# Jess Woods

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## EDUCATION

**Ph.D. Student in Computer and Information Science** — Aug 2020 – Present
University of Pennsylvania

**B.S. in Computer Science & B.A. in Studio Art**, *Highest Distinction* — Aug 2015 – May 2019
University of North Carolina at Chapel Hill — GPA: 3.9

## RESEARCH

**Graduate Research Assistant, Distributed Systems Laboratory** — Aug 2020 – Present
University of Pennsylvania

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| *Current Project* | Compilation of optimization algorithms for zero-knowledge proofs |
| *Advisor* | Prof. Sebastian Angel |
| *Research Area* | cryptography, security, programming languages |

**Post Baccalaureate Research Intern**
Oak Ridge National Laboratory, TN

- **Computer Science Research Group** — Aug 2019 – Jul 2020

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| *Project* | Programming models for fully homomorphic encryption on a supercomputer |
| *Advisor* | Dr. Oscar Hernandez |
| *Focus* | cryptography, parallel programming, programming languages & models |

- **Center for Molecular Biophysics** — Jun 2019 – Aug 2019

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| *Project* | Fast open source protein folding |
| *Advisor* | Dr. Ada Sedova |
| *Focus* | molecular dynamics codes, high performance computing |

### PUBLICATIONS

"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*, Aug 2021.

### WORKSHOP

J. Woods, M. Baker, M. Thavappiragasam, A. Sedova, O. Hernandez, V. Sarkar, "Using Python for Improved Productivity in HPC and Data Science Applications: the Time is Now," in *Collegeville Workshop*, Apr 2020.

### TALKS

"Performance and portability of abstract algebra operations in C++, Python, and Julia," *P3HPC*, Sep 2020.

"Parallelization of Fully Homomorphic Data Encoding," *Oak Ridge National Laboratory Ignite Talks*, Dec 2019

## SKILLS

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| **Programming Languages** | C, C++, Java, Python, Coq, Haskell, Julia, Verilog, Assembly/MIPS FORTRAN, JavaScript, HTML, CSS, TypeScript |
| **Software Tools & Systems** | Git, Bash, LaTeX, Linux, OpenMP, MPI, CUDA |

## TEACHING

**Teaching Assistant, Computer and Network Security**, UPenn — Aug 2021 – Dec 2021
Lectured on *Probability*, *One Time Pads*, held office hours

**Master Teacher, High School Java**, Steppingstone Scholars, Philadelphia, PA — Jun 2021 – Aug 2021
Solo Instructor, Supervised team of 20 other instructors, lead curriculum creation

**Teaching Assistant, Discrete Mathematics**, UNC — Aug 2018 – May 2019
Led weekly recitations, solo lectures on *Intro to Proofs*, *Induction*, and *Set Theory*

**Solo Instructor, K-12 Math**, Reading Writing Arithmetic Center, NC — Apr 2018 – Aug 2018
Taught *Grade 3 Math*, *Pre-Algebra*, *Algebra I*, *Advanced Functions & Modeling*

**MISC WORK**

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

**Barber**, Pop-Up Barbershop, NC — 2016 – 2019

**Beekeeper**, Carolina Beekeeping Club, NC — 2016 – 2018

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

**House painter**, Elite Shutters and Blinds, NC — 2015

**Construction, carpenter, landscaper, (picture) framer**, Booth Framing Arts, NC — 2014 – 2015

**AWARDS**

**Best Ignite Speaker**, Oak Ridge National Lab — 2019

**Best Student Abstract**, Oak Ridge National Lab — 2019

**James M. Johnston Scholar**, UNC Chapel Hill — 2015 – 2019
Full-tuition academic merit scholarship

**Jonathon E. Sharpe Award, Kachergis Award**, UNC Chapel Hill — 2017 – 2018