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

- **Signatures of Covert Neuron Loss in the Local Field Potential of Motor Cortex.** *Journal of the American Heart Association*
  Marshall, K., Clarke, S. E., Bray, I. E., Ryu, S. I., Nuyujukian, P.
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- **Material damage to multielectrode arrays after electrolytic lesioning is insignificant.** *eLife*
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- **Material damage to multielectrode arrays after electrolytic lesioning is insignificant** *ELIFE*
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- **Compression detects changes in spiking neural data from cortical lesions.** *Journal of neural engineering*
  Tor, A., Wu, Y., Clarke, S. E., Yamada, L., Weissman, T., Nuyujukian, P.
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- **Stiefel Manifold Dynamical Systems for Tracking Representational Drift.** *bioRxiv : the preprint server for biology*

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- **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*
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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.
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- **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.
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- **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.
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- **Contrast coding in the electrosensory system: parallels with visual computation** *NATURE REVIEWS NEUROSCIENCE*
  Clarke, S. E., Longtin, A., Maler, L.
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- **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. 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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