DANIEL J. SALIB

Bethlehem, PA | DanielJSalib@gmail.com | 610-393-6322 | github.com/DanJSal | linkedin.com/in/daniel-salib-3b9b38441

PROFESSIONAL SUMMARY

Computational scientist and Python software developer with a PhD in Physics and five years of experience building numerical algorithms, statistical models, and research software from scratch. Develops end-to-end workflows for simulation, quantitative analysis, testing, and reproducible results; published an open-source statistical modeling package on PyPI. Drawn to problems that combine mathematical analysis with computational implementation, such as modeling and simulation and algorithm development.

TECHNICAL SKILLS

Programming: Python, Cython; SQL

Scientific & statistical computing: NumPy, SciPy, pandas; simulation, statistical inference, data visualization

Mathematical methods: mathematical modeling, numerical analysis, numerical linear algebra, numerical optimization

Machine learning: PyTorch; some TensorFlow and Keras

Software & computing: pytest, Git/GitHub, GitHub Actions, Linux, SLURM/HPC clusters, joblib, HDF5, SQLite; Python packaging

EXPERIENCE

Graduate Researcher | Lehigh University | Bethlehem, PA • Oct 2021–Aug 2026

- Developed computational models, numerical algorithms, and Python code studying how disorder, defects, and fractal lattices affect electronic properties of topological materials; led coding for sole- and shared-first-author publications.
- Wrote research software from scratch on general numerical libraries rather than existing physics packages, producing tools reused across projects; wrote and debugged code for other group members and worked with outside collaborators.
- Designed parameter sweeps and randomized simulations, analyzed model sensitivity and numerical behavior, and ran parallelized computational workloads on Linux HPC clusters using SLURM.
- Built research data workflows spanning parallel execution, structured storage, processing, and quantitative analysis using Python, NumPy/SciPy, pandas, HDF5, and SQLite, with an emphasis on accuracy, efficiency, and reproducibility.
- Applied statistical modeling, regression, data visualization, and neural-network classification to scientific datasets; explored deep learning for image-like numerical arrays.
- Authored and coauthored five peer-reviewed journal articles and presented findings in a national scientific conference setting.

Graduate Teaching Assistant | Lehigh University | Bethlehem, PA • Aug 2021–Jan 2023

- Led undergraduate physics recitation sessions, presented course material, and guided students through example problems; developed and administered quizzes, graded coursework and exams, and gave students feedback.

SELECTED SOFTWARE PROJECT

Gibbus 0.2.0 | Open-Source Statistical Modeling Library | 2026

github.com/DanJSal/gibbus • pypi.org/project/gibbus/0.2.0/

- Designed and published Gibbus 0.2.0, an open-source Python package for maximum-likelihood modeling of smooth, univariate, log-concave probability distributions, including multimodal mixtures with automatic component selection, bounded variables, and censored data.
- Fits a single smooth analytic density directly instead of a piecewise or post-smoothed estimate; verifies every fit is log-concave everywhere and supports tail-decay control, keeping probabilities and quantiles accurate far into the tails.
- Implemented numerical fitting and evaluation methods using Python, Cython (for performance-critical code), NumPy, and SciPy; developed diagnostics, uncertainty estimates, and accuracy-focused tests for numerical edge cases.
- Built a documented public API, versioned model persistence, automated pytest checks, and cross-platform (Linux, Windows, macOS) build/release workflows using GitHub Actions.

EDUCATION

Lehigh University | PhD in Physics | 2026

Moravian University (formerly Moravian College) | Bachelor's degree in Physics; minor in Mathematics | 2021

Northampton Community College | Associate's degree in Mathematics | 2019