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EDUCATION

- 2005-2009 **University of California, Los Angeles**
Ph.D., Neuroscience
Dissertation: *Investigating Medial Temporal Representations of Episodic Information: A Multi-modal Approach*
- 2003-2005 **University of California, Los Angeles**
B.S., Neuroscience
Honors Thesis: *Circadian Regulation of Long-term Potentiation*
- 1999-2002 **University of California, Berkeley**
Molecular and Cell Biology

PROFESSIONAL EXPERIENCE

- 2016- Ruth and Raymond Stotter Endowed Chair, Department of Neurosurgery, UCLA
- 2016- Associate Director for Neuroscience Outreach, Brain Research Institute, UCLA
- 2015- Assistant Professor-in-Residence, Department of Psychiatry & Biobehavioral Sciences, Department of Neurosurgery, Department of Psychology, UCLA
- 2015- Associate Director, Neuromodulation Division, Semel Institute of Neuroscience and Human Behavior, UCLA
- 2015- Assistant Director of Postdoctoral Outreach and Educational Programs, Brain Research Institute, UCLA
- 2015- Vice President, Society for Neuroscience UCLA Chapter
- 2012-2015 Assistant Researcher, Department of Neurosurgery, UCLA
Lecturer, Department of Psychology, UCLA

- 2009-2012 Postdoctoral scholar, Department of Neurosurgery, Department of Psychology, UCLA
- 2005-2009 Graduate student researcher, Neuroscience Interdepartmental Ph.D. Program, UCLA

AWARDS & GRANTS

Awards

- 2016-2021 Ruth and Raymond Stotter Endowed Chair, Department of Neurosurgery, UCLA
- 2015 Excellence in Translational Research Award, Department of Neurosurgery, UCLA
- 2015-2017 Joseph Drown Friends Scholar Award, Friends of the Semel Institute of Neuroscience and Human Behavior, UCLA
- 2012 UCLA Brain Research Institute Travel Award, Society for Neuroscience
- 2012 Summer Institute in Cognitive Neuroscience Fellowship
- 2011 Society for Neuroscience Postdoctoral Travel Award
- 2011 UCLA Chancellor's Award for Postdoctoral Research, Finalist
- 2009-2011 Neural Repair Postdoctoral Fellowship, NIH grant 5T32NS007449
- 2009 Achievement Award, National Science Foundation GK-12 Conference
- 2008, 2009 UCLA Brain Research Institute Travel Award, Society for Neuroscience
- 2008 UCLA Jeffrey L. Hanson Award for Distinguished Service
- 2007, 2008, 2011 Organization for Human Brain Mapping Travel Award
- 2007-2008 Neuroimaging Fellowship, NIMH grant 5T90DA022768-08
- 2006-2007 Behavioral Neuroscience Fellowship, NIMH grant 5T32MH015795

Current Funding

NIH UO1, National Institute of Neurological Disorders and Stroke

Purpose: Neurostimulation and recording of real world spatial navigation in humans

Role: Principal Investigator

Funding term: 2017-2020

Ruth and Raymond Stotter Chair, Department of Neurosurgery, UCLA

Funding term: 2016-2021

TEACHING EXPERIENCE

Course Instructor

Winter 2017 Human Single Neuron and Oscillatory Mechanisms of Cognition (*Psychology 207b*), UCLA

Summer 2013-16 Competitive Edge Course for PhD Graduate Students in STEM fields, UCLA

Summer 2015 Behavioral Neuroscience (*Psychology 115*), UCLA

Spring 2015 Medical Neurosciences, David Geffen School of Medicine, UCLA

Summer 2013,2014 Cognitive Neuroscience (*Psychology 119C*), UCLA
& Fall 2012

Summer, Fall 2013 Behavioral Neuroscience Laboratory (*Psychology 116*), UCLA
& Summer 2012

Spring 2013 Introduction to Psychobiology (*Psychology 15*), UCLA

Spring 2013 Physiological Psychology of Learning (*Psychology 119M*), UCLA

Winter 2013 Introduction to Psychology (*Psychology 10*), UCLA
& Fall 2012

Guest Lecturer

Fall, 2017 Undergraduate Course: Neurobionics-Past, Present, and Future at UCLA and Beyond (*Neuroscience 19*), UCLA

Fall 2009, 2015 Graduate course: Functional Neuroanatomy (*Psychology 292*),
2017 UCLA

Spring, 2017 Undergraduate Course: Computational Methods for Medical Imaging (*Computer Science 188*), UCLA

Spring, 2017 Graduate Course: Dynamics of Neural Microcircuits (*Neuroscience M287*), UCLA

Fall, 2016 & Graduate Course: Principles of Neuroimaging (*Neuroscience M284A*), UCLA
Spring 2009

- Fall 2015 Undergraduate course: Mind Reading and Manipulation: Brain and Computer Interface (*Neuroscience 19*), UCLA
- Spring 2011, 2013 Graduate course: Biology of Learning & Memory (*Neurobio M200*), UCLA

PUBLICATIONS

1. Wang, L.M., **Suthana, N.**, Chaudhury D, Weaver, D.R., Colwell, C.S. (2005) Melatonin inhibits hippocampal long-term potentiation. European Journal of Neuroscience 22:2231-7
2. Ekstrom, A., **Suthana, N.**, Salamon, N., Behnke, E., Bookheimer, S.Y., Fried, I. (2008) High-Resolution Depth Electrode Localization and Imaging in Patients with Pharmacologically Intractable Epilepsy. Journal of Neurosurgery 108:812-5
3. **Suthana, N.**, Ekstrom, A., Moshirvaziri, S., Knowlton B., Bookheimer, S.Y. (2009) Human hippocampal CA1 involvement during allocentric encoding of spatial information. Journal of Neuroscience 29:10512-9
4. Ekstrom, A.D., **Suthana, N.**, Millet, D., Fried I., Bookheimer S.Y. (2009) Correlation Between BOLD fMRI and Theta-band Local Field Potentials In the Human Hippocampal Area. Journal of Neurophysiology, 101:2668-78
5. Ekstrom A.D., Bazih, A., **Suthana, N.**, Al-Hakim, R., Ogura, K., Zeineh, M., Burggren, A., Bookheimer S.Y. (2009) Advances in High-resolution Imaging and Computational Unfolding of the Human Hippocampus. Neuroimage, 47:42-9.
6. Donix, M., Burggren, A.B., **Suthana, N.**, Siddarth, P., Ekstrom, A.D., Krupa, A., Jones, M. *, Martin-Harris, L. *, Ercoli, L.M., Miller, K.J., Small, G.W., Bookheimer, S.Y. (2010) Family History of Alzheimer's Disease and Hippocampal Structure in Healthy People. American Journal of Psychiatry, 167:1399-406
7. **Suthana, N.**, Krupa, A., Donix, M., Burggren, A.B., Ekstrom, A.D., Jones, M., Ercoli, L.M., Miller, K.J., Siddarth, P., Small, G.W., Bookheimer, S.Y. (2010) Reduced hippocampal CA2, CA3, and dentate gyrus activity in asymptomatic people at genetic risk for Alzheimer's disease. Neuroimage, 53:1077-84
8. Donix, M., Burggren, A.B., **Suthana, N.**, Siddarth, P., Ekstrom, A.D., Krupa, A., Jones, M., Rao, A., Martin-Harris, L. *, Ercoli, L.M., Miller, K.J., Small, G.W., Bookheimer, S.Y. (2010) Longitudinal Changes in Medial Temporal Cortical Thickness in Normal Subjects with the APOE-4 polymorphism. Neuroimage, 53:37-43
9. Burggren, A.C., Renner, B., Jones, M., Donix M., **Suthana, N.**, Martin-Harris L., Ercoli L.M., Miller K.J., Siddarth P., Small G.W., Bookheimer S.Y. (2011) Cortical

thinning in entorhinal and subicular cortex predicts decline in episodic memory performance in subjects with mild cognitive impairment. International Journal of Alzheimer's Disease, 956053, PMID: 21559183

10. **Suthana, N.**, Ekstrom, A., Moshirvaziri, S., Knowlton B., Bookheimer, S.Y. (2011) Dissociations within Human Hippocampal Subregions during Encoding and Retrieval of Spatial Information. Hippocampus, 21:694-701
11. Staba, R., Ekstrom, A., **Suthana, N.**, Burggren, A., Fried, I, Engel, J. Jr., Bookheimer, S. (2012) Gray matter loss correlates with mesial temporal lobe neuronal hyperexcitability inside the human seizure onset zone. Epilepsia, 53:25-34
12. **Suthana, N.**, Haneef, Z., Stern, J., Mukamel, R., Behnke, E., Knowlton, B., Fried, I. (2012) Memory Enhancement and Deep Brain Stimulation of Entorhinal Area. New England Journal of Medicine, 366:502-510

Also see Letters to Editor Correspondence: **Suthana, N.** and Fried, I. (2012) Memory Enhancement and Deep Brain Stimulation of Entorhinal Area. New England Journal of Medicine, 366:1945-1946

Also, see related editorial written by: Black SE. Brain stimulation, learning, and memory. New England Journal of Medicine, 366:563-5
13. Kern, K., Ekstrom, A., **Suthana, N.**, Giesser, B., Montag, M., Arshanapalli, A., Bookheimer, S., Sicotte, N. (2012) Fornix damage limits verbal memory. Neuroimage, 59:2932-40
14. Romero-Calderón, R., O'Hare, E., **Suthana, N.**, Scott-Van Zeeland, A., Rizk-Jackson, A., Attar, A., Madsen, S., Ghiani, C., Evans, C., Watson, J. (2012) Project Brainstorm: Using Neuroscience To Connect College Students with Local Schools. PLoS Biology 10:e1001310
15. **Suthana, N.**, Fried, I. (2012) Percepts to recollections: Insight from single neuron recordings in the human brain. Trends in Cognitive Science, 16:427-36, Review
16. Jacobs, J., Weidemann, C., Miller, J., Solway, A., Burke, J., Wei, X., **Suthana, N.**, Sperling, M., Sharan, A., Fried, I., Kahana, M. (2013) Direct recordings of grid-like neuronal activity in human spatial navigation. Nature Neuroscience 16:1188-90
17. Donix, M., Burggren, A., Scharf, M., Marschner, K., **Suthana, N.**, Siddarth, P., Krupa, A., Jones, M., Martin-Harris, L., Ercoli, L., Miller, K., Werner, A., Kummer, R., Sauer, C., Small, G., Holthoff, A. and Bookheimer, S. (2013) APOE associated hemispheric asymmetry of entorhinal cortical thickness in aging and Alzheimer's disease. Psychiatry Research: Neuroimaging 214:212-20
18. **Suthana, N.** and Fried, I. (2014) Deep Brain Stimulation for Enhancement of Learning and Memory. Review. Neuroimage 85:996-1002, Review

19. Wagshal, D., Knowlton, B., **Suthana, N.**, Cohen, J., Poldrack, R., Bookheimer, S., Bilder, B., Asarnow, R. (2014) Evidence for corticostriatal dysfunction during cognitive skill learning in adolescent siblings of patients with childhood-onset schizophrenia. *Schizophrenia Bulletin*. 40:1030-9
20. Cohen, M.S., Rissman, J., **Suthana, N.**, Castel, A.D., Knowlton, B.J. (2014) Memory selectivity is associated with greater engagement of areas involved in deep semantic encoding for high-value items. *Cognitive Affect Behav Neuroscience*. 14:578-92
21. **Suthana, N.**, Donix, M., Wozny, D., Bazih, A., Jones, M., Heidemann, R., Trampel, R., Ekstrom, A.D., Scharf, M., Knowlton, B., Turner, R., Bookheimer, S.Y. (2015) High-resolution 7-Tesla fMRI of Human Hippocampal Subregions during Associative Learning. *Journal of Cognitive Neuroscience*, 27:1194-206, PMID: 25514656
22. Yushkevich, P., Augustinack, J., Bender A., Bernstein, J., Boccardi, M., Bocchetta, M., Burggren, A., Carr V., Chakravarty, M.M. Chetelat, G., Daugherty, A., Davachi, L., Ding, S., Ekstrom, A., Geerlings, M., Hassan, A., Huang, Y., Iglesias, J., LaJoie, R., Kerchner, G., LaRocque, K., Libby, L., Malykhin, N., Mueller, S., Olsen, R., Palombo, D., Parekh, M., Pluta, J., Preston, A., Pruessner, J., Ranganath, C. Raz, C., Schlichting, M., Schoemaker, D., Singh, S., Stark, C., **Suthana, N.**, Tomparly, A., Turowski, M., Leemput, K., Wagner, A., Wang, L., Winterburn, J., Wisse, L., Yassa, M., Zeineh, M. (2015) Quantitative Comparison of 21 Protocols for Labeling Hippocampal Subfields and Parahippocampal Cortical Subregions in In Vivo MRI: Towards Developing a Harmonized Segmentation Protocol. *Neuroimage*, 111: 526-41, PMID: 25596463
23. Miller, J., **Suthana, N.**, Fried, I., Jacobs, J. (2015) Repeating spatial activations in human entorhinal cortex. *Current Biology*, 25:1080-5, PMID: 25843029
24. **Suthana, N.**, Parikshak, N., Ekstrom A.D., Ison, M., Knowlton, B., Bookheimer S.Y., Fried, I. (2015) Specific responses of human hippocampal neurons are associated with better memory. *Proceedings of the National Academy of Sciences*, 112:10503-8, PMID: 26240357
25. Cohen, M.S., Rissman, J., **Suthana, N.**, Castel, A.D., Knowlton, B.J. (2016) Effects of aging on value-directed modulation of semantic network activity during verbal learning. *Neuroimage* 125:1046:52, PMID: 26244278
26. Wisse, L.*, Daugherty, A.M.*, Olsen, R.K., Berron, D., Carr, V.A., Stark, C.E.L., Amaral, R.S.C., Amunts, K., Augustinack, J.C., Bender, A.R., Bernstein, J.D., Boccardi, M., Bocchetta, M., Burggren, A., Chakravarty, M.M., Chupin, M., Ekstrom, E., Flores, R.E., Insausti, R., Kanel, P., Kedo, O. Kennedy, K.M., Kerchner, G.A., LaRocque, K., Liu, X., Maass, A., Malykhin, N., Mueller, S.G., Ofen, N., Palombo, D.J., Parekh, M.B., Pluta, J.B., Pruessner, J.C., Raz, N., Rodrigue, K.M., Schoemaker, D., Shafer, A.T., Steve, T.A., **Suthana, N.**, Wang, L., Winterburn, J.L., Yassa, M.A.,

Yushkevich, P.A., la Joie, R. (2017) A harmonized segmentation protocol for hippocampal and parahippocampal subregions: why do we need one and what are the key goals? Hippocampus, 27:3-11, PMID 27862600, *Equal first authorship

27. Nir, Y., Andrillon, T., **Suthana, N.**, Cirelli, Chiara, Tononi, G., Fried, I. Selective neuronal lapses precede human cognitive lapses upon sleep deprivation. Nature Medicine, (In Press)
28. Titiz, A.S.*, Hill, M.R.H.*, Mankin, E.A.*, Eliashiv, D., Tchemodanov, N., Maoz, U., Stern, J., Tran, M., Behnke, E., **Suthana, N.****, Fried, I.**. Theta-Burst Microstimulation in the human entorhinal area improves memory specificity. eLife (In Press) *Equal first authorship, ** **Equal senior authorship**
29. Aghajan, Z., Schuette, P., Fields, T., Tran M., Siddiqui, S., Hasulak, N., Tchong, T., Eliashiv, D., Stern, J., Fried, I., **Suthana, N.** Theta Oscillations in the human medial temporal lobe during ambulatory movement. Current Biology (In Press)

BOOK CHAPTERS

1. **Suthana, N.** and Fried, I. (2014) “Navigating our Environment: Insight from single neuron recordings from the human brain” in Atoms of Cognition. Probing single neurons in the human brain. Publisher: MIT Press