Jess Woods

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EDUCATION

PhD in Computer and Information Science, CETLI Teaching Certificate 2020 – 2025 [anticipated]
University of Pennsylvania

MSE in Computer and Information Science 2023
University of Pennsylvania

BS in Computer Science & BA in Studio Art, *Highest Distinction* 2019
University of North Carolina at Chapel Hill

Associate in Arts, *Highest Honors* 2015
Isothermal Community College, Spindale, NC

TEACHING

Undergraduate Cryptography Research, Graduate Mentor, UPenn Spring 2024, Fall 2024
Guided 3 undergraduates through research process; all contributed significantly to ongoing research,
Taught applicable cryptography principles one-on-one, Advised on an undergraduate thesis

College Algebra, Volunteer Instructor, Prison Teaching Initiative, Princeton, NJ Fall 2024
Taught class of ∼20 incarcerated community college students, Coordinated with a team of rotating instructors

Intermediate Java, Instructor, Heights, Philadelphia, PA Summer 2021, Summer 2024
Lectured on intermediate Java principles and ran live coding demos for class of ∼15 high school students
Implemented daily coding assignments, Tailored individual final projects to student interests

Computer and Network Security, Head Teaching Assistant, UPenn Fall 2021 – Fall 2023
Lectured on *Probability*, *One Time Pads*, *Entropy*, and exam review to class of ∼80 students,
Taught both undergraduates and non-traditional adult master's students,
Proctored exams, Held weekly office hours, Developed autograders, Supervised TA team

Discrete Mathematics, Teaching Assistant, UNC Chapel Hill Fall 2018 – Spring 2019
Lectured on *Intro to Proofs*, *Induction*, and *Set Theory* to class of ∼200 undergraduates,
Led weekly recitations, Handled grading

Remedial K-12 Mathematics, Instructor, RWA Center, Chapel Hill, NC Apr 2018 – Aug 2018
Taught *Grade 3 Math*, *Pre-Algebra*, *Algebra I*, *Advanced Functions & Modeling* to small groups,
Tutored students one-on-one when necessary, Supervised students in classroom and on field trips

SKILLS

Programming Languages	Rust, C, C++, Java, Python, WebAssembly, x86 Assembly, Coq, Haskell, Julia, Verilog, Dafny, FORTRAN, HTML, CSS, JavaScript, TypeScript
Software Tools & Systems	Vim, Git, Bash, GDB, Ghidra, LaTeX, Linux, Codio, Canvas, Gradescope, Piazza, Ed Discussion
Open Source Contributions	Nova, Circ

RESEARCH

Graduate Research Assistant, Security and Privacy Laboratory Aug 2020 – Present
University of Pennsylvania, Philadelphia, PA

Thesis	Efficient Arithmetization of Real-world Programs for Zero Knowledge Arguments
Advisor	Prof. Sebastian Angel
Research Area	applied cryptography, computer security, programming languages

Graduate Research Intern, Center for Cyber Defenders May 2022 – Sep 2023
Sandia National Laboratories, Albuquerque, NM

Research Intern, Advanced CS Research & Center for Molecular Biophysics Jun 2019 – Jul 2020
Oak Ridge National Laboratory, Oak Ridge, TN

AWARDS

Thunderbird Kudos Award, Sandia National Laboratories 2022
Teaching Assistant Award for Excellence, University of Pennsylvania 2021
Best Ignite Speaker, Oak Ridge National Lab 2019
James M. Johnston Scholar, UNC Chapel Hill 2015 – 2019

PUBLICATIONS

Reef: Fast Succinct Non-Interactive Zero-Knowledge Regex Proofs
with* S. Angel, E. Ioannidis, E. Margolin, S. Setty. *USENIX Security*, 2024

Flamingo: Multi-Round Single-Server Secure Aggregation with Applications to Private Federated Learning
Y. Ma, J. Woods, S. Angel, A. Polychroniadou, T. Rabin. *S&P (Oakland)*, 2023

Efficient Representation of Numerical Optimization Problems for SNARKs
with* S. Angel, A. Blumberg, E. Ioannidis. *USENIX Security*, 2022

OpenMDlr: Parallel, Open-source Tools for General Protein Structure Modeling and Refinement from Pairwise Distances
R. Davidson, J. Woods, T. Effler, M. Thavappiragasam, J. Mitchell, J. Parks, A. Sedova. *Bioinformatics*, 2022

Modeling protein structures from predicted contacts with modern molecular dynamics potentials: accuracy, sensitivity, and refinement
R. Davidson, M. Thavappiragasam, T. Effler, J. Woods, D. Elias, J. Parks, A. Sedova. *ACM-BCB*, 2021

*authors ordered alphabetically

SELECTED MISC WORK

Computer Security Consultant, EcoGather, VT — Jul 2023, Jul 2024

Earthbag House Construction, Belen, NM — Mar 2024

Visual artist: oil painting, screenprinting, murals, photography, zine-making — 2015 – Present
Hundreds of prints/paintings sold, Permanent collections in NYC, Durham NC

Barber, Pop-Up Barbershop, NC & One Stop Shop, NM — 2016 – Present

Drumline Instructor, Polk County High School, NC — Jul 2015 – Dec 2016