Nicholas Miklaucic

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Education

University of South Carolina, Columbia, SC — Aug. 2023
Ph.D Student., 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

Languages	Python, Rust, Java, R, Javascript, SQL, C++, Haskell, Bash, Emacs Lisp
Libraries	PyTorch, TensorFlow, Pyro, NumPy, Pandas, Xarray, SciPy
Software	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 Javascrip 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

AISpell | 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