

# Nicholas Miklaucic

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## Education

**University of South Carolina**, Columbia, SC

Aug. 2023

**Ph. D Student.**, Computer Science—GPA 4.00/4.00

**Northeastern University**, Boston, MA

Sep. 2019–May 2023

**B.S.**, *magna cum laude*, Data Science & Behavioral Neuroscience—GPA 3.75/4.00

## Technical Knowledge

*Languages* Python, Rust, Java, R, Javascript, SQL, C++, Haskell, Emacs Lisp

*Libraries* PyTorch, JAX, TensorFlow, Pyro, NumPy, Pandas, Xarray, SciPy

*Software* Git, Jupyter, Linux, LaTeX, Tableau, Excel, Slurm

## Professional Experience

**Machine Learning and Evolution Laboratory, University of South Carolina**

Jul. 2023–Present

*Graduate Researcher*

- Pioneer new architectures for equivariant deep learning applied to crystal generation
- Present papers to lab meeting
- Develop/maintain a [GitHub repo](#) (7K+ lines of code) implementing/extending SOTA algorithms from the ground up in JAX, research on which I am preparing manuscript (to submit as first author)
- Second author on submitted manuscript currently under revision applying robust learning algorithms to out-of-distribution data for more accurate crystal property prediction

**Generalizable Robotics and Artificial Intelligence Laboratory, Northeastern University**

Oct. 2021–Apr. 2023

*Undergraduate Researcher*

- Develop reinforcement learning agents that use natural language to achieve SOTA performance
- Train neural networks for multimodal learning using PyTorch and TensorFlow

**Skyhawk Therapeutics**

Jul. 2021–Dec. 2021

*Co-op Student Intern*

- Created and developed PyTorch machine learning pipeline to correct artifacts of experimental genomics data
- Built bespoke, interactive web dashboards using Python and Javascript to visualize output analyses
- Thoroughly reviewed existing bioinformatics literature to implement and improve on existing algorithms

## Publications

- Kopec, M., Magnani, M., Ricks, V., Torosyan, R., Basl, J., **Miklaucic, N.**, Muzny, F., Sandler, R., Wilson, C., Wisniewski-Jensen, A., Lundgren, C., Baylon, R., Mills, K., & Wells, M (2023). The Effectiveness of Embedded Values Analysis Modules in Computer Science Education: An Empirical Study. *Big Data & Society* (accepted for publication) <https://doi.org/10.48550/arXiv.2208.05453>
- Swire-Thompson, B., **Miklaucic, N.**, Wihbey, J. P., Lazer, D., & DeGutis, J. (2022). The backfire effect after correcting misinformation is strongly associated with reliability. *Journal of experimental psychology. General*, 151(7), 1655–1665. <https://doi.org/10.1037/xge0001131>

## Projects

Eins | [github.com/nicholas-miklaucic/eins](https://github.com/nicholas-miklaucic/eins)

Mar. 2024–Present

- Conceive and implement an extended set of Einstein operations (einops) for machine learning
- Generalize most machine learning operations under one command with readable axis names

Constellate | [github.com/constellate-org/constellate](https://github.com/constellate-org/constellate) | [rho.vercel.app](https://rho.vercel.app)

Dec. 2021–Present

- Build open-source web publishing platform for Jupyter notebooks using React, Python (8000 lines of code)
- Write essays on various topics, including [using AI language models to understand gendered names](#)
- Fashion a cohesive design system for web, Matplotlib, Bokeh, Vega with comprehensive dark mode support

Homework Help Discord Bot | [github.com/nicholas-miklaucic/serene-nano](https://github.com/nicholas-miklaucic/serene-nano)

May 2021–Present

- As server administrator, architect Discord bot in Rust for volunteer tutoring server with over 1000 members
- Automatically translate non-English text, allocate karma to incentivize contribution