SURENDRA GHENTIYALA

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EDUCATION

Cornell University *Aug 2022-Present*
Ph.D. in Computer Science
Advisor: Noah Stephens-Davidowitz
Research Focus: Theoretical Computer Science
Overall GPA: 4.00

University of California, Santa Barbara *Sep 2019-Dec 2021*
B.S in Computer Science *cum laude*
Advisor: Tevfik Bultan
Overall GPA: 3.85

De Anza College *2017-2019*
4 dual enrollment courses as high school student
Overall GPA: 4.00

RESEARCH EXPERIENCE

Cornell University Aug 2022-Present
Graduate Research *Ithaca, NY*

- Extended classic lattice algorithms (BKZ, slide reduction) to linear codes
- Extended several new algorithms for codes from $\mathbb{F}_2$ to arbitrary finite fields
- Defined new TFNP subclasses corresponding to hash functions and studied their computational complexity
- Provided partial resolution to problem regarding collision resistant hash function that has been open since 2017
- Ongoing project on interactive coding theory and and the power of early termination in interactive protocols

Early Research Scholars Program, UCSB Sep 2020 - May 2021
undergraduate research *Santa Barbara, CA*

- Built an extension to the KLEE symbolic execution engine to compute information leakage
- Improved algorithm to compute information leakage upper bound from unbounded runtime to $O(n \log(n))$ (four orders of magnitude improvement in empirical runtime)
- Improved $O(n^3 2^n)$ time algorithm to compute information leakage lower bound to $O(n2^n)$ (one order of magnitude improvement in empirical runtime)
- Formulated and solved optimization problems capturing uncertainty of information leakage under incomplete path coverage and approximate model counts
- Delivered weekly status updates to Verification Lab

PAPERS

Obtaining Information Leakage Bounds via Approximate Model Counting
Seemanta Saha*, **Surendra Ghentiyala***, Shihua Lu, Lucas Bang, Tevfik Bultan
Programming Language Design and Implementation (PLDI), 2023
(*equal contribution)

TALKS

TFNP and Multicollisions
Cornell Theory Tea, 2023

Obtaining Information Leakage Bounds via Approximate Model Counting
Programming Language Design and Implementation (PLDI), 2023

Quantitative Program Analysis with KLEE
Early Research Scholars Program, 2021

TEACHING EXPERIENCE

Graduate Teaching Assistant, Cornell University Aug 2022-May 2023

- CS 4700/5700 Foundations of Artificial Intelligence
- CS 4120/5120 Introduction to Compilers

AWARDS & ACHIEVEMENTS

Dean's List Sep 2019-Dec 2021

- 6/7 Trimester's at University of California, Santa Barbara

United States Computing Olympiad Gold Division 2018

- 2nd highest division

PROFESSIONAL SERVICE

Subreviewer May 2023

- FOCS (2023)

Graduate Student Recruitment for Outreach Events Aug 2023 - Present

- For Association of Computer Science (ACSU) research night
- For informational panel on applying to graduate school

Research Night Sep 2023

- Presented cryptography research to undergraduate students interested in computer science research

SKILLS

Programming Languages	C++, Haskell, Java, Python
Languages	English, Hindi, Marwari, Spanish (conversational), German (elementary)