Stanford



John P. Hegarty II

Clinical Assistant Professor, Psychiatry and Behavioral Sciences

Curriculum Vitae available Online

Bio

BIO

I am a neuroscientist and Principal Investigator of the Stanford Clinical Neuroscience (CNS) Lab in the Department of Psychiatry and Behavioral Sciences as well as Director of Neuroimaging for the Autism and Developmental Disorders Research Program at Stanford. My innovative research studies clinical aspects of cognitive and behavioral neuroscience, with a special focus on examining the neural circuitry associated with important brain-behavior relationships that may underlie different psychological and psychiatric domains in autistic children, adolescents, and adults. The ultimate goal of this research is to improve our understanding of the development of different cognitive and behavioral skills in order to develop mechanistically driven interventions that will improve precision medicine for mental health. Biologically based diagnosis and treatment are extremely limited for most psychological and psychiatric conditions but also critically needed to increase early identification and improve treatment outcomes, especially for neurodevelopmental disorders in which early intervention is the most beneficial. My early career research has primarily focused on clinical neuroscience using neuroimaging (e.g., MRI & EEG) to examine the effects of different drugs and behavioral interventions on the brain, especially for developing biomarkers for improving treatment planning and monitoring biological changes in response to single dose and clinical trials.

My primary contributions to science thus far fall within these major categories: 1) identifying the neural correlates of individual differences in cognition and behavior, 2) developing new interventions and investigating the neurobiological substrates of response to treatment, 3) examining different factors that contribute to brain development, 4) summarizing and increasing accessibility to autism-related research, and 5) methods development for neuroimaging studies. My earliest research investigated the neurobiology of alexithymia, dyslexia, and stress using structural and functional magnetic resonance imaging to test theories of the mechanisms that contribute to differences in cognition and behavior. My subsequent dissertation research, in which I began to focus on neurodevelopmental disorders, examined the neural correlates of response to beta-blockers in autistic adults and also assessed the contribution of cerebellar circuits to the autism phenotype. During my postdoctoral training, I have developed further skills for working with children in multiple clinical research settings, especially for using advanced neuroimaging approaches to examine important brain-behavior relationships. This includes a recent K99/R00 from the National Institute of Child Health and Human Development (NCT04278898 & NCT05664789) that will assess the neurobiology of restricted and repetitive behaviors in autistic children and examine the efficacy and target engagement of a novel nutritional supplement and investigational drug, N-acetylcysteine (NAC), in the brain. You can find more information about our NAC studies at https://redcap.link/NACandAutism.

ACADEMIC APPOINTMENTS

- Clinical Assistant Professor, Psychiatry and Behavioral Sciences
- Member, Maternal & Child Health Research Institute (MCHRI)
- Member, Wu Tsai Neurosciences Institute

ADMINISTRATIVE APPOINTMENTS

- Principal Investigator, Stanford Clinical Neuroscience Laboratory, (2023- present)
- Director of Neuroimaging, Stanford Autism and Developmental Disorders Research Program, (2023- present)
- Associate Editor, Journal of Autism and Developmental Disorders, (2022- present)

COMMUNITY AND INTERNATIONAL WORK

- International Society for Autism Research
- Bay Area Autism Consortium

LINKS

- ORCID: https://orcid.org/0000-0002-3533-5527
- http://med.stanford.edu/autism.html: http://med.stanford.edu/autism.html

Research & Scholarship

CLINICAL TRIALS

- Neuroimaging Predictors of Improvement to Pivotal Response Treatment (PRT) in Young Children With Autism, Recruiting
- Targeting the Neurobiology of RRB in Autism Using N-acetylcysteine: Single-dose, Recruiting
- Targeting the Neurobiology of RRB in Autism Using N-acetylcysteine: Trial, Recruiting

Teaching

STANFORD ADVISEES

Doctoral Dissertation Reader (NonAC)

Nour Omar

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Child Psychiatry (Fellowship Program)

Publications

PUBLICATIONS

- **Cerebellar Crus I and Crus II Structure and Excitation/Inhibition Balance in Autism Spectrum Disorder.** *Journal of autism and developmental disorders*
  Hegarty, J. P., Komaki, H., Gu, M., Young, K., Ogbonnaya, N., Spielman, D. M., Hardan, A. Y.
  2026
- **A Twin Study of Altered White Matter Heritability in Youth With Autism Spectrum Disorder.** *Journal of the American Academy of Child and Adolescent Psychiatry*
  Hegarty, J. P., Monterrey, J. C., Tian, Q., Cleveland, S. C., Gong, X., Phillips, J. M., Wolke, O., McNab, J. A., Hallmayer, J., Reiss, A. L., Hardan, A. Y., Lazzeroni, L. C.
  2023
- **Placebo Effect in Clinical Trials in Autism: Experience from a Pregnenolone Treatment Study.** *Journal of autism and developmental disorders*
  McGrath, J. C., Gong, J., Hegarty, J. P., Fung, L. K., Uljarevic, M., Hardan, A. Y.
  2025
- **Relationship Between MR Spectroscopy-Detected Glutamatergic Neurometabolites and Changes in Social Behaviors in a Pilot Open-Label Trial of Memantine for Adults With Autism Spectrum Disorder.** *Frontiers in psychiatry*
  Nair, N., Hegarty, J. P., Cirstea, C. M., Gu, M., Appling, C. B., Beversdorf, D. Q.

2022; 13: 898006

- **FAR: End-to-End Vibrotactile Distributed System Designed to Facilitate Affect Regulation in Children Diagnosed with Autism Spectrum Disorder Through Slow Breathing**
  Miri, P., Arora, M., Malhotra, A., Flory, R., Hu, S., Lowber, A., Goyal, I., Nguyen, J., Hegarty, J., Kohn, M., Schneider, D., Culbertson, H., Yamins, et al
  ASSOC COMPUTING MACHINERY.2022

- **Assessing Glutamate Concentration as a Predictor for Social Behavioral Changes in Asd Due to Memantine**
  Beversdorf, D., Riecken, C., Nair, N., Hegarty, J. P., Cirstea, C.
  WILEY.2021: S36

- **Frequency Drift in MR Spectroscopy at 3T.** *NeuroImage*
  Hui, S. C., Mikkelsen, M., Zollner, H. J., Ahluwalia, V., Alcauter, S., Baltusis, L., Barany, D. A., Barlow, L. R., Becker, R., Berman, J. I., Berrington, A., Bhattacharyya, P. K., Blicher, et al
  2021: 118430

- **Genetic and environmental influences on structural brain measures in twins with autism spectrum disorder** *MOLECULAR PSYCHIATRY*
  Hegarty, J. P., Pegoraro, L. F. L., Lazzeroni, L. C., Raman, M. M., Hallmayer, J. F., Monterrey, J. C., Cleveland, S. C., Wolke, O. N., Phillips, J. M., Reiss, A. L., Hardan, A. Y.
  2020; 25 (10): 2556–66

- **Effects of stress on functional connectivity during verbal processing.** *Brain imaging and behavior*
  Nair, N., Hegarty, J. P., Ferguson, B. J., Hooshmand, S. J., Hecht, P. M., Tilley, M., Christ, S. E., Beversdorf, D. Q.
  2019

- **Beta-adrenergic antagonism alters functional connectivity during associative processing in a preliminary study of individuals with and without autism.** *Autism : the international journal of research and practice*
  Hegarty, J. P., Zamzow, R. M., Ferguson, B. J., Christ, S. E., Porges, E. C., Johnson, J. D., Beversdorf, D. Q.
  2019: 1362361319868633

- **A pilot investigation of neuroimaging predictors for the benefits from pivotal response treatment for children with autism.** *Journal of psychiatric research*
  Hegarty, J. P., Gengoux, G. W., Berquist, K. L., Millan, M. E., Tamura, S. M., Karve, S., Rosenthal, M. D., Phillips, J. M., Hardan, A. Y.
  2019; 111: 140–44

- **Genetic and environmental influences on cortico-striatal circuits in twins with autism.** *Genetic and environmental influences on cortico-striatal circuits in twins with autism.*
  Hegarty, J. P., Lazzeroni, L. C., Raman, M. M., Hallmayer, J. C., Cleveland, S. C., Phillips, J. M., Reiss, A. L., Hardan, A. Y.
  2019

- **Effects of stress on functional connectivity during problem solving.** *NeuroImage*
  Nair, N. n., Hegarty, J. P., Ferguson, B. J., Hecht, P. M., Tilley, M. n., Christ, S. E., Beversdorf, D. Q.
  2019: 116407

- **Genetic and Environmental Influences on Lobar Brain Structures in Twins With Autism.** *Cerebral cortex (New York, N.Y. : 1991)*
  Hegarty, J. P., Lazzeroni, L. C., Raman, M. M., Pegoraro, L. F., Monterrey, J. C., Cleveland, S. C., Hallmayer, J. F., Wolke, O. N., Phillips, J. M., Reiss, A. L., Hardan, A. Y.
  2019

- **Brain connectivity theories of autism** *Encyclopedia of Autism Spectrum Disorders*
  Hegarty, J. P., Hardan, A. Y., Muller, R.
  Springer-Verlag.2019; 2nd

- **Cerebro-Cerebellar Functional Connectivity is Associated with Cerebellar Excitation-Inhibition Balance in Autism Spectrum Disorder** *JOURNAL OF AUTISM AND DEVELOPMENTAL DISORDERS*
  Hegarty, J. P., Weber, D. J., Cirstea, C. M., Beversdorf, D. Q.
  2018; 48 (10): 3460–73

- **Corpus callosum** *Encyclopedia of Autism Spectrum Disorders*
  Hegarty, J. P., Hardan, A. Y., Frazier, T. W.
  Springer-Verlag.2018; 2nd

- **Corpus callosum abnormalities in autism** *Encyclopedia of Autism Spectrum Disorders*
  Hegarty, J. P., Hardan, A. Y., Frazier, T. W.
  Springer-Verlag.2018; 2nd
- **Agenesis of the corpus callosum** *Encyclopedia of Autism Spectrum Disorders*
  Hegarty, J. P., Hardan, A. Y., Frazier, T. W.
  Springer-Verlag.2018; 2nd
- **A proton MR spectroscopy study of the thalamus in twins with autism spectrum disorder.** *Progress in neuro-psychopharmacology & biological psychiatry*
  Hegarty, J. P., Gu, M. n., Spielman, D. M., Cleveland, S. C., Hallmayer, J. F., Lazzeroni, L. C., Raman, M. M., Frazier, T. W., Phillips, J. M., Reiss, A. L., Hardan, A. Y.
  2017
- **Beta-adrenergic antagonism modulates functional connectivity in the default mode network of individuals with and without autism spectrum disorder.** *Brain imaging and behavior*
  Hegarty, J. P., Ferguson, B. J., Zamzow, R. M., Rohowetz, L. J., Johnson, J. D., Christ, S. E., Beversdorf, D. Q.
  2016: -?
- **Morphological differences in the lateral geniculate nucleus associated with dyslexia** *NEUROIMAGE-CLINICAL*
  Giraldo-Chica, M., Hegarty, J. P., Schneider, K. A.
  2015; 7: 830-836
- **Alexithymia and Impairment of Decoding Positive Affect: An fMRI Study** *JOURNAL OF COMMUNICATION*
  Hesse, C., Floyd, K., Rauscher, E. A., Frye-Cox, N. E., Hegarty, J. P., Peng, H.
  2013; 63 (4): 786-806