., Fogarty, A. S., Kuo, J. n., Meador, K. J., Walter, J. J., Le, S. T., Graber, K. D., Razavi, B. n., Fisher, R. S.
2019; 131 (1): 193–198
- **Reply to "Syncope is associated with electroencephalography changes" and to "Video-EEG during tilt-table testing is an invaluable aid for understanding syncope".** *Clinical neurophysiology : official journal of the International Federation of Clinical Neurophysiology*
Muppidi, S., Miglis, M. G., Razavi, B.
2018; 129 (7): 1500–1501
- **The clinical utility of qualitative electroencephalography during tilt table testing - A retrospective study** *CLINICAL NEUROPHYSIOLOGY*
Muppidi, S., Razavi, B., Miglis, M. G., Jaradeh, S.
2018; 129 (4): 783–86
- **Diagnostic utility of eight-channel EEG for detecting generalized or hemispheric seizures and rhythmic periodic patterns.** *Clinical neurophysiology practice*
Gururangan, K., Razavi, B., Parvizi, J.
2018; 3: 65-73
- **Detecting silent seizures by their sound.** *Epilepsia*
Parvizi, J., Gururangan, K., Razavi, B., Chafe, C.
2018
- **Quantitative EEG Metrics Differ Between Outcome Groups and Change Over the First 72 h in Comatose Cardiac Arrest Patients** *NEUROCRITICAL CARE*
Wiley, S., Razavi, B., Krishnamohan, P., Mlynash, M., Eyngorn, I., Meador, K. J., Hirsch, K. G.
2018; 28 (1): 51–59
- **Detecting silent seizures by their sound** *Epilepsia*
Parvizi, J., Gururangan, K., Razavi, B., Chafe, C.
2018; 59 (4): 877-884
- **Diagnostic utility of eight-channel EEG for detecting generalized seizures** *Clinical Neurophysiology Practice*
Gururangan, K., Razavi, B., Parvizi, J.
2018; 3
- **EEG with Fewer Electrodes Is More Specific for Detecting Seizures and Seizure-Like Activity**
Gururangan, K., Razavi, B., Parvizi, J.
WILEY.2017: S158
- **Utility of electroencephalography: Experience from a U.S. tertiary care medical center.** *Clinical neurophysiology*
Gururangan, K., Razavi, B., Parvizi, J.
2016; 127 (10): 3335-3340
- **Dynamics of Quantitative EEG Changes During Cerebral Hypoperfusion**
Razavi, B., Meador, K.
LIPPINCOTT WILLIAMS & WILKINS.2016
- **Quantitative (Spectral) Analysis of Continuous EEG for Prognostication in Post Cardiac Arrest Coma**
Wiley, S., Razavi, B., Hirsch, K., Meador, K.
LIPPINCOTT WILLIAMS & WILKINS.2016
- **Quantitative (Spectral) Analysis of Continuous EEG for Prognostication in Post Cardiac Arrest Coma**
Wiley, S., Razavi, B., Hirsch, K., Meador, K.
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- **Dynamics of Quantitative EEG Changes During Cerebral Hypoperfusion**
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