Tyler Santander

Curriculum Vitae

Department of Psychological & Brain Sciences
University of California, Santa Barbara
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Education

2012–2017 **University of Virginia**.
Cognitive Psychology, Ph.D.
Dissertation: *The social (neural) network: Towards a unifying endophenotype between genes and behavior*.
Committee: James P. Morris, Ph.D. (*Chair*) | Jessica J. Connelly, Ph.D. | Chad Dodson, Ph.D. | T. Jason Druzgal, M.D., Ph.D.

2007–2011 **University of California, Santa Barbara**.
Psychology, B.A. | Political Science, B.A.
Honors & Distinction in Major.

Research Experience

2017–Present **Postdoctoral Scholar**, UCSB INSTITUTE FOR COLLABORATIVE BIOTECHNOLOGIES.
Supervisor: Michael B. Miller, Ph.D.

2012–2017 **Graduate Student Researcher**, UNIVERSITY OF VIRGINIA.

2011–2012 **Research Specialist**, UCSB INSTITUTE FOR COLLABORATIVE BIOTECHNOLOGIES.
Supervisor: Michael B. Miller, Ph.D.

Publications

Li, C.H., Ly, F.S., Woodhouse, K., Chen, J., Cheng, Z., **Santander, T.**, .., & Hansma, P.K. (*in press*). Dynamic phase extraction: Applications in pulse rate variability. *Applied Psychophysiology and Biofeedback*.

Cheng, Z., Ly, F., **Santander, T.**, Turki, E., Zhao, Y., Yoo, J., ..., & Petzold, L. (*under review*). Preliminary study: Quantification of chronic pain from physiological data.

Bullock, T., MacLean, M.H., **Santander, T.**, Boone, A., Babenko, V., Dundon, N.M., ..., & Grafton, S.T. (*under review*). Habituation of the stress multiplex to repeated cold pressor exposure.

Greenwell, S., Faskowitz, J., Pritschet, L., **Santander, T.**, Jacobs, E.G., & Betzel, R.F. (*under review*). High-amplitude network co-fluctuations linked to variation in hormone concentrations over menstrual cycle.

De Filippi, E., Uribe, C., Avila-Varela, D.S., Martinez-Molina, N., Gashaj, V., Pritschet, L., **Santander, T.**, ..., & Escrichs, A. (2021). The menstrual cycle modulates whole-brain turbulent dynamics. *Frontiers in Neuroscience, 15,* 763820. doi: 10.3389/fnins.2021.753820

Acevedo, B.P., Marhenke, R., Kosik, K.S., Zarinafsar, S., & **Santander, T.** (2021). Yoga improves older adults' affective functioning and resting-state brain connectivity: Evidence from a pilot study. *Aging & Health Research, 1,* 100018. doi: 10.1016/j.ahr.2021.100018

Pritschet, L., Taylor, C.M., **Santander, T.**, & Jacobs, E.G. (2021). Applying dense-sampling methods to reveal dynamic endocrine modulation of the nervous system. *Current Opinion in Behavioral Sciences, 40,* 72–78. doi: 10.1016/j.cobeha.2021.01.012

Acevedo, B.P., **Santander, T.**, Marhenke, R., Aron, A., & Aron, E. (2021). Sensory processing sensitivity predicts individual differences in resting-state functional connectivity associated with depth of processing. *Neuropsychobiology, 80,* 185–199. doi: 10.1159/000513527

Mueller, J.M., Pritschet, L., **Santander, T.**, Taylor, C.M., Grafton, S.T., Jacobs, E.G., & Carlson, J.M. (2021). Dynamic community detection reveals transient reorganization of functional brain networks across a female menstrual cycle. *Network Neuroscience, 5*(1), 125–144. doi: 10.1162/netn_a_00169

Fitzgerald, M., Pritschet, L., **Santander, T.**, Grafton, S.T., & Jacobs, E.G. (2020). Cerebellar network organization across the human menstrual cycle. *Scientific Reports, 10*, 20732. doi: 10.1038/s41598-020-77779-4

Taylor, C.M., Pritschet, L., Olsen, R., Layher, E., **Santander, T.**, Grafton, S.T., & Jacobs, E.G. (2020). Progesterone shapes medial temporal lobe volume across the human menstrual cycle. *NeuroImage, 220*, 117125. doi: 10.1016/j.neuroimage.2020.117125

Pritschet, L.*, **Santander, T.***, Taylor, C.M., Layher, E., Yu, S., Miller, M.B., Grafton, S.T., & Jacobs, E.G. (2020). Functional reorganization of brain networks across the human menstrual cycle. *NeuroImage, 220*, 117091. doi: 10.1016/j.neuroimage.2020.117091

Turner, B.O., Kingstone, A., Risko, E.F., **Santander, T.**, Li, J., & Miller, M.B. (2020). Recording brain activity can function as an implied social presence and alter neural connectivity. *Cognitive Neuroscience, 11(1-2)*, 16–23. doi: 10.1080/17588928.2019.1650015

Turner, B.O., **Santander, T.**, Paul, E.J., Barbey, A.K., & Milller, M.B. (2019). Reply to: fMRI replicability depends upon sufficient individual-level data. *Communications Biology, 2*, 129. doi: 10.1038/s42003-019-0379-5

Layher, E., **Santander, T.**, Volz, L., & Milller, M.B. (2018). Failure to affect decision criteria during recognition memory with continuous theta burst stimulation. *Frontiers in Neuroscience, 12*, 705. doi: 10.3389/fnins.2018.00705

Turner, B.O., Lopez, B.A., **Santander, T.**, & Miller, M.B. (2015). One dataset, many conclusions: BOLD variability's complicated relationships with age and motion artifacts. *Brain Imaging & Behavior, 9(1)*, 115–127. doi: 10.1007/s11682-014-9351-7

Peer Reviewed Proceedings

Kumar, S., Iftekhar, A.S.M., Goebel, M., Bullock, T., MacLean, M.H., Miller, M.B., **Santander, T.**, ..., & Manjunath, B.S. (2021). StressNet: Detecting stress in thermal videos. In *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision,* 999–1009. doi: 10.1109/WACV48630.2021.00104

Zhao, Y., Ly, F., Hong, Q., Cheng, Z., **Santander, T.**, Yang, H.T, Hansma, P.K., & Petzold, L. (2020). How much does it hurt: A deep learning framework for chronic pain score assessment. In *2020 International Conference on Data Mining Workshops,* 651–660. doi: 10.1109/ICDMW51313.2020.00092

Huang, Y. Leach, K., Sharafi, Z., McKay, N., **Santander, T.**, & Weimer, W. (2020). Biases and differences in code review using medical imaging and eye-tracking: Genders, humans, and machines. In *Proceedings of the 28th ACM Joint Meeting on European Software Engineering Conference and Symposium on the Foundations of Software Engineering*, 456–468. doi: 10.1145/3368089.3409681

Krueger, R., Huang, Y., Liu, X., **Santander, T.**, Weimer, W., & Leach, K. (2020). Neurological divide: An fMRI study of prose and code writing. In *Proceedings of the ACM/IEEE 42nd International Conference on Software Engineering*, 678–690. doi: 10.1145/3377811.3380348

Huang, Y., Liu, X., Krueger, R., **Santander, T.**, Hu, X., Leach, K., & Weimer, W. (2019). Distilling neural representations of data structure manipulation using fMRI and fNIRS. In *Proceedings of the ACM/IEEE 41st International Conference on Software Engineering*, 396–407. doi: 10.1109/ICSE.2019.00053

Floyd, B., **Santander, T.**, & Weimer, W. (2017). Decoding the representation of code in the brain: An fMRI study of code review and expertise. In *Proceedings of the ACM/IEEE 39th International Conference on Software Engineering*, 175–186. doi: 10.1109/ICSE.2017.24

Conference Talks, Seminars/Colloquia, & Guest Lectures

Dense-sampling reveals flexible network architectures supporting adaptive decision strategies during recognition memory.
Annual Meeting of the Cognitive Neuroscience Society, Online (March 2021).

Network dynamics supporting a conservative decision criterion.
Bay Area Memory Meeting, Online (November 2020).

Time-dependent modulation of intrinsic and task-evoked functional connectivity: A preliminary analysis of brain-hormone interactions.
Bay Area Memory Meeting, San Jose, CA (August 2019).

Stable representations of a cautious state of mind: An fMRI study of memory and perceptual decision-making.
Bay Area Memory Meeting, Davis, CA (August 2018).

The entropic brain: Towards a unifying endophenotype between genes and behavior.
International Max Planck Research School on the Life Course, Ann Arbor, MI (May 2017).

Reverse engineering brain systems: Decoding epigenotypes & behavioral phenotypes through patterned network architectures.
International Max Planck Research School on the Life Course, Berlin, Germany (October 2016).

The structure of variability in the brain: Decoding epigenotypes and behavioral phenotypes through patterned network dynamics.
16th Annual Robert J. Huskey Graduate Research Exhibition, University of Virginia (March 2016)

The social (neural) network: Data-driven approaches to uncovering the molecular and neural indices of social behavior.
Department of Psychology Students' Choice Colloquium, University of Virginia (December 2015).

The social (neural) network: A data-driven, multivariate approach to decoding epigenetic variability in the oxytocin receptor gene.
15th Annual Robert J. Huskey Graduate Research Exhibition, University of Virginia (March 2015); Annual Meeting of the Social & Affective Neuroscience Society, Boston, MA (April 2015); Clinical Psychology Brown Bag Series, George Mason University (April 2015).

Memory as decision-making: The successful retrieval effect tells us almost nothing about memory accuracy.
Annual Meeting of the Cognitive Neuroscience Society, San Francisco, CA (March 2015).

Decoding the social brain and its epigenome using multivariate pattern analyses.
14th Annual Robert J. Huskey Graduate Research Exhibition, University of Virginia (March 2014).

"His brain made him do it:" The limits of folk psychology in legal judgments & decision-making.
Department of Political Science Honors Symposium & Awards Ceremony, University of California, Santa Barbara (June 2011).

First-Authored Poster Presentations

Santander, T., Layher, E., & Miller, M.B. (2021). Dense-sampling reveals flexible network architectures supporting adaptive decision strategies during recognition memory. Presented at the Annual Meeting of the Cognitive Neuroscience Society (*virtual conference*).

Santander, T., Lopez, B.A., & Miller, M.B. (2020). Frontoparietal contributions to strategic criterion shifts during recognition memory. Presented at the Annual Meeting of the Cognitive Neuroscience Society (*virtual conference*).

Santander, T., MacLean, M.H., Bullock, T., Boone, A., Raymer, J., Jimmons, L., ..., & Miller, M.B. (2019). Identifying biomarkers to predict behavioral responses to stress in criterion shifting during recognition memory. Presented at the Annual Meeting of the Cognitive Neuroscience Society, San Francisco, CA.

Santander, T., Layher, E., Chakravarthula, P., Marinsek, N., Turner, B.O., Eckstein, M.P., & Miller, M.B. (2018). Stable representations of a cautious state of mind: An fMRI study of memory and perceptual decision-making. Presented at the Annual Meeting of the Society for Neuroscience, San Diego, CA.

Santander, T., Puglia, M.H., Connelly, J.J., & Morris, J.P. (2017). The entropic brain: Towards a unifying endophenotype between genes and behavior. Presented at the 17th Annual Robert J. Huskey Graduate Research Exhibition, University of Virginia, Charlottesville, VA.

Santander, T., Puglia, M.H., Connelly, J.J., & Morris, J.P. (2016). The structure of variability in the brain: Decoding epigenotypes and behavioral phenotypes through patterned network dynamics. Presented at the International Max Planck Research School on the Life Course, Charlottesville, VA.

Santander, T., Puglia, M.H., Connelly, J.J., & Morris, J.P. (2016). The noisy, social brain: Macroscale system dynamics predict autism spectrum phenotypes and epigenetic variability in the oxytocin receptor gene. Presented at the Annual Meeting of the Social & Affective Neuroscience Society, New York, NY.

Santander, T., Connelly, J.J., & Morris, J.P. (2016). The noisy, social brain: Multivariate patterns of BOLD variance predict autism spectrum phenotypes and epigenetic variability in the oxytocin receptor gene. Presented at the Annual Meeting of the Cognitive Neuroscience Society, New York, NY.

Santander, T., Puglia, M.H., Connelly, J.J., & Morris, J.P. (2016). The structure of variability in the brain: Decoding epigenotypes and behavioral phenotypes through patterned network dynamics. Presented at the Annual Meeting of the Central Virginia Chapter of the Society for Neuroscience, Charlottesville, VA.

Santander, T., Connelly, J.J., & Morris, J.P. (2015). The social (neural) network: A data-driven, multivariate approach to decoding epigenetic variability in the oxytocin receptor gene. Presented at the 2nd Annual University of Virginia Public Day, Charlottesville, VA.

Santander, T., Connelly, J.J., & Morris, J.P. (2014). Teasing apart social perception and epigenetic variability using multivariate pattern analyses. Presented at the Annual Meeting of the Social and Affective Neuroscience Society, Denver, CO.

Santander, T., Lopez, B.A., Schubert, M., Bennett, C., & Miller, M.B. (2014). Age-related compensatory over-recruitment during recognition memory: Evidence from support vector machine pattern classification. Presented at the Annual Meeting of the Cognitive Neuroscience Society, Boston, MA.

Santander, T., Lopez, B.A., Schubert, M., Bennett, C., & Miller, M. B. (2013). Lifespan changes in the neural network architecture underlying criterion shifting during recognition memory. Presented at the Annual Meeting of the Society for Neuroscience, San Diego, CA.

Santander, T. (2011). Perceptions of criminal offenders: Their influences & correlates in legal judgments & decision-making. Presented at the Undergraduate Research & Creative Activities Colloquium, University of California, Santa Barbara.

Teaching Experience

Spring 2017	**Instructor**, Brain Mapping: An Introduction to Functional MRI. *Distinguished Teaching Fellowship course.*
Fall 2016	**Lab Instructor**, Quantitative Methods I: Probability & Statistical Inference. *Graduate course.*
Spring 2016	**Lab Instructor**, Quantitative Methods II: Experimental Design. *Graduate course.*
Fall 2015	**Lab Instructor**, Quantitative Methods I: Probability & Statistical Inference. *Graduate course.*
Summer 2015	**Organizer | Instructor**, Summer Course on Multivariate Pattern Analyses (MVPA) for Neuroimaging Data. *Sponsored by the University of Virginia, Department of Psychology.*
Spring 2015	**Teaching Assistant**, Research Methods & Data Analysis I.
Fall 2014	**Lab Instructor**, Research Methods & Data Analysis II.
Spring 2014	**Lab Instructor**, Research Methods & Data Analysis II.
Fall 2013	**Lab Instructor**, Research Methods & Data Analysis I.
Spring 2013	**Teaching Assistant**, Introduction to Learning.
Fall 2012	**Teaching Assistant**, Introduction to Learning.

Fellowships & Professional Memberships

2019	**Kavli Summer Institute in Cognitive Neuroscience**.
2015–2017	**International Max Planck Research School on the Life Course**.
2013–2017	**Social & Affective Neuroscience Society**.
2013–Present	**Society for Neuroscience**.
2012–Present	**Cognitive Neuroscience Society**.

Academic Honors & Awards

2019	**Association for Computing Machinery Special Interest Group on Software Engineering Distinguished Paper Award**. 41st International Conference on Software Engineering.
2017	**Association for Computing Machinery Special Interest Group on Software Engineering Distinguished Paper Award**. 39th International Conference on Software Engineering.
2016	**Robert J. Huskey Graduate Research Exhibition: Oral Presentation Award**. Models & Representations (1st place).

2016 **Distinguished Teaching Fellowship**.
University of Virginia, Department of Psychology.

2016 **Cognitive Neuroscience Society Graduate Student Award**.

2015 **Social & Affective Neuroscience Society Oral Presentation Award**.

2015 **Robert J. Huskey Graduate Research Exhibition: Oral Presentation Award**.
Biological & Biomedical Sciences (2nd place).

2014 **Social & Affective Neuroscience Society Poster Award**.

2010 **UCSB Undergraduate Research & Creative Activities Grant**.