Stanford



Srikanth Ryali

Sr Res Scientist-Basic Life, Psych/Major Laboratories and Clinical & Translational Neurosciences Incubator

NIH Biosketch available Online Curriculum Vitae available Online

Bio

ACADEMIC APPOINTMENTS

- Sr Res Scientist-Basic Life, Psych/Major Laboratories and Clinical & Translational Neurosciences Incubator

HONORS AND AWARDS

- Career Grant, National Institutes of Health, USA (2013-2017)
- Dean's Fellowship, Stanford University School of Medicine (2008-2009)
- Quarterly Innovation Award, Honeywell Research Labs (2007)
- Team excellence award, Honeywell Research Labs (2007)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Senior Member, IEEE (2009 - present)

PROFESSIONAL EDUCATION

- PhD, Indian Institute of Science , Electrical Engineering (2005)
- M S, Indian Institute of Science , Electrical Engineering (1998)
- BS, Osmania University , Electrical Engineering (1996)

PATENTS

- 1. Shailesh Rajnikanth Patel, Ramprasad Yelchuru, Srikanth Ryali, Pradeep K. Shetty, Gudi Ravindra. "United States Patent US 20100063611 Systems and Methods for real time classification and performance monitoring of batch processes", Honeywell, Mar 11, 2011
- Ramprasad Yelchuru, Srikanth Ryali, Shailesh Rajnikanth Patel, Gudi Ravindra. "United States Patent US 20100017008 Systems and methods for offline and/or online batch monitoring using decomposition and signal approximation approaches", Honeywell, Jan 21, 2010

LINKS

- SCSNL: http://stanford.edu/group/scsnl/cgi-bin/drupal_scsnl/

Publications

PUBLICATIONS

- **Deep learning models reveal replicable, generalizable, and behaviorally relevant sex differences in human functional brain organization.** *Proceedings of the National Academy of Sciences of the United States of America*
  Ryali, S., Zhang, Y., de Los Angeles, C., Supekar, K., Menon, V.
  2024; 121 (9): e2310012121
- **Robust, Generalizable, and Interpretable Artificial Intelligence-Derived Brain Fingerprints of Autism and Social Communication Symptom Severity.** *Biological psychiatry*

Supekar, K., Ryali, S., Yuan, R., Kumar, D., de Los Angeles, C., Menon, V.
2022

- **Deep learning identifies robust gender differences in functional brain organization and their dissociable links to clinical symptoms in autism.** *The British journal of psychiatry : the journal of mental science*
  Supekar, K., de Los Angeles, C., Ryali, S., Cao, K., Ma, T., Menon, V.
  2022: 1-8

- **Developmental Maturation of Causal Signaling Hubs in Voluntary Control of Saccades and Their Functional Controllability.** *Cerebral cortex (New York, N.Y. : 1991)*
  Zhang, Y., Ryali, S., Cai, W., Supekar, K., Pasumarthy, R., Padmanabhan, A., Luna, B., Menon, V.
  1800

- **Dynamic causal brain circuits during working memory and their functional controllability.** *Nature communications*
  Cai, W., Ryali, S., Pasumarthy, R., Talasila, V., Menon, V.
  2021; 12 (1): 3314

- **Aberrant dynamics of cognitive control and motor circuits predict distinct restricted and repetitive behaviors in children with autism.** *Nature communications*
  Supekar, K., Ryali, S., Mistry, P., Menon, V.
  2021; 12 (1): 3537

- **Intrinsic functional architecture of the human speech processing network.** *Cortex; a journal devoted to the study of the nervous system and behavior*
  Abrams, D. A., Kochalka, J. n., Bhide, S. n., Ryali, S. n., Menon, V. n.
  2020; 129: 41–56

- **Uncovering hidden brain state dynamics that regulate performance and decision-making during cognition** *NATURE COMMUNICATIONS*
  Taghia, J., Cai, W., Ryali, S., Kochalka, J., Nicholas, J., Chen, T., Menon, V.
  2018; 9

- **Bayesian Switching Factor Analysis for Estimating Time-varying Functional Connectivity in fMRI.** *NeuroImage*
  Taghia, J., Ryali, S., Chen, T., Supekar, K., Cai, W., Menon, V.
  2017

- **Temporal Dynamics and Developmental Maturation of Salience, Default and Central-Executive Network Interactions Revealed by Variational Bayes Hidden Markov Modeling** *PLOS COMPUTATIONAL BIOLOGY*
  Ryali, S., Supekar, K., Chen, T., Kochalka, J., Cai, W., Nicholas, J., Padmanabhan, A., Menon, V.
  2016; 12 (12)

- **Multivariate dynamical systems-based estimation of causal brain interactions in fMRI: Group-level validation using benchmark data, neurophysiological models and human connectome project data** *JOURNAL OF NEUROSCIENCE METHODS*
  Ryali, S., Chen, T., Supekar, K., Tu, T., Kochalka, J., Cai, W., Menon, V.
  2016; 268: 142-153

- **Distinct Global Brain Dynamics and Spatiotemporal Organization of the Salience Network** *PLOS BIOLOGY*
  Chen, T., Cai, W., Ryali, S., Supekar, K., Menon, V.
  2016; 14 (6)

- **Neural circuits underlying mother's voice perception predict social communication abilities in children** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Abrams, D. A., Chen, T., Odriozola, P., Cheng, K. M., Baker, A. E., Padmanabhan, A., Ryali, S., Kochalka, J., Feinstein, C., Menon, V.
  2016; 113 (22): 6295-6300

- **Combining optogenetic stimulation and fMRI to validate a multivariate dynamical systems model for estimating causal brain interactions** *NEUROIMAGE*
  Ryali, S., Shih, Y. I., Chen, T., Kochalka, J., Albaugh, D., Fang, Z., Supekar, K., Lee, J. H., Menon, V.
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- **Development and validation of consensus clustering-based framework for brain segmentation using resting fMRI.** *Journal of neuroscience methods*

Ryali, S., Chen, T., Padmanabhan, A., Cai, W., Menon, V.
2015; 240: 128-140

- **Role of the anterior insular cortex in integrative causal signaling during multisensory auditory-visual attention.** *European journal of neuroscience*
  Chen, T., Michels, L., Supekar, K., Kochalka, J., Ryali, S., Menon, V.
  2015; 41 (2): 264-274
- **Dissociable roles of right inferior frontal cortex and anterior insula in inhibitory control: evidence from intrinsic and task-related functional parcellation, connectivity, and response profile analyses across multiple datasets.** *journal of neuroscience*
  Cai, W., Ryali, S., Chen, T., Li, C. R., Menon, V.
  2014; 34 (44): 14652-14667
- **Estimation of resting-state functional connectivity using random subspace based partial correlation: A novel method for reducing global artifacts.** *NeuroImage*
  Chen, T., Ryali, S., Qin, S., Menon, V.
  2013; 82: 87-100
- **Salience Network-Based Classification and Prediction of Symptom Severity in Children With Autism** *JAMA PSYCHIATRY*
  Uddin, L. Q., Supekar, K., Lynch, C. J., Khouzam, A., Phillips, J., Feinstein, C., Ryali, S., Menon, V.
  2013; 70 (8): 869-879
- **Underconnectivity between voice-selective cortex and reward circuitry in children with autism** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Abrams, D. A., Lynch, C. J., Cheng, K. M., Phillips, J., Supekar, K., Ryali, S., Uddin, L. Q., Menon, V.
  2013; 110 (29): 12060-12065
- **Multivariate Activation and Connectivity Patterns Discriminate Speech Intelligibility in Wernicke's, Broca's, and Geschwind's Areas** *CEREBRAL CORTEX*
  Abrams, D. A., Ryali, S., Chen, T., Balaban, E., Levitin, D. J., Menon, V.
  2013; 23 (7): 1703-1714
- **Inter-subject synchronization of brain responses during natural music listening.** *European journal of neuroscience*
  Abrams, D. A., Ryali, S., Chen, T., Chordia, P., Khouzam, A., Levitin, D. J., Menon, V.
  2013; 37 (9): 1458-1469
- **A parcellation scheme based on von Mises-Fisher distributions and Markov random fields for segmenting brain regions using resting-state fMRI** *NEUROIMAGE*
  Ryali, S., Chen, T., Supekar, K., Menon, V.
  2013; 65: 83-96
- **Hippocampal-Prefrontal Engagement and Dynamic Causal Interactions in the Maturation of Children's Fact Retrieval** *JOURNAL OF COGNITIVE NEUROSCIENCE*
  Cho, S., Metcalfe, A. W., Young, C. B., Ryali, S., Geary, D. C., Menon, V.
  2012; 24 (9): 1849-1866
- **Estimation of functional connectivity in fMRI data using stability selection-based sparse partial correlation with elastic net penalty** *NEUROIMAGE*
  Ryali, S., Chen, T., Supekar, K., Menon, V.
  2012; 59 (4): 3852-3861
- **Decoding Subject-Driven Cognitive States with Whole-Brain Connectivity Patterns** *CEREBRAL CORTEX*
  SHIRER, W. R., RYALI, S., Rykhlevskaia, E., Menon, V., Greicius, M. D.
  2012; 22 (1): 158-165
- **Dynamic Reconfiguration of Structural and Functional Connectivity Across Core Neurocognitive Brain Networks with Development** *JOURNAL OF NEUROSCIENCE*
  Uddin, L. Q., Supekar, K. S., Ryali, S., Menon, V.
  2011; 31 (50): 18578-18589
- **How does a child solve 7+8? Decoding brain activity patterns associated with counting and retrieval strategies** *DEVELOPMENTAL SCIENCE*

Cho, S., Ryali, S., Geary, D. C., Menon, V.
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- **Decoding Temporal Structure in Music and Speech Relies on Shared Brain Resources but Elicits Different Fine-Scale Spatial Patterns** *CEREBRAL CORTEX*
  Abrams, D. A., Bhatara, A., Ryali, S., Balaban, E., Levitin, D. J., Menon, V.
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- **Multivariate dynamical systems models for estimating causal interactions in fMRI** *NEUROIMAGE*
  Ryali, S., Supekar, K., Chen, T., Menon, V.
  2011; 54 (2): 807-823
- **Dynamic reconfiguration of structural and functional connectivity across core neurocognitive brain networks with development.** *Journal of Neuroscience*
  Lucina Uddin, K., Srikanth Ryali, Vinod Menon
  2011
- **Discriminatory Learning based Performance Monitoring of Batch Processes** *American Control Conference, USA*
  Yelchuru, R., Srikanth Ryali, Patel, Shailesh, Gudi, Ravindra
  2011
- **Sparse logistic regression for whole-brain classification of fMRI data** *NEUROIMAGE*
  Ryali, S., Supekar, K., Abrams, D. A., Menon, V.
  2010; 51 (2): 752-764
- **Development, validation, and comparison of ICA-based gradient artifact reduction algorithms for simultaneous EEG-spiral in/out and echo-planar fMRI recordings** *NEUROIMAGE*
  Ryali, S., Glover, G. H., Chang, C., Menon, V.
  2009; 48 (2): 348-361
- **Aging and the Interaction of Sensory Cortical Function and Structure** *HUMAN BRAIN MAPPING*
  Peiffer, A. M., Hugenschimidt, C. E., Maldjian, J. A., Casanova, R., Srikanth, R., Hayasaka, S., Burdette, J. H., Kraft, R. A., Laurienti, P. J.
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- **The impact of temporal regularization on estimates of the BOLD hemodynamic response function: A comparative analysis** *NEUROIMAGE*
  Casanova, R., Ryali, S., Serences, J., Yang, L., Kraft, R., Laurienti, P. J., Maldjian, J. A.
  2008; 40 (4): 1606-1618
- **Prediction of Batch Quality Indices Using Functional Space Approximation and Partial Least Squares** *American Control Conference, USA.*
  Yelchuru, R., Patel, Shailesh, Srikanth Ryali, Gudi, Ravindra
  2008
- **Biological parametric mapping: A statistical toolbox for multimodality brain image analysis** *NEUROIMAGE*
  Casanova, R., Srikanth, R., Baer, A., Laurienti, P. J., Burdett, J. H., Hayasaka, S., Flowers, L., Wood, F., Maldjian, J. A.
  2007; 34 (1): 137-143
- **Estimation of false discovery rates for wavelet-denoised statistical parametric maps** *NEUROIMAGE*
  Srikanth, R., Casanova, R., Laurienti, P. J., Peiffer, A. M., Maldjian, J. A.
  2006; 33 (1): 72-84
- **Wavelet-based estimation of hemodynamic response function from fMRI data** *INTERNATIONAL JOURNAL OF NEURAL SYSTEMS*
  Srikanth, R., Ramakrshnan, A. G.
  2006; 16 (2): 125-138
- **Polarization-rich continuous wave direct imaging: modeling and visualization** *Applied Optics*
  R. S. Umesh, A. G. Ramakrishnan, R. Srikanth, R. Hema, S. Divya
  2006; 45 (18): 4344-4354
- **Contextual encoding in uniform and adaptive mesh-based lossless compression of MR images** *IEEE TRANSACTIONS ON MEDICAL IMAGING*
  Srikanth, R., Ramakrishnan, A. G.

2005; 24 (9): 1199-1206

- **Region of Interest Coding of 2-D and 3-D Magnetic Resonance Images** *ICVGIP*
  Srikanth Ryali, A.G. Ramakrishnan
  2004
- **Shape Adaptive Integer Wavelet Transform based coding scheme for 2-D/3-D MR Images** *Data Compression Conference, Snowbird, Utah, USA,*
  Abhishek Mehrotra, Srikanth Ryali, A.G.Ramakrishnan
  2004
- **Modeling and on-line recognition of PD signal buried in excessive noise** *Signal processing*
  Shetty PK, Srikanth R, Ramu TS
  2004; 84 (12): 2389-2401
- **Wavelet-based Coding of 2-D and 3-D coding of MR images** *IEEE-TENCON*
  Srikanth Ryali, A.G. Ramakrishnan
  2003
- **Parameter Estimation of HRF and Classification of fMRI data using Probabilistic PCA Modeling** *ICAPR*
  Srikanth Ryali, A.G.Ramakrishnan
  2003
- **Model based Bayesian approach for MR Image Segmentation** *ICAPR*
  Niranjan Joshi, Srikanth Ryali, A.G.Ramakrishnan
  2003
- **MR Image Coding using Content-based Mesh and Context",** *International Symposium on Signal Processing and Applications*
  Srikanth Ryali, A.G. Ramakrishnan
  2003
- **Parameter Estimation of HRF and Classification of fMRI data using Probabilistic PCA Modeling** *ICAPR*
  Srikanth Ryali, A.G.Ramakrishnan
  2003
- **Multivariate searchlight classification of structural MRI in children and adolescents with autism.** *Biological Psychiatry*
  Uddin, L. Q, Menon, V., Young, C. B., Ryali, S., Chen, T., Khouzam, A., Minshew, N. J. & Hardan