DAVID BREWSTER

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EDUCATION

University of Illinois at Urbana-Champaign — *exp.* Spring 2021
B.S. Computer Science — *Dean's List*
B.S. Mathematics

CONCENTRATIONS

Randomized Algorithms • Probabilistic Analysis • Biological Computation

RESEARCH EXPERIENCE

- **ICLUE @ UIUC** — *Algebraic Combinatorics* — *UIUC* — Summer 2020
- **Biological Computation Group** — *Protein Folding Approximation Algorithms* — *UIUC* — Spring 2020
- **Supercomputing Genomics Group** — *DNNs for Cancer Drug Predictions* — *Institute for Genomic Biology* [1] — Spring 2017

PAPERS

- David Brewster, Reuven Hodges, and Alexander Yong, *Proper permutations, schubert geometry, and randomness*, 2020, preprint, arXiv: 2012.09749

TEACHING

- **Intro to Algorithms & Models of Computation (CS 374)** — *Course Assistant* — *UIUC* — Fall 2020
- **Software Design Studio (CS 126)** — *Senior Course Assistant* — *UIUC* — Fall 2017 - Spring 2020
- **Honors Intro to Computer Science (CS 196)** — *Homework Writer* — *UIUC* — Fall 2017
- **New Horizons GSST STEM Camp: Web Design** — *Instructor* — *TNCC* — Summer 2016

PROFESSIONAL EXPERIENCE

- **Citadel Securities** — *SWE Intern, Options Market Making* — *New York, NY* — Summer 2019
- **Citadel** — *SWE Intern, Global Quantitative Strategies* — *Chicago, IL* — Fall 2018
- **Two Sigma IQ** — *SWE Intern, Data Engineering* — *New York, NY* — Summer 2018
- **Microsoft** — *SWE Intern, Azure Compute* — *Redmond, WA* — Spring 2018
- **Google** — *SWE/SRE Intern, Zipit (Reviews)* — *New York, NY* — Summer 2017

MEMBERSHIPS

- **Blacks and African Americans in Computing (BAAC @ Illinois)** — Member
- **National Society of Black Engineers (NSBE) - UIUC Chapter** — Member
- **Illinois Programming League (IPL)** — team placed 13th out of ~ 100 at 2017 Mid-Central Regional ACM-ICPC

PROGRAMMING SITES

- **Project Euler** — *Computational Mathematics* — 150+ problems solved
- **Rosalind** — *Computational Biology* — 60+ problems solved

CODE SAMPLES (ON GITHUB)

- **Random Projections** — *Approximation Algorithms for Large Matrices* — Python/NumPy
- **NLNum** — *Littlewood-Richardson coefficients and Newell-Littlewood numbers calculator* — C++/Python
- **Quasi-key Tableaux** — *Quasi-key Tableaux Calculator* — Python/TypeScript/React
- **Pong** — *Multi-threaded Pong Reinforcement Learning Environment* — C++/Python
- **Falling Blocks** — *Deep Reinforcement Learning with Hyper-NEAT* — JavaScript/React
- **Symbolic Computation** — *Parser + Lexer for Arithmetic Expressions from scratch* — F#
- **GDAX** — *Wrapper for Websocket connection to GDAX Crypto Exchange w/ Online Linear Regression* — Golang

TOOLS

Programming Languages	C/C++, Python, TypeScript, F#, Java, Golang, Sage, J (APL Dialect)
Frameworks	NumPy, Torch, Node.js, React, Tensorflow
Other Tools	AWS, Bazel, CMake, GCP, OpenMP, OR-Tools, PyBind

[1]In collaboration with Argonne National Laboratories