

# Stanford

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## Daniel J O'Shea

Postdoctoral Research Fellow, Electrical Engineering

### Bio

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#### BIO

I am currently pursuing a PhD in Neuroscience with Krishna Shenoy in the Neural Prosthetics Systems lab. I am interested the neural basis of movement and motor feedback control. Towards this end, I am engaged in collaborative research employing multielectrode array recordings, optogenetic and electrical stimulation, haptic feedback devices, and high dimensional modeling of population dynamics.

#### HONORS AND AWARDS

- Graduate Research Fellowship, National Science Foundation (2009-2012)
- Stanford Graduate Fellowship, Stanford University (2009-2014)
- NSF IGERT Research Fellowship, Stanford Center for Mind, Brain, and Computation (2012-present)

#### PROFESSIONAL EDUCATION

- Doctor of Philosophy, Stanford University , NEURS-PHD (2017)
- Bachelor of Elec Engineering, Princeton University , Electrical Engineering (2009)

### Publications

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#### PUBLICATIONS

- **Accurate Estimation of Neural Population Dynamics without Spike Sorting.** *Neuron*  
Trautmann, E. M., Stavisky, S. D., Lahiri, S., Ames, K. C., Kaufman, M. T., O'Shea, D. J., Vyas, S., Sun, X., Ryu, S. I., Ganguli, S., Shenoy, K. V.  
2019
- **Inferring single-trial neural population dynamics using sequential auto-encoders** *NATURE METHODS*  
Pandarinath, C., O'Shea, D. J., Collins, J., Jozefowicz, R., Stavisky, S. D., Kao, J. C., Trautmann, E. M., Kaufman, M. T., Ryu, S. I., Hochberg, L. R., Henderson, J. M., Shenoy, K. V., Abbott, et al  
2018; 15 (10): 805+
- **Development of an optogenetic toolkit for neural circuit dissection in squirrel monkeys** *SCIENTIFIC REPORTS*  
O'Shea, D. J., Kalanithi, P., Ferenczi, E. A., Hsueh, B., Chandrasekaran, C., Goo, W., Diester, I., Ramakrishnan, C., Kaufman, M. T., Ryu, S. I., Yeom, K. W., Deisseroth, K., Shenoy, et al  
2018; 8: 6775
- **ERAASR: an algorithm for removing electrical stimulation artifacts from multielectrode array recordings** *JOURNAL OF NEURAL ENGINEERING*  
O'Shea, D. J., Shenoy, K. V.  
2018; 15 (2): 026020
- **The need for calcium imaging in nonhuman primates: New motor neuroscience and brain-machine interfaces** *EXPERIMENTAL NEUROLOGY*  
O'Shea, D. J., Trautmann, E., Chandrasekaran, C., Stavisky, S., Kao, J. C., Sahani, M., Ryu, S., Deisseroth, K., Shenoy, K. V.  
2017; 287: 437-451
- **The need for calcium imaging in nonhuman primates: New motor neuroscience and brain-machine interfaces.** *Experimental neurology*  
O'Shea, D. J., Trautmann, E., Chandrasekaran, C., Stavisky, S., Kao, J. C., Sahani, M., Ryu, S., Deisseroth, K., Shenoy, K. V.  
2016

- **The Importance of Planning in Motor Learning.** *Neuron*

O'Shea, D. J., Shenoy, K. V.

2016; 92 (4): 669–71

- **A coaxial optrode as multifunction write-read probe for optogenetic studies in non-human primates.** *Journal of neuroscience methods*

Ozden, I., Wang, J., Lu, Y., May, T., Lee, J., Goo, W., O'Shea, D. J., Kalanithi, P., Diester, I., Diagne, M., Deisseroth, K., Shenoy, K. V., Nurmikko, et al  
2013; 219 (1): 142-154

- **Principles for applying optogenetic tools derived from direct comparative analysis of microbial opsins.** *Nature methods*

Mattis, J., Tye, K. M., Ferenczi, E. A., Ramakrishnan, C., O'Shea, D. J., Prakash, R., Gunaydin, L. A., Hyun, M., Fenno, L. E., Gradinaru, V., Yizhar, O., Deisseroth, K.

2012; 9 (2): 159-172

- **Principles for applying optogenetic tools derived from direct comparative analysis of microbial opsins** *NATURE METHODS*

Mattis, J., Tye, K. M., Ferenczi, E. A., Ramakrishnan, C., O'Shea, D. J., Prakash, R., Gunaydin, L. A., Hyun, M., Fenno, L. E., Gradinaru, V., Yizhar, O., Deisseroth, K.

2012; 9 (2): 159-172

- **Neocortical excitation/inhibition balance in information processing and social dysfunction** *NATURE*

Yizhar, O., Fenno, L. E., Prigge, M., Schneider, F., Davidson, T. J., O'Shea, D. J., Sohal, V. S., Goshen, I., Finkelstein, J., Paz, J. T., Stehfest, K., Fudim, R., Ramakrishnan, et al

2011; 477 (7363): 171-178