

Samuel Schmidgall

Robotic Learning @ GMU & NRL | sschmidg@gmu.edu |  Google Scholar (click me)

Research Areas

Robotic Learning, Reinforcement Learning, Meta-learning, Online Learning, Neuromorphic Computing

Professional Experience

Intel

Research Intern

San Jose, CA

beginning May 2023

- Developing auto-differentiation library for the learning engine on Intel's Neuromorphic Chip Loihi.

Generally Intelligent

Research Fellow

San Francisco, CA

beginning December 2022

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U.S. Naval Research Laboratory

Computer Scientist

Washington, D.C.

since June 2021

- asdgsgfd

Undergraduate Research Intern

May 2019 – May 2021

- asdgsgfd

George Mason University

Graduate Research Assistant, Maryam Parsa

Fairfax, VA

since Aug 2022

- Research in brain-inspired artificial intelligence on neuromorphic systems for robotic learning applications.
- *Coursework Highlights:* CS685 Autonomous Robotics, CS896 Research in Robotic Learning, ECE527 Learning from Data, ECE528 Introduction to Random Processes

Mason Experimental Geometry Laboratory

Undergraduate Research Assistant, Matthew Holzer

Fairfax, VA

January 2020 – May 2020

Undergraduate Research Assistant, Anton Lukyanenko & Damoon Soudbakhsh

August 2018 – May 2019

Gartner

Data Science Intern

Arlington, VA

May 2018 – March 2019

Asymmetriq

Software Engineering Intern

Marshall, VA

May 2017 – May 2018

Education

George Mason University

PhD in Electrical and Computer Engineering

Fairfax, VA

since August 2022

Bachelor of Science in Computer Science

August 2017- May 2021

Publications

Journal

- **Schmidgall, S.**, Hays, J., (2023). Toward a Robotic Motor Cortex. *Frontiers in Neurorobotics (Under Review)*.
- **Schmidgall, S.**, Maryam, P., Dannenberg, H., (2023). Brain-inspired learning in artificial neural networks. *Nature Machine Intelligence (Under Review)*.
- **Schmidgall, S.**, Hays, J. (2022). Learning to Learn Online with Neuromodulated Synaptic Plasticity in Spiking Neural Networks. *Neural Networks. (Under Review)*.
- Holzer, M., Richey, Z., Rush, W., **Schmidgall, S.**, (2022). Locked fronts in a discrete time discrete space population model. *Journal of Mathematical Biology*.
- **Schmidgall, S.**, Ashkanazy, J., Lawson, W., Hays, J, (2021). SpikePropamine: Differentiable Plasticity in Spiking Neural Networks. *Frontiers in Neurorobotics*.

Conference

- **Schmidgall, S.**, Risi, S., (2023). A neural structure that supports rapid learning for robotic locomotion. *The 2023 Genetic and Evolutionary Computation Conference (GECCO). (Under Review)*.
- **Schmidgall, S.**, Parsa, M., (2022). *lava-spikepropamine*: A lava-based library for learning with synaptic plasticity in spiking neural networks. *Neuro-Inspired Computational Elements (NICE). (Under Review)*.

- **Schmidgall, S.**, Parsa, M., (2022). Biological connectomes as a representation for the architecture of artificial neural networks. *International Conference on Learning Representations (ICLR)*. (Under Review).
- **Schmidgall, S.**, Hays, J., (2022). Stable Lifelong Learning: Spiking neurons as a solution to instability in plastic neural networks. *Neuro-Inspired Computational Elements (NICE)*.
- Lukyanenko, A., Camphire, H., Austin, A., **Schmidgall, S.**, Soudbakhsh, D., (2021). Optimal Localized Trajectory Planning of Multiple Non-holonomic Vehicles. *5th Conference on Control Technology and Applications (CCTA)*.
- **Schmidgall, S.** (2021). Self-constructing Neural Networks through Random Mutation. *International Conference on Learning Representations (ICLR)*.
- **Schmidgall, S.**, (2020). Adaptive Reinforcement Learning through Evolving Self-Modifying Neural Networks. *The 2020 Genetic and Evolutionary Computation Conference (GECCO)*.

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Activities and Awards

- **2022 Alan Berman Research Publication Award** for paper *SpikePropamine: Differentiable Plasticity in Spiking Neural Networks*.
- **Invited reviewer** at the NSF "Brain-Inspired Dynamics for Engineering Energy-Efficient Circuits and Artificial Intelligence" Program.
- **Reviewer editor** for *Neural Networks*
- **Invited speaker** at the Intel Labs INRC Spring 2022 Continual Learning Workshop
- **Invited speaker** at the Spring 2022 Naval Applications of Machine Learning (NAML) Oral Presentation
- **Best Poster Award** MEGL Symposium Poster Presentation Spring 2020
- **Best Poster Award** Joint Mathematics Meeting Conference Spring 2019