# **Jess Woods**

woodsjk@seas.upenn.edu ♦ https://jkwoods.github.io/

**EDUCATION B.S. in Computer Science & B.A. in Studio Art,** Highest Distinction

Aug 2015 – May 2019

University of North Carolina at Chapel Hill

RESEARCH Graduate Research Assistant, Distributed Systems Laboratory

Aug 2020 - Present

University of Pennsylvania, Philadelphia, PA

Current Project Verifiable outsourcing of optimizations

Advisor Prof. Sebastian Angel

Research Area cryptography, security, programming languages

### **Post Baccalaureate Research Intern**

Oak Ridge National Laboratory, Oak Ridge, TN

Computer Science Research Group

Aug 2019 – Jul 2020

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

Project Fast open source protein folding Advisor Dr. Ada Sedova

Focus molecular dynamics codes, high performance computing

#### **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 2020.

## **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.

#### IN PROGRESS MANUSCRIPT

R. Davidson, J. Woods, C. Effler, J. Ossyra, J. Mitchell, R. Cottingham Jr, A. Sedova, "OpenFold: A fast and accurate program for restrained protein folding on CPUs and GPUs.," 2021.

SKILLS Programming Languages C, C++, Java, Python, Coq, Haskell, Julia, Verilog, Assembly/MIPS

FORTRAN, JavaScript, HTML, CSS, TypeScript

Software Tools & Systems Git, Bash, LaTeX, Linux, Windows, MacOS, OpenMP, MPI, CUDA,

OpenMM, PyMol, VMD, AmberTools

Miscellaneous Adobe Photoshop/Premiere/After Effects, digital drawing & animation,

digital camera use

# **TEACHING** Teaching Assistant, Discrete Mathematics

Aug 2018 – May 2019

Computer Science Department, UNC Chapel Hill

- Outlined lesson plans for & led weekly recitations
- Solo lecturer to class of 200+ on Set Theory, Mathematical Proofs, and Induction

## Solo Instructor, K-12 Math

Apr 2018 – Aug 2018

Reading Writing Arithmetic Center, Chapel Hill, NC

- Taught Grade 3 Math, Pre-Algebra, Algebra I, Advanced Functions & Modeling
- Kept students ages 8-17 motivated, organized, and safe in the classroom and on field trips

WORK House painter, mural artist, (picture) framer, photographer Visual artist (oil painting, screenprinting, zine-making)

Hundred of prints/paintings sold, exhibited nationally, part of permanent collections in Durham NC, Brooklyn NY

Barber Beekeeper

Drummer, drumline instructor

Construction, carpenter, forester, landscaper

**AWARDS** Fall Ignite Talk Winner, Oak Ridge National Lab 2019

Best Student Abstract, Oak Ridge National Lab2019Dean's List, UNC Chapel Hill2015 – 2019James M. Johnston Scholar, UNC Chapel Hill2015 – 2019

Full-tuition academic merit scholarship

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

Visual art awards