## Francisco J. Luongo


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| Contact Information | 1200 E. California blvd. (MC 216-76)<br>Pasadena, CA 91125 | 415-707-9095<br>fluongo@caltech.edu |


**Education**

**University of California, San Francisco**, San Francisco, CA

Ph.D., Neuroscience, December 2015

- Thesis Topic: *Information processing and computation in prefrontal microcircuits*
- Thesis Advisor: VIkaas S. Sohal, M.D., Ph.D

**Stanford University**, Palo Alto, CA

B.S., Biology, May 2008

**Current Position**

**Postdoctoral Fellow** — January 2016 to present
California Institute of Technology
Supervisor: Doris Y. Tsao, Ph.D

**Research Interests**

neural computation, cortical microcircuits, neural networks, network analysis, calcium imaging, ECoG time-series analysis, scientific computing

**Past Research Experience**

**Doctoral Student** — June 2011 to December 2015
University of California San Francisco
Supervisor: VIkaas S. Sohal, M.D., Ph.D

**Research Assistant** — July 2008 to Aug 2010
Stanford University
Supervisor: Thomas Clandinin, Ph.D

**Undergraduate Researcher** — Dec 2006 to June 2008
Stanford University
Supervisor: Liqun Luo, Ph.D

**Publications**

1. **Luongo, F.**, 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." *Journal of Neurophysiology*, *In Press* 2016 *link*
2. **Luongo, F.**, Horn, M., and Sohal, V.S. "Putative microcircuit-level substrates for attention are disrupted in mouse models of autism." *Biological Psychiatry*, Apr 15;79(8):667-75. 2016 *link*
3. 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*, 4;32(14):4959–4971, 2012. *link*
4. 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*, 8(3):231–237, 2011. *link*

**Invited 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.**, 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*

2. Otero L., **Luongo F.**, Gonzalez E., Ganoza C,, Hinostroza G., Seas C., and Gotuzzo E. "High rate of TB among household contacts of multidrug-resistant tuberculosis (MDR-TB) index cases in a high incidence district of Lima, Peru." *Centenary Meeting of the Royal Society of Tropical Medicine and Hygiene* [London, UK], 2007

3. **Luongo F.**, Cui B., and Han K. "High Strength/ High Conductivty copper by pulsed electrodeposition." *International Symposium of Crystalline Organic Materials.* [Key West, FL], 2005

## Papers in Preparation

1. **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."

2. Ellwood, I., **Luongo, F.**, and Sohal, V.S. "Changes in criticality associated with the modulation of prefrontal microcircuits by dopamine."

## Awards

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| Arnold O. Beckman Postdoctoral Fellowship (Accepted) | 2016-2019 |
| Della Martin Postdoctoral Fellowship (Declined) | 2016 |
| National Institute of General Medicine IMSD predoctoral fellow | 2010-2013 |
| National Hispanic Scholar | 2004 |
| National Merit Scholar | 2004 |

## References

Doris Y. Tsao
Professor of Biology; Investigator, HHMI
Biology and Biological Engineering
California Institute of Technology
Phone: (415) 502-7377
E-mail: doristsao@caltech.edu

Vikaas S. Sohal
Associate Professor
Department of Psychiatry
University of California, San Francisco
Phone: (415) 502-7377
E-mail: vikaas.sohal@ucsf.edu

Michael P. Stryker
W.F. Ganong Professor of Physiology
Department of Physiology
University of California, San Francisco
Phone: (415) 502-7380
E-mail: stryker@ucsf.edu

## Techniques and Software Skills

Techniques:
Optogenetics, calcium imaging, single-cell electrophysiology, micro-endoscope imaging, histology, cloning, drosophila genetics

Computer Programming:
python, Matlab, bash, unix, Git