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# SIMON N. VANDEKAR

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## Address:

Department of Biostatistics  
Vanderbilt University Medical Center  
Vanderbilt University,  
2525 West End Ave #1136  
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## Education:

University of Pennsylvania, Philadelphia *2014-2018*  
Ph.D. in Biostatistics  
Dissertation advisor: Russell T. Shinohara

Pennsylvania State University, State College *2005-2009*  
B.S. in Psychology-Neuroscience

## Research Experience:

Biostatistics, University of Pennsylvania, Philadelphia, PA *2014-present*  
Methodological Preceptor: Russell T. Shinohara  
Funding: NIMH T32MH065218 (PI: Warren B. Bilker)

Neuropsychiatry, University of Pennsylvania, Philadelphia, PA *2011-2014*  
PIs: Theodore D. Satterthwaite, Ruben C. Gur, Raquel E. Gur

Psychology, University of Pennsylvania, Philadelphia, PA *2009-2011*  
PI: Nancy A. Dennis

## Teaching Experience:

Teaching Assistant, Biostatistics 631: Categorical and Survival Analysis *Spring 2016*  
Teaching Assistant, Biostatistics 651: Linear Models and GLMs *Spring 2017*  
Teaching Assistant, Biostatistics 632: Categorical and Survival *Spring 2018*

## Editorial Experience:

Journal of the American Statistical Association – Reviewer *2017*  
Statistical Methods in Medical Research – Reviewer *2017*  
IEEE Transactions on Medical Imaging – Reviewer *2016*

## Membership:

American Statistical Association *2014-Present*  
Eastern North America Region of the IBS *2015-Present*  
Organization for Human Brain Mapping *2015-Present*

## Academic and Institutional Committees:

Member, Penn Statistical Imaging and Visualization Endeavor *2014-Present*

## Working Group

### Invited Talks

- “Association Tests for Neuroimaging Studies of Development and Disease,” 2018. Columbia University. New York, NY.
- “Association Tests for Neuroimaging Studies of Development and Disease,” 2018. Johns Hopkins University. Baltimore, MD.
- “Powerful, Fast, and Robust Family-Wise Error Control for Neuroimaging,” 2017. Joint Statistical Meetings. Baltimore, MD.
- “More Powerful Permutation Tests Using Voxel-wise Transformations,” 2017. Statistical Methods in Imaging. Pittsburgh, PA. – Student paper award
- “Analysis of Spatially Correlated Developmental Neuroimaging Data,” 2015. North Carolina State University. Raleigh, NC.
- “Multivariate Nonlinear Age Trajectories in Cortical Thickness,” 2013. Johns Hopkins University. Baltimore, MD.

### Peer Reviewed Publications

1. Xia C.H., Ma, Z., Ciric, R., Gu, S., Betzel, R.F., Kaczkurkin, A.N., Calkins M.E., Cook, P.A., Garcia de la Garza, A., **Vandekar, S.N.**, Moore, T.M., Roalf, D.R., Ruparel, K., Wolf D.H., Davatzikos C., Gur R.C., Gur R.E., Shinohara, R.T., Bassett D.S., and Satterthwaite, T.D. 2018. Linked dimensions of psychopathology and connectivity in functional brain networks. *Nature Communications*. (*In press*)
2. Valcarcel, A. M., Linn, K. A., **Vandekar, S. N.**, Satterthwaite, T. D., Muschelli, J., Calabresi, P. A., Pham, D. L., Martin, M. L. and Shinohara, R. T. 2018. MIMoSA: An Automated Method for Intermodal Segmentation Analysis of Multiple Sclerosis Brain Lesions. *Journal of Neuroimaging*. doi:10.1111/jon.12506
3. Reardon P.K., Seidlitz, J., **Vandekar, S.N.**, Liu, S., Patel, R., Park, M.T.M., Alexander-Bloch, A., Clasen, L.S., Blumenthal J.D., Giedd, J.N., Gur, R.C., Gur, R.E., Lerch, J.P., Chakravarty, M.M., Satterthwaite, T.D., Shinohara, R.T., and Raznahan, A. 2018. Normative Brain Size Variation and the Remodeling of Brain Shape in Humans. *Science*.
4. **Vandekar, S.N.**, Reiss, P.T., Shinohara, R.T., 2018. Interpretable High Dimensional Inference Via Score Projection with an Application in Neuroimaging. *Journal of the American Statistical Association: Theory and Methods*. (*In press*)
5. **Vandekar, S.N.**, Satterthwaite, T.D., Rosen, A., Ciric, R., Roalf, D.R., Ruparel, K., Gur, R.C., Gur, R.E., Shinohara, R.T., 2017. Faster Family-wise Error Control for Neuroimaging with a Parametric Bootstrap. *Biostatistics*.
6. **Vandekar, S.N.**, Shou, H., Satterthwaite, T.D., Shinohara, R.T., Merikangas, A.K., Roalf, D.R., Ruparel, K., Rosen, A., Gennatas, E.D., Elliott, M.A., Davatzikos, C., Gur, R.C., Gur, R.E., Detre, J.A., 2017. Sex differences in estimated brain metabolism in relation to body growth through adolescence. *J. Cereb. Blood Flow Metab.* 0271678X17737692. doi:10.1177/0271678X17737692
7. Reich, B.J., Guinness, J., **Vandekar, S.N.**, Shinohara, R.T., Staicu, A.M., 2017. Fully Bayesian spectral methods for imaging data. *Biometrics*. doi:10.1111/biom.12782

8. Roalf, D.R., Schmitt, J.E., **Vandekar, S.N.**, Satterthwaite, T.D., Shinohara, R.T., Ruparel, K., Elliott, M.A., Prabhakaran, K., McDonald-McGinn, D.M., Zackai, E.H., Gur, R.C., Emanuel, B.S., Gur, R.E., 2017. White matter microstructural deficits in 22q11.2 deletion syndrome. *Psychiatry Res. Neuroimaging* 268, 35–44. doi:10.1016/j.psychres.2017.08.001
9. Sharma, A., Wolf, D.H., Ciric, R., Kable, J.W., Moore, T.M., **Vandekar, S.N.**, Katchmar, N., Daldal, A., Ruparel, K., Davatzikos, C., Elliott, M.A., Calkins, M.E., Shinohara, R.T., Bassett, D.S., Satterthwaite, T.D., 2017. Common Dimensional Reward Deficits Across Mood and Psychotic Disorders: A Connectome-Wide Association Study. *Am. J. Psychiatry* 174, 657–666.
10. Satterthwaite, T.D., Cook, P.A., Bruce, S.E., Conway, C., Mikkelsen, E., Satchell, E., **Vandekar, S.N.**, Durbin, T., Shinohara, R.T., Sheline, Y.I., 2016. Dimensional depression severity in women with major depression and post-traumatic stress disorder correlates with fronto-amygdalar hypoconnectivity. *Mol. Psychiatry* 21, 894–902. doi:10.1038/mp.2015.149
11. Shanmugan, S., Wolf, D.H., Calkins, M.E., Moore, T.M., Ruparel, K., Hopson, R.D., **Vandekar, S.N.**, Roalf, D.R., Elliott, M.A., Jackson, C., Gennatas, E.D., Leibenluft, E., Pine, D.S., Shinohara, R.T., Hakonarson, H., Gur, R.C., Gur, R.E., Satterthwaite, T.D., 2016. Common and Dissociable Mechanisms of Executive System Dysfunction Across Psychiatric Disorders in Youth. *Am. J. Psychiatry* 173, 517–526. doi:10.1176/appi.ajp.2015.15060725
12. **Vandekar, S.N.**, Shinohara, R.T., Raznahan, A., Hopson, R.D., Roalf, D.R., Ruparel, K., Gur, R.C., Gur, R.E., Satterthwaite, T.D., 2016. Subject-level measurement of local cortical coupling. *NeuroImage* 133, 88–97.
13. Roalf, D.R., Quarmley, M., Elliott, M.A., Satterthwaite, T.D., **Vandekar, S.N.**, Ruparel, K., Gennatas, E.D., Calkins, M.E., Moore, T.M., Hopson, R., 2016. The impact of quality assurance assessment on diffusion tensor imaging outcomes in a large-scale population-based cohort. *NeuroImage* 125, 903–919.
14. Kaczkurkin, A.N., Moore, T.M., Ruparel, K., Ciric, R., Calkins, M.E., Shinohara, R.T., Elliott, M.A., Hopson, R., Roalf, D.R., **Vandekar, S.N.**, others, 2016. Elevated Amygdala Perfusion Mediates Developmental Sex Differences in Trait Anxiety. *Biol. Psychiatry* 80, 775–785.
15. Satterthwaite, T.D., **Vandekar, S.N.**, Wolf, D.H., Bassett, D.S., Ruparel, K., Shehzad, Z., Craddock, R.C., Shinohara, R.T., Moore, T.M., Gennatas, E.D., Jackson, C., Roalf, D.R., Milham, M.P., Calkins, M.E., Hakonarson, H., Gur, R.C., Gur, R.E., 2015. Connectome-wide network analysis of youth with Psychosis-Spectrum symptoms. *Mol. Psychiatry* 20, 1508–1515. doi:10.1038/mp.2015.66
16. Satterthwaite, T.D., Wolf, D.H., Roalf, D.R., Ruparel, K., Erus, G., **Vandekar, S.N.**, Gennatas, E.D., Elliott, M.A., Smith, A., Hakonarson, H., Verma, R., Davatzikos, C., Gur, R.E., Gur, R.C., 2015. Linked Sex Differences in Cognition and Functional Connectivity in Youth. *Cereb. Cortex N. Y. N 1991* 25, 2383–2394. doi:10.1093/cercor/bhu036
17. Schmitt, J.E., **Vandekar, S.N.**, Yi, J., Calkins, M.E., Ruparel, K., Roalf, D.R., Whinna, D., Souders, M.C., Satterthwaite, T.D., Prabhakaran, K., McDonald-McGinn, D.M., Zackai, E.H., Gur, R.C., Emanuel, B.S., Gur, R.E., 2015. Aberrant Cortical Morphometry in the 22q11.2 Deletion Syndrome. *Biol. Psychiatry* 78, 135–143. doi:10.1016/j.biopsych.2014.10.025

18. Roalf, D.R., **Vandekar, S.N.**, Almasy, L., Ruparel, K., Satterthwaite, T.D., Elliott, M.A., Podell, J., Gallagher, S., Jackson, C.T., Prasad, K., Wood, J., Pogue-Geile, M.F., Nimgaonkar, V.L., Gur, R.C., Gur, R.E., 2015. Heritability of Subcortical and Limbic Brain Volume and Shape in Multiplex-Multigenerational Families with Schizophrenia. *Biol. Psychiatry* 77, 137–146.  
doi:10.1016/j.biopsych.2014.05.009
19. **Vandekar, S.N.**, Shinohara, R.T., Raznahan, A., Roalf, D.R., Ross, M., DeLeo, N., Ruparel, K., Verma, R., Wolf, D.H., Gur, R.C., Gur, R.E., Satterthwaite, T.D., 2015. Topologically Dissociable Patterns of Development of the Human Cerebral Cortex. *J. Neurosci.* 35, 599–609.
20. Satterthwaite, T.D., **Vandekar, S.N.**, Wolf, D.H., Ruparel, K., Roalf, D.R., Jackson, C., Elliott, M.A., Bilker, W.B., Calkins, M.E., Prabhakaran, K., others, 2014. Sex differences in the effect of puberty on hippocampal morphology. *J. Am. Acad. Child Adolesc. Psychiatry* 53, 341–350.
21. Satterthwaite, T.D., Shinohara, R.T., Wolf, D.H., Hopson, R.D., Elliott, M.A., **Vandekar, S.N.**, Ruparel, K., Calkins, M.E., Roalf, D.R., Gennatas, E.D., others, 2014. Impact of puberty on the evolution of cerebral perfusion during adolescence. *Proc. Natl. Acad. Sci.* 111, 8643–8648.
22. Dennis, N.A., Bowman, C.R., **Vandekar, S.N.**, 2012. True and phantom recollection: an fMRI investigation of similar and distinct neural correlates and connectivity. *Neuroimage* 59, 2982–2993.

Publications Under Review