

JACKSON WALTERS

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<https://jacksonwalters.com> | <https://github.com/walters-labs> | <https://github.com/jacksonwalters>

Applied mathematician and scientific software developer with a PhD in Mathematics, peer-reviewed publications in top-tier journals, and hands-on Rust/Python work in post-quantum cryptography and numerical algorithms.

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

Northern Virginia Community College

Jun 2026 – Present

Alexandria, VA

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

Founder

Walters Consulting LLC

Nov 2022 – Present

Arlington, VA

- Authored a 2024 symmetric-group Fourier analysis preprint (arXiv:2404.05796); developed related implementations merged into SageMath (pull requests #38455 and #37757).

Cryptography Fellow

Zaiku Group, Ltd.

Nov 2024 – May 2025

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

Power Auctions, LLC

Oct 2020 – Jan 2021

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

Boston University

Aug 2013 – May 2019

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 | *The Unitary and Modular DFT of the Symmetric Group.* Submitted to *Journal of Algebraic Combinatorics*.
arXiv:2404.05796

Apr 2024

EDUCATION

Doctor of Philosophy in Mathematics

Boston University

May 2019

Bachelor of Science in Mathematics and Physics; Minor in Computer Science

Virginia Tech

May 2013