

Nicholas Miklaucic

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Education

University of South Carolina, Columbia, SC

Aug. 2023

Ph.D., Computer Science

Northeastern University, Boston, MA

Sep. 2019–May 2023

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

Technical Knowledge

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| <i>Languages</i> | Python, Rust, Java, R, Javascript, SQL, C++, Haskell, Bash, Emacs Lisp |
| <i>Libraries</i> | PyTorch, TensorFlow, Pyro, NumPy, Pandas, Xarray, SciPy |
| <i>Software</i> | Git, Jupyter, Linux, LaTeX, Tableau, Excel |

Professional Experience

Machine Learning and Evolution Laboratory, University of South Carolina

Jul. 2023–Present

Graduate Researcher

- Develop and improve existing crystal structure prediction algorithms
- Use deep learning, symmetry, and Bayesian optimization to accelerate crystal structure generation
- Develop diffusion models that achieve *de novo* generation without expensive DFT calculation

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

- Kopeck, 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

AI Spell | github.com/nicholas-miklaucic/aispell-app

Mar. 2023–Present

- Build software using language and keyboard modeling to intelligently spell check documents
- Implement latest language models in Rust to determine user intent (2500 lines of code)

Constellate | github.com/constellate-org/constellate | 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

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