SHAWN ONG

CONTACT INFO

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ABOUT ME

I am a PhD Candidate in the Center for Applied Math at Cornell University. My research involves looking at connections between particular logical structures (formal languages) and models of computation (automata), though I am broadly interested in theoretical computer science, especially problems involving logic.

EDUCATION

DOCTOR OF PHILOSOPHY — 2018-present

Cornell University | *Ithaca, New York*

- Major in Applied Mathematics
- Minors in Mathematics and Computer Science
- Advised by Dexter Kozen
- Expected Graduation May 2025

MASTER OF SCIENCES — 2018-2022

Cornell University | *Ithaca, New York*

- Major in Applied Mathematics
- Thesis proposal topic: "Review Systems and Probabilistic Automata"

MASTER OF ARTS — 2016-2018

University of Pennsylvania | *Philadelphia, Pennsylvania*

- Major in Mathematics
- Thesis topic: "On the Complexity of Lunar Lockout"

BACHELOR OF ARTS — 2014-2018

University of Pennsylvania | *Philadelphia, Pennsylvania*

- Majors in Mathematics; Computer Science; and Logic, Information, and Computation
- Graduated with *summa cum laude*

TEACHING

ALGORITHMIC GAME THEORY (CS 6840) — Fall 2024
Cornell University | *Ithaca, New York*

ALGORITHMS (CS 6820) — Fall 2023
Cornell University | *Ithaca, New York*

CRYPTOGRAPHY (CS 4830/5830) — Spring 2023
Cornell University | *Ithaca, New York*

MULTIVARIABLE CALCULUS FOR ENGINEERS (MATH 1920) — Fall 2022
Cornell University | *Ithaca, New York*

- Head TA

INTROUCTION TO PYTHON (CS 1110) — Fall 2018-Spring 2019, Spring 2022
Cornell University | *Ithaca, New York*

CALCULUS FOR ENGINEERS (MATH 1910) — Fall 2021
Cornell University | *Ithaca, New York*

DECISION THEORY (ECON 6760/CS 5846) — Spring 2021
Cornell University | *Ithaca, New York*

REASONING ABOUT UNCERTAINTY (CS 6766) — Fall 2019
Cornell University | *Ithaca, New York*

MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE (CIS 160) — Spring 2016 - Spring 2018
University of Pennsylvania | *Philadelphia, Pennsylvania*

CHEMISTRY — Fall 2013 - Spring 2014
Douglas County High School | *Castle Rock, Colorado*

EXPERIENCE

SOFTWARE ENGINEERING INTERN — 2017
Dish Network | *Littleton, Colorado*

- Reworked menu search features, moving from C to SQL for cloud storage

SOFTWARE ENGINEERING INTERN — 2014
Echostar Corporation | *Englewood, Colorado*

- Developed UI for set-top boxes

ACTIVITIES

Awards

- Cornell CS Teaching Award, Spring 2022
- Max Mintz Undergraduate TA Hall of Fame, 2018
- Phi Beta Kappa, 2018
- William Lowell Putnam Math Competition Top 500, 2016
- Pincus-Magaziner Family Undergraduate Research and Travel Grant, 2016
- Penn Undergraduate Research Mentoring Grant, 2015
- Dean's List, Fall 2015 - Spring 2018
- Benjamin Franklin Scholar, 2014-2018

Programs

- Academic Excellence Workshops content liason
- SIAM student member
- Cornell Mathematics Teaching Seminar
- Cornell CAM Anti-racist Reading Group
- William Lowell Putnam Math Competition Team (Penn)
- Research Peer Advisor, Penn CURF
- Peer Advisor, Penn College Office
- Integrated Studies Program

PUBLICATIONS

Articles

S. Ong, S. Ma and D. Kozen (2024). "Probability and Angelic Nondeterminism with Multiset Semantics". In: *arXiv Preprint*. DOI: 10.48550/arxiv:2412.06754. URL: https://arxiv.org/abs/2412.06754.

S. Ong, S. Ma and D. Kozen (2025). "Equivalences for Probabilistic Multiset Automata". In: *In preparation*.

TALKS

PROBABILITY AND ANGELIC NONDETERMINISM WITH MULTISET SEMANTICS 2025
Elmhurst University – Elmhurst, IL

PROBABILITY AND ANGELIC NONDETERMINISM WITH MULTISET SEMANTICS 2024
Grinnell College – Grinnell, IA

PROBABILISTIC KLEENE ALGEBRA 2024
Cornell University – Ithaca, New York

PROMOTING CREATIVE REASONING VIA GOOD QUESTIONS 2022
Cornell University – Ithaca, New York

- with G. Nair

REVIEW SYSTEMS AND PROBABILISTIC AUTOMATA 2022
Cornell University – Ithaca, New York

MAPPING THE VOWEL SPACE 2016
University of Pennsylvania – Philadelphia, PA

MAPPING THE VOWEL SPACE 2015
University of Pennsylvania – Philadelphia, PA

SKILLS

● ● ●	LaTeX, Python, Java, Microsoft Office, Gradescope
● ● ○	C, MATLAB, SQL, Qualtrics
● ○ ○	Javascript, Coq, OCaml, Assembly

Languages

- English (native)
- Mandarin (basic)
- German (basic)