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

- **Material Damage to Multielectrode Arrays after Electrolytic Lesioning is in the Noise.** *bioRxiv : the preprint server for biology*
  Tor, A., Clarke, S. E., Bray, I. E., Nuyujukian, P.
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- **Neuroelectrophysiology-compatible electrolytic lesioning.** *eLife*
  Bray, I. E., Clarke, S. E., Casey, K. M., Nuyujukian, P.
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- **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.
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- **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.
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- **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.
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- **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. Y. C., Borduas, J., Clarke, S., Lee, K. F. 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.
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