Jackson Walters

Arlington, VA | 703-915-6542 | jacksonwalters@gmail.com
https://jacksonwalters.com | https://github.com/walters-labs | https://github.com/jacksonwalters

Scientific software developer with a PhD in Mathematics, peer-reviewed research in top-tier journals, and hands-on Python/Rust experience spanning numerical algorithms, optimization, and post-quantum cryptography.

Technical Skills

Programming: Python, Rust, C, C++, SQL
ML and Data: pandas, NumPy, SciPy, scikit-learn, PyTorch, TensorFlow, NLP, statistical modeling, optimization
Scientific Computing: SageMath, Mathematica, MATLAB, finite fields, Fourier analysis, numerical methods, Jupyter
Cryptography: lattice-based cryptography, ring-LWE, module-LWE, ML-KEM, NTT, AES, FIPS 203
Tools and Communication: Git, GitHub, Unix/Linux, PostgreSQL, Gurobi, technical writing, teaching, public speaking

Work Experience

Adjunct Faculty, Mathematics *Jun 2026 – Present*
Northern Virginia Community College Alexandria, VA

– Teach Precalculus I, including course preparation, instruction, assessment, and student support.

Cryptography Fellow *Nov 2024 – May 2025*
Zaiku Group, Ltd. Remote (based in Liverpool, UK)

– Applied lattice-based methods to post-quantum cryptography through the Homotopic Minds math-to-industry program; implemented ring-LWE, module-LWE, NTT, and ML-KEM primitives in Rust with reference to FIPS 203.
– Published four documented Rust crates to crates.io: `ring-lwe`, `module-lwe`, `ntt`, and `mlkem-fips203`.
– Delivered public technical talks and authored technical posts on lattice-based cryptography (blog, talk).

QA Engineer *Oct 2020 – Jan 2021*
Power Auctions, LLC Washington, DC

– Helped validate and harden the backup MILP solver for FCC Auction 107's combinatorial assignment phase, which added approximately $252M to the record-setting $81.2B 5G spectrum auction.
– Designed extreme-value bid simulations that exposed numerical-stability issues; coordinated debugging and CI regression tests.
– Authored white paper on floating-point limitations in optimization software and proposed mitigations for solver reliability.

Teaching Fellow *Aug 2013 – May 2019*
Boston University Boston, MA

– Taught undergraduate mathematics and led discussion sections; presented research internationally and mentored undergraduate machine-learning research.

Publications

Advances in Mathematics | Vol. 386 (2021), 107799. *Toroidal prefactorization algebras associated to holomorphic fibrations and a relationship to vertex algebras.* *Aug 2021*
Annals of Statistics | Vol. 48, No. 1 (2020), 514–538. *Averages of Unlabeled Networks: Geometric Characterization and Asymptotic Behavior.* *Feb 2020*
Preprint | *Edge-Span Chern Algebras of Graphical Configuration Spaces.* Submitted to *Algebraic Combinatorics*. arXiv:2607.29483 *Jul 2026*
Preprint | *The Unitary and Modular DFT of the Symmetric Group.* Submitted to *Journal of Algebraic Combinatorics*. arXiv:2404.05796; implementations merged into SageMath (pull requests #38455 and #37757). *Apr 2024*

Education

Doctor of Philosophy in Mathematics *May 2019*
Boston University

Bachelor of Science in Mathematics and Physics; Minor in Computer Science *May 2013*
Virginia Tech