Stanford



Stephen Clarke

Basic Life Research Scientist

Bioengineering

Curriculum Vitae available Online

Bio

BIO

Stephen E. Clarke, PhD, is a postdoctoral scholar in the Brain Interfacing Lab, Department of Bioengineering. He obtained a BSc in Mathematics from the University of New Brunswick, and a PhD in Neuroscience from the University of Ottawa. His research draws on combined experimental and computational expertise to explore neuronal information processing on multiple scales, and across species. His long-term research goals involve application of closed-loop brain machine interface technologies as a platform for neurorehabilitation and repair in motor and cognitive systems, leveraging both insights from basic neuroscience and exciting new implant technologies.

Research Interests: Sensory and Motor Systems Neuroscience, Computational Neuroscience, Cellular and Molecular Neuroscience, Applied Mathematics, Neurorehabilitation and Repair.

ACADEMIC APPOINTMENTS

• Basic Life Research Scientist, Bioengineering

LINKS

• Google Scholar: https://scholar.google.com/citations?user=7g0rJEwAAAAJ&hl=en

Publications

PUBLICATIONS

- Cellular and network mechanisms may generate sparse coding of sequential object encounters in hippocampal-like circuits. *eNeuro* Trinh, A. T., Clarke, S. E., Harvey-Girard, E. n., Maler, L. n. 2019
- Analog Signaling With the "Digital" Molecular Switch CaMKII FRONTIERS IN COMPUTATIONAL NEUROSCIENCE Clarke, S. E. 2018: 12
- Feedback Synthesizes Neural Codes for Motion CURRENT BIOLOGY Clarke, S. E., Maler, L.

2017; 27 (9): 1356-61

- Balanced ionotropic receptor dynamics support signal estimation via voltage-dependent membrane noise JOURNAL OF NEUROPHYSIOLOGY Marcoux, C. M., Clarke, S. E., Nesse, W. H., Longtin, A., Maler, L. 2016; 115 (1): 530–45
- Contrast coding in the electrosensory system: parallels with visual computation NATURE REVIEWS NEUROSCIENCE

Clarke, S. E., Longtin, A., Maler, L. 2015; 16 (12): 733–44

- The neural dynamics of sensory focus *NATURE COMMUNICATIONS* Clarke, S. E., Longtin, A., Maler, L. 2015; 6: 8764
- A Neural Code for Looming and Receding Motion Is Distributed over a Population of Electrosensory ON and OFF Contrast Cells *JOURNAL OF* NEUROSCIENCE

Clarke, S. E., Longtin, A., Maler, L. 2014; 34 (16): 5583–94

• Calcium influx through N-type channels and activation of SK and TRP-like channels regulates tonic firing of neurons in rat paraventricular thalamus JOURNAL OF NEUROPHYSIOLOGY

Wong, A. C., Borduas, J., Clarke, S., Lee, K. H., Beique, J., Bergeron, R. 2013; 110 (10): 2450–64

• Speed-invariant encoding of looming object distance requires power law spike rate adaptation *PROCEEDINGS OF THE NATIONAL ACADEMY OF* SCIENCES OF THE UNITED STATES OF AMERICA

Clarke, S. E., Naud, R., Longtin, A., Maler, L. 2013; 110 (33): 13624–29