DANIEL FELDAN

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Ph.D. candidate focused on formal methods and static verification, with a focus on abstract interpretations

EDUCATION

New York University: Courant Institute of Mathematical Sciences
Ph.D. Candidate in Computer Science: *GPA: 4.0* *Sept 2022- Present*
Master's in Computer Science (MSCS): *GPA 3.88* *Sept 2020- May 2022*

Yeshiva University: Yeshiva College- *Class of 2020* *Sept 2017- Sept 2020*
Dual Major- Computer Science and Mathematics: *GPA 3.61*

- *Schottenstein Honors Scholar*

WORK & RESEARCH EXPERIENCE

New York University, Department of Computer Science
Professor Patrick Cousot's Laboratory – RESEARCH
Doctoral Candidate, New York, NY *Jan 2023- Present*
Research focused on the synthesis of symbolic execution and abstract interpretations. The goal is to create a symbolic execution abstract domain that overapproximates a programs symbolic semantics to allow for its automatic static analysis.
Research Assistant, New York, NY *June 2021- Jan 2023*
Assisted in the DARPA Project "Securing Information for Encrypted Verification and Evaluation (SIEVE) to Enhance Zero-Knowledge Proofs". Applied the theory of Abstract Interpretations to unroll and optimize C programs in order to simplify their transformation into finite Boolean-arithmetic circuits. Research resulted in a master's thesis, Program Unrolling by Abstract Interpretation for Probabilistic Proofs

Learn Ventures – WEBSITE
Programming Consultant, New York, NY *June 2020- Jan 2021*
Developed back-end software for the modeling of macromolecules. Utilized the Rosetta Energy Function in order to improve the accuracy of a protein folding deep learning system.

Yeshiva University, Department of Physics
Professor Sergey V. Buldyrev's Laboratory – RESEARCH
Research Assistant, New York, NY *Sept 2019- Sept 2020*
Built on Professor Buldyrev's research on the catastrophic cascade of failures in interdependent (electrical) networks, and reviewed code utilized to analyze and minimize network failures in order to improve its performance and efficiency. Research resulted in an undergraduate thesis, Maximizing the Study of Cascading Failures in Synthetic Electrical Grids

Technion, Israel Institute of Technology, Department of Mechanical Engineering
Professor Steven H. Frankel's Laboratory – RESEARCH
Research Assistant, Haifa, Israel *Summer 2019*
Researched the application of neural networks to discretize partial differential equations for the usage of computational fluid dynamics. Focused on 2D Burgers' Equation with the goal of eventually discretizing the Navier-Stokes Equation.

OTHER EXPERIENCES

New York University, Department of Computer Science
Section Leader, Grader, and Tutor *2021- Present*
Teach weekly recitations, hold office hours, and assist in the grading of assignments for undergraduate, master's and Ph.D. courses. Courses include Honor's Programming Languages (Grader), Programming Languages (Section Leader, Tutor), Abstract Interpretations (Grader), and Fundamentals of Algorithms (Section Leader)

International Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI)
Artifact Evaluator Fall 2024
Assisted in the testing and evaluation of artifacts and experiments associated with papers submitted to the VMCAI 2025 conference.

RELEVANT COURSEWORK

Programming Languages, Abstract Interpretations, Separation Logic, Honors Algorithms, Artificial Intelligence, Database Systems, Applied Cryptography & Network Security

SKILLS

OCaml, Python, C, C++, Abstract Interpretations, Rocq