

Devora Chait-Roth

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EDUCATION

New York University, PhD in Computer Science
Advisor: Thomas Wies

Aug 2020 - Present
Overall GPA 3.828

Macaulay Honors College at Queens College, BA in Mathematics
Concentration in Computer Science

Aug 2016 - May 2020
Overall GPA 4.0

RESEARCH INTERESTS

Formal methods, automated reasoning, verification, logic, programming languages

RESEARCH EXPERIENCE

New York University and Nokia Bell Labs – Live updates to distributed systems

December 2023 –

With Thomas Wies and Kedar Namjoshi

Formalizing correctness for live updates to distributed systems.

Nokia Bell Labs – Constructing trustworthy smart contracts

March 2023 –

With Kedar Namjoshi

Developing a smart contract language designed for building trustworthy smart contracts through simple structure, abstract types, and formal verification.

New York University - Refinement proofs for probabilistic proofs

June 2021 – November 2022

With Thomas Wies and Michael Walfish

Developed Distiller, the first framework for proving soundness of frontend transformations in probabilistic proofs. Distiller relies on proving refinement between the program's original implementation, transformation, and formal specification. Distiller enables safety guarantees for outsourced computing and zero-knowledge proofs. Proofs for benchmarks were mechanized in Viper, a deductive verification tool.

PUBLICATIONS

Kunming Jiang, **Devora Chait-Roth**, Zachary DeStefano, Michael Walfish, and Thomas Wies, "Less is more: refinement proofs for probabilistic proofs." Proceedings of *IEEE Symposium on Security and Privacy (IEEE S&P)*, 2023.

Devora Chait-Roth, Alisa Cui, Zachary Stier. "A Taxonomy of Crystallographic Sphere Packings." *Journal of Number Theory*, Vol. 207, Feb 2020, pp. 196-246.

RELEVANT COURSEWORK

Computer Science: Honors Programming Languages, Distributed Systems, Honors Algorithms, Artificial Intelligence, Computer Graphics, Discrete Structures, Object-Oriented Programming

Mathematics: Modern Algebra, Real Analysis, Number Theory, Algebraic Topology, Topology, Linear Algebra, Probability and Statistics, Algebraic Structures, Discrete Mathematics, Dynamical Systems, Mathematical Physics, Calculus I, II, III, IV

HONORS AND AWARDS

- **Henry M. MacCracken Fellowship:** NYU, 2020-2026
- **Dean's Doctoral Fellowship:** NYU, 2020-2026
- **Intern Research Competition, First Place:** Nokia Bell Labs, 2023
- **Barry Goldwater Scholarship**, for research in mathematics: U.S. national merit scholarship, 2019
- **Thomas A. Budne Memorial Award**, for excellence in mathematics: Queens College, 2019
- **University Scholar**, full tuition merit scholarship: Macaulay Honors College at Queens College, 2016-2020

SKILLS

- OCaml, C++, Python
- Program verification: Viper
- Some familiarity with Lean, Coq, Prolog