

## Francisco J. Luongo

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CONTACT INFORMATION	1200 E. California blvd. (MC 216-76) Pasadena, CA 91125	415-707-9095 <a href="mailto:fluongo@caltech.edu">fluongo@caltech.edu</a>
EDUCATION	<b>University of California, San Francisco</b> , San Francisco, CA  Ph.D., Neuroscience, December 2015 <ul style="list-style-type: none"><li>• Thesis Topic: <i>Information processing and computation in prefrontal microcircuits</i></li><li>• Thesis Advisor: <a href="#">Vikaas S. Sohal, M.D., Ph.D</a></li></ul> <b>Stanford University</b> , Palo Alto, CA  B.S., Biology, May 2008	
CURRENT POSITION	<b>Postdoctoral Fellow</b> California Institute of Technology Supervisor: <a href="#">Doris Y. Tsao, Ph.D</a>	January 2016 to present
RESEARCH INTERESTS	neural computation, sensory encoding/decoding models, machine learning, neural networks, cortical microcircuits, network analysis, calcium imaging, ECoG time-series analysis, scientific computing	
PAST RESEARCH EXPERIENCE	<b>Doctoral Student</b> University of California San Francisco Supervisor: <a href="#">Vikaas S. Sohal, M.D., Ph.D</a> <b>Research Assistant</b> Stanford University Supervisor: <a href="#">Thomas Clandinin, Ph.D</a> <b>Undergraduate Researcher</b> Stanford University Supervisor: <a href="#">Liqun Luo, Ph.D</a>	June 2011 to December 2015   July 2008 to Aug 2010  Dec 2006 to June 2008
PUBLICATIONS	<ol style="list-style-type: none"><li>1. Lee AT, Cunniff MM, See JZ, Wilke SA, <b>Luongo, FJ</b>, Ellwood IT, Ponnavaolu S, and Sohal VS (2019) "VIP interneurons contribute to avoidance behavior by regulating information flow across hippocampal-prefrontal networks." 2019 <i>Neuron</i> <a href="#">link</a></li><li>2. Kirkby L., <b>Luongo, F.</b>, Rao, V., Dawes, H., Chang, E., and Sohal, V.S. "An amygdala-hippocampus subnetwork that encodes variation in human mood." November 2018 <i>Cell</i> <a href="#">link</a></li><li>3. Marton, T., Seifkar, H., <b>Luongo, F.</b>, and Sohal, V.S. "Roles of prefrontal cortex and mediodorsal thalamus in task engagement and behavioral flexibility." <i>Journal of Neuroscience</i>, February 2018 <a href="#">link</a></li><li>4. <b>Luongo, F.</b>, Zimmerman, C., Horn, M., and Sohal, V.S. "Correlations between prefrontal neurons form a small world network that optimizes the generation of multineuron sequences of activity." <i>Journal of Neurophysiology</i>, May 2016 <a href="#">link</a></li><li>5. <b>Luongo, F.</b>, Horn, M., and Sohal, V.S. "Putative microcircuit-level substrates for attention are disrupted in mouse models of autism." <i>Biological Psychiatry</i>, Apr 2016 <a href="#">link</a></li></ol>	

6. Gee, S., Ellwood, I., Patel, T., **Luongo, F.**, Deisseroth, K., and Sohal, V.S. "Synaptic activity unmasks dopamine D2 receptor modulation of a specific class of layer V pyramidal neurons in prefrontal cortex." *Journal of Neuroscience*, February 2012. [link](#)
7. Gohl D.M., Silies M.A., Gao X.J., Bhalerao S., **Luongo F.J.**, Potter C.J., and Clandinin T.R. "A versatile in-vivo system for directed genetic dissection of gene expression patterns." *Nature Methods*, March 2011. [link](#)

#### PAPERS IN PREPARATION

1. **Luongo F.**, Liu, L., Tsao, D. "A visual shortcut to figure ground perception in a low-acuity animal."
2. **Luongo, F.**, Kirkby, L., Lee, M., Dawes, H., Chang, E.C., Sohal, V.S. "Key interactions efficiently summarize distributed network activity within chronic, large-scale recordings in the human brain."

#### RELEVANT TALKS

1. **Luongo F.**, 'Identifying Object Representations in the Rodent Visual System.' *Chen Institute Workshop on Computational Approaches to Neuroscience*, [Pasadena, CA], 2017. [link](#)

#### CONFERENCE ABSTRACTS

1. **Luongo, F.**, Liu, L., and Tsao, D. "A fundamental difference between rodent and primate object vision" *COSYNE*, [Lisbon, Portugal], 2019 [link](#)
2. **Luongo, F.**, Liu, L., and Tsao, D. "Scene segmentation in the mouse" *Society for Neuroscience (SFN)*, [Washington D.C., USA], 2018 [link](#)
3. **Luongo, F.**, Liu, L., and Tsao, D. "Figure ground modulation in the mouse visual system" *Society for Neuroscience (SFN)*, [Washington D.C., USA], 2017 [link](#)
4. **Luongo, F.**, Liu, L., and Tsao, D. "Extra-classical receptive field effects on visual processing in the awake rodent" *Society for Neuroscience (SFN)*, [San Diego, USA], 2016 [link](#)
5. Kirkby, L., **Luongo, F.**, Nahum, M., Van Vleet, T., Lee, M., Dawes, H., Chang, E., and Sohal, V. "Intrinsic network for mood in the human " *Society for Neuroscience (SFN)*, [San Diego, USA], 2016 [link](#)
6. Kirkby, L., **Luongo, F.**, Nahum, M., Van Vleet, T., Lee, M., Dawes, H., Chang, E., and Sohal, V. "Neural biomarkers of mood in the human mesolimbic network" *Society for Neuroscience (SFN)*, [Chicago, USA], 2015 [link](#)
7. **Luongo, F.**, Horn, M., and Sohal, V.S. "Changes in prefrontal microcircuit organization increase repetitive network activity in two mouse models of autism" *AREADNE: Research in encoding and decoding of neural ensembles*, [Santorini, Greece], 2014. [link](#)
8. **Luongo, F.**, Horn, M., and Sohal, V.S. "Changes in prefrontal microcircuit organization increase repetitive network activity in two mouse models of autism" *COSYNE*, [Salt Lake City, Utah], 2014. [link](#)

#### FUNDING

Burroughs Wellcome Fund PDEP award	2018-2021
Arnold O. Beckman Postdoctoral Fellowship (Accepted)	2017-2019
Della Martin Postdoctoral Fellowship (Awarded)	2017
National Institute of General Medicine IMSD predoctoral fellow	2010-2013

RELEVANT COURSEWORK	Methods in computational neuroscience, Bayesian inference, Machine Learning Summer School (MLSS), Linear algebra, Multi-variable calculus, Statistics	
TECHNIQUES AND SOFTWARE SKILLS	Techniques: 2-photon calcium imaging, electrophysiology, Optogenetics, calcium imaging, micro-endoscope imaging, histology, cloning, drosophila genetics  Programming languages python, MATLAB, unix, git, bash	
REFERENCES	<p>Doris Y. Tsao Professor of Biology; Investigator, HHMI Biology and Biological Engineering California Institute of Technology</p> <p>Vikaas S. Sohal Associate Professor Department of Psychiatry University of California, San Francisco</p> <p>Michael P. Stryker W.F. Ganong Professor of Physiology Department of Physiology University of California, San Francisco</p>	<p>Phone: (415) 502-7377 E-mail: <a href="mailto:doristsao@caltech.edu">doristsao@caltech.edu</a></p> <p>Phone: (415) 502-7377 E-mail: <a href="mailto:vikaas.sohal@ucsf.edu">vikaas.sohal@ucsf.edu</a></p> <p>Phone: (415) 502-7380 E-mail: <a href="mailto:stryker@ucsf.edu">stryker@ucsf.edu</a></p>