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Education

- 2021 – **Ph.D. Neuroscience, University of Western Ontario**
Thesis title: *In Silico and In Vitro understanding of local network control of hypothalamic signalling.*
- 2019 – 2021 **M.Sc. Neuroscience, University of Western Ontario**
Thesis title: *The role of inflammation in stress signalling & hypothalamic plasticity.*
- 2014 – 2019 **B.Sc. Hons. Science, Carleton University** in Neuroscience with Minor in Psychology.
Thesis title: *Effects of various early life psychological stressors on plasticity in the rat hippocampus.*

Research Publications

Thesis

- 1 **S. Mestern**, “Examining the role of chloride homeostasis and PGE₂ signaling in the neuroendocrine stress response to inflammation,” Masters Thesis, The University of Western Ontario (Canada), Aug. 31, 2021.

Journal Articles

- 1 A. Ichiyama, **S. Mestern**, G. B. Benigno, K. E. Scott, B. L. Allman, L. Muller, and W. Inoue, “State-dependent activity dynamics of hypothalamic stress effector neurons,” *eLife*, vol. 11, J. A. Kauer, J. R. Huguenard, A. Yamanaka, and J. S. Bains, Eds., e76832, Jun. 30, 2022, Publisher: eLife Sciences Publications, Ltd, ISSN: 2050-084X. [DOI: 10.7554/eLife.76832](https://doi.org/10.7554/eLife.76832). (visited on 05/28/2023).

Presentations






- 1 **S. Mestern** and W. Inoue, “Optimal transport-based domain adaptation for alignment of intracellular electrophysiology datasets,” Presentation, Presentation, Neuroscience Research Day, Online, Feb. 21, 2022.
- 2 **S. Mestern**, G. Benigno, A. Ichiyama, W. Inoue, and L. Muller, “A neuron-to-network-to-neuron computational model of state-dependent computation in the hypothalamus,” OCNS*2021, Online, Jul. 3, 2021.
- 3 **S. Mestern**, S. Ghazal, F. Alam, T. Beaudette, N. Zeidan, and W. Johnson, “First nations communities and the debilitating impact from natural disasters,” Presentation, Presentation, PHACutally Speaking Seminars, Public Health Canada, Ottawa, Ontario, Mar. 4, 2019.

Posters

- 1 **S. Mestern**, W. Inoue, and L. Muller, “Characterizing the spiking activity of neuroendocrine stress circuit using dynamic clamp,” Poster, Poster, OCNS*2021, Leipzig, Germany, Jul. 16, 2023.
- 2 M. Feyerabend, S. Pommer, M. Jimenez-Sosa, J. Rachel, J. Sunstrum, F. Preuss, **S. Mestern**, S. Matovic, *et al.*, “Characterizing neuronal diversity in intrinsic membrane properties across non-human primate species and cortical areas,” Poster, Poster, SFN 2022, San Diego, Nov. 14, 2022.
- 3 M. Jimenez-Sosa, M. Feyerabend, E. S. Kuebler, J. K. Sunstrum, **S. Mestern**, S. Matovic, M. Wiederman, P. Truschow, *et al.*, “Electrophysiological and morphological characterization of non-human primate fast spiking neurons across cortical areas,” Poster, Poster, SFN 2022, San Diego, Nov. 14, 2022.



- 4 **S. Mestern**, A. Ichiyama, and I. Wataru, “State-dependent computation in a neuron-to-network model of the paraventricular hypothalamus,” Poster, Poster, Hypothalamus GRC, Ventura California, Jul. 27, 2022.
- 5 **S. Mestern** and W. Inoue, “Optimal transport-based domain adaptation for alignment of intracellular electrophysiology datasets,” Poster, Poster, SFN 2022, San Diego, Nov. 14, 2022.
- 6 **S. Mestern** and W. Inoue, “Prostaglandin e2 alters intracellular chloride homeostasis to drive neuroendocrine stress response to immune challenges,” Poster, Poster, CAN-ACN 2021, Online, Aug. 24, 2021.
- 7 J. K. Sunstrum, **S. Mestern**, R. Przy, S. Everling, J. Martinez-Trujillo, and W. Inoue, “Divergent electrophysiological and morphological properties of hypothalamic paraventricular nucleus neurons between the common marmoset and the mouse,” Poster, Poster, CAN-ACN 2021, Online, Aug. 23, 2021.

Awards





- 2023-2024  **Ontario Graduate Scholarship**, University of Western Ontario. **Proposal:** Probing Recurrent Inhibition of the Neuroendocrine Stress Circuit Using *In Vitro*, *in Silico*, *In Vivo* Techniques. **Amount:** \$15,000
- 2022-2023  **Ontario Graduate Scholarship**, University of Western Ontario. **Proposal:** Understanding Recurrent Inhibition of the Neuroendocrine Stress Circuit. **Amount:** \$15,000
- 2020 - 2022  **CONP Scholars Award for Open Science**, University of Western Ontario. **Proposal:** I-MT Primate Cell Type Database. **Amount:** \$15,000 / yr
- 2018 - 2020  **Deans Honour List**, Carleton University.
- 2016  **George Fierheller Scholarship**, Carleton University. **Amount:** \$3,000

Misc.


Science Outreach

- 2022-2023  **Editor Producer** - Society of Neuroscience Graduate Students (SONGS) Outreach Committee - *Edited and produced video content presenting essential neuroscience content for undergrads.*
- 2019-2023  **Contributing Writer** – Dorsal Column, Society of Neuroscience Graduate Students (SONGS) - *Wrote several articles aimed at distilling primary research for a lay audience.*



Scientific Software

- 2021  **sNMO** - A parameter tuning framework for building neuron models from biological data. *Open source under MIT licence*
-  **pyCEDFS** - Software to open and manipulate CFS files (Created by CED patch-clamp software) in python. Also allows conversion to the open science neuroscience without borders (NWB) format. *Open source under MIT licence*
- 2020  **I-MT Primate Cell Type Database** - Contributing back-end developer for The I-MT Primate Cell Type Database. Built the data dashboard for the intracellular table.
- 2019  **pyAPisolation** - Python program to automatically extract & analyze action potentials from intracellular electrophysiological time series data. *Open source under MIT licence*

Hackathons

- 2022  **NeuroDataReHack** - Seattle, Washington - Application-based Invite-only hackathon at the Allen institute. *Project: Optimal Transport-Based Alignment of DANDISETS.*

Misc. (continued)

- 2021  **Neuroscience Without Borders - DANDI 2021** - Online - Project: CFS to NWB conversion component of pyCEDFS.
- 2020  **BrainHack Ontario** - Online - Project: pyAPisolation GUI and data visualization module.