

Stanford



Kaustubh Supekar

Clinical Associate Professor, Psychiatry and Behavioral Sciences - Child & Adolescent Psychiatry and Child Development

Bio

ACADEMIC APPOINTMENTS

- Clinical Associate Professor, Psychiatry and Behavioral Sciences - Child & Adolescent Psychiatry and Child Development
- Member, Wu Tsai Human Performance Alliance
- Member, Maternal & Child Health Research Institute (MCHRI)
- Member, Wu Tsai Neurosciences Institute

PROFESSIONAL EDUCATION

- Ph.D., Stanford University School of Medicine
- Entrepreneurship, Stanford Graduate School of Business

LINKS

- Supekar Lab: <https://med.stanford.edu/supekar-lab.html>

Teaching

COURSES

2024-25

- Artificial Intelligence in Mental Health: PSYC 63Q (Spr)

2023-24

- Artificial Intelligence in Mental Health: PSYC 63Q (Spr)

2022-23

- Artificial Intelligence in Mental Health: PSYC 63Q (Spr)

Publications

PUBLICATIONS

- **Robust and replicable functional brain signatures of 22q11.2 deletion syndrome and associated psychosis: a deep neural network-based multi-cohort study.** *Molecular psychiatry*
Supekar, K., de Los Angeles, C., Ryali, S., Kushan, L., Schleifer, C., Repetto, G., Crossley, N. A., Simon, T., Bearden, C. E., Menon, V.
2024
- **Integrative Brain Network and Salience Models of Psychopathology and Cognitive Dysfunction in Schizophrenia.** *Biological psychiatry*
Menon, V., Palaniyappan, L., Supekar, K.

2022

- **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
- **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
- **Dysregulated Brain Dynamics in a Triple-Network Saliency Model of Schizophrenia and Its Relation to Psychosis.** *Biological psychiatry*
Supekar, K., Cai, W., Krishnadas, R., Palaniyappan, L., Menon, V.
2018
- **Deficits in mesolimbic reward pathway underlie social interaction impairments in children with autism.** *Brain : a journal of neurology*
Supekar, K., Kochalka, J., Schaer, M., Wakeman, H., Qin, S., Padmanabhan, A., Menon, V.
2018
- **Sex differences in structural organization of motor systems and their dissociable links with repetitive/restricted behaviors in children with autism** *MOLECULAR AUTISM*
Supekar, K., Menon, V.
2015; 6
- **Brain hyperconnectivity in children with autism and its links to social deficits.** *Cell reports*
Supekar, K., Uddin, L. Q., Khouzam, A., Phillips, J., Gaillard, W. D., Kenworthy, L. E., Yerys, B. E., Vaidya, C. J., Menon, V.
2013; 5 (3): 738-747
- **Developmental Maturation of Dynamic Causal Control Signals in Higher-Order Cognition: A Neurocognitive Network Model** *PLOS COMPUTATIONAL BIOLOGY*
Supekar, K., Menon, V.
2012; 8 (2)
- **Dynamic reconfiguration of structural and functional connectivity across core neurocognitive brain networks with development.** *Journal of Neuroscience*
Supekar, K., Lucina Q., U., Ryali, S., Vinod, M.
2011; 31 (50): 18578-89
- **Development of functional and structural connectivity within the default mode network in young children** *NEUROIMAGE*
Supekar, K., Uddin, L. Q., Prater, K., Amin, H., Greicius, M. D., Menon, V.
2010; 52 (1): 290-301
- **Development of Large-Scale Functional Brain Networks in Children** *PLOS BIOLOGY*
Supekar, K., Musen, M., Menon, V.
2009; 7 (7)
- **Network analysis of intrinsic functional brain connectivity in Alzheimer's disease** *PLOS COMPUTATIONAL BIOLOGY*
Supekar, K., Menon, V., Rubin, D., Musen, M., Greicius, M. D.
2008; 4 (6)
- **Glutamate, Contextual Insensitivity, and Disorganized Speech in First-Episode Schizophrenia: A 7T Magnetic Resonance Spectroscopy Study.** *Biological psychiatry global open science*
Wang, Y. L., Sharpe, V., Mackinley, M., Kuperberg, G. R., Supekar, K., Theberge, J., Palaniyappan, L.
2025; 5 (6): 100593

- **Artificial Intelligence in Obsessive-Compulsive Disorder: A Systematic Review.** *Current treatment options in psychiatry*
Kim, J., Pacheco, J. P., Golden, A., Aboujaoude, E., van Roessel, P., Gandhi, A., Mukunda, P., Avanesyan, T., Xue, H., Adeli, E., Kim, J. P., Sagar, M., Stirman, et al
2025; 12 (1): 23
- **Reply to Lockhart et al.: Advancing the understanding of sex differences in functional brain organization with innovative AI tools.** *Proceedings of the National Academy of Sciences of the United States of America*
Ryali, S., Zhang, Y., Supekar, K., Menon, V.
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- **Neuroanatomical, transcriptomic, and molecular correlates of math ability and their prognostic value for predicting learning outcomes.** *Science advances*
Liu, J., Supekar, K., El-Said, D., de Los Angeles, C., Zhang, Y., Chang, H., Menon, V.
2024; 10 (22): eadk7220
- **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
- **The Effects of Methylphenidate on Spontaneous Fluctuations in Reward and Cognitive Control Networks in Children With Attention-Deficit/Hyperactivity Disorder -Randomized Controlled Studies in Two Independent Cohorts**
Mizuno, Y., Cai, W., Supekar, K., Makita, K., Takiguchi, S., Silk, T. J., Tomoda, A., Menon, V.
ELSEVIER SCIENCE INC.2023: S103
- **Methylphenidate Enhances Spontaneous Fluctuations in Reward and Cognitive Control Networks in Children With Attention-Deficit/Hyperactivity Disorder.** *Biological psychiatry. Cognitive neuroscience and neuroimaging*
Mizuno, Y., Cai, W., Supekar, K., Makita, K., Takiguchi, S., Silk, T. J., Tomoda, A., Menon, V.
2022
- **Methylphenidate remediates aberrant brain network dynamics in children with attention-deficit/hyperactivity disorder: a randomized controlled trial.** *NeuroImage*
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- **Methylphenidate Enhances Spontaneous Fluctuations in Reward and Cognitive Control Networks in Children With Attention-Deficit/Hyperactivity Disorder: A Randomized Control Trial**
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ELSEVIER SCIENCE INC.2022: S110
- **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.
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- **mTOR-related synaptic pathology causes autism spectrum disorder-associated functional hyperconnectivity.** *Nature communications*
Pagani, M., Barsotti, N., Bertero, A., Trakoshis, S., Ulysse, L., Locarno, A., Miseviciute, I., De Felice, A., Canella, C., Supekar, K., Galbusera, A., Menon, V., Tonini, et al
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- **Identification of robust and interpretable brain signatures of autism and clinical symptom severity using a dynamic time-series deep neural network**
Supekar, K., Ryali, S., Yuan, R., Kumar, D., Angeles, C., Menon, V.
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- **Neurocognitive modeling of latent memory processes reveals reorganization of hippocampal-cortical circuits underlying learning and efficient strategies.** *Communications biology*
Supekar, K., Chang, H., Mistry, P. K., Iuculano, T., Menon, V.
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- **Effects of Methylphenidate on Aberrant Brain Network Dynamics in Children With Attention-Deficit/Hyperactivity Disorder: A Randomized Controlled Clinical Trial**

- Mizuno, Y., Cai, W., Supekar, K., Makita, K., Takiguchi, S., Tomoda, A., Menon, V.
2021: S108
- **Dysregulated Brain Dynamics in a Triple-Network Saliency Model of Schizophrenia and Its Relation to Psychosis** *BIOLOGICAL PSYCHIATRY*
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Cai, W., Chen, T., Szegletes, L., Supekar, K., Menon, V.
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 - **Bayesian Switching Factor Analysis for Estimating Time-varying Functional Connectivity in fMRI.** *NeuroImage*
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 - **The influence of sex and age on prevalence rates of comorbid conditions in autism.** *Autism research*
Supekar, K., Iyer, T., Menon, V.
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 - **Reconfiguration of parietal circuits with cognitive tutoring in elementary school children.** *Cortex; a journal devoted to the study of the nervous system and behavior*
Jolles, D., Supekar, K., Richardson, J., Tenison, C., Ashkenazi, S., Rosenberg-Lee, M., Fuchs, L., Menon, V.
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 - **Large-scale intrinsic functional network organization along the long axis of the human medial temporal lobe.** *Brain structure & function*
Qin, S., Duan, X., Supekar, K., Chen, H., Chen, T., Menon, V.
2016; 221 (6): 3237-3258
 - **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)
 - **Combining optogenetic stimulation and fMRI to validate a multivariate dynamical systems model for estimating causal brain interactions** *NEUROIMAGE*
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2016; 132: 398-405
 - **Plasticity of left perisylvian white-matter tracts is associated with individual differences in math learning.** *Brain structure & function*
Jolles, D., Wassermann, D., Chokhani, R., Richardson, J., Tenison, C., Bammer, R., Fuchs, L., Supekar, K., Menon, V.
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 - **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.

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- **Remediation of Childhood Math Anxiety and Associated Neural Circuits through Cognitive Tutoring.** *journal of neuroscience*
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- **Sex differences in cortical volume and gyrification in autism** *MOLECULAR AUTISM*
Schaer, M., Kochalka, J., Padmanabhan, A., Supekar, K., Menon, V.
2015; 6
- **Role of the anterior insular cortex in integrative causal signaling during multisensory auditory-visual attention.** *European journal of neuroscience*
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- **Fusiform-Hippocampal White-Matter Pathway Predicts both Cognitive Strengths and Social Deficits in Children with Autism**
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- **Neural predictors of individual differences in response to math tutoring in primary-grade school children.** *Proceedings of the National Academy of Sciences of the United States of America*
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- **Immature integration and segregation of emotion-related brain circuitry in young children** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
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- **Multivariate dynamical systems models for estimating causal interactions in fMRI** *NEUROIMAGE*
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- **Dissociable Connectivity within Human Angular Gyrus and Intraparietal Sulcus: Evidence from Functional and Structural Connectivity** *CEREBRAL CORTEX*
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- **Knowledge Zone: A Public Repository of Peer-Reviewed Biomedical Ontologies** *12th World Congress on Health (Medical) Informatics*
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