

PRADYUMNA SHOME

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EDUCATION

Georgia Institute of Technology

Doctor of Philosophy - PhD, Computer Science, College of Computing

Atlanta, Georgia, USA

August 2022 – May 2028

Georgia Institute of Technology

Master of Science - MS, Computer Science, College of Computing

Atlanta, Georgia, USA

August 2022 – December 2024

University of Illinois at Urbana-Champaign

Bachelor of Science - BS, Computer Science, Grainger College of Engineering

Champaign-Urbana, Illinois, USA

August 2017 – May 2021

Advisor: Christopher W. Fletcher

National Public School, HSR Layout

All India Senior Secondary Certificate (High School Diploma), Science with Computer Science

Bangalore, Karnataka, India

June 2009 – May 2017

AWARDS AND HONORS

- Pwnie Award for Best Cryptographic Attack, "GoFetch: Breaking Constant-Time Cryptographic Implementations Using Data-Memory Dependent Prefetchers" (2024)
- Community Engagement Award, School of Computer Science, Georgia Institute of Technology (2023)
- Best Paper, CS 7001 Conference on Graduate Studies in Computing at Georgia Institute of Technology, "SoK: Rowhammer in the Post-TRR Era" (2022)
- Intel Hardware Security Academic Award Honorable Mention (2022)
- IEEE Security & Privacy Symposium Shadow Program Committee Invitation (sole undergraduate among senior PhD students and postdoctoral researchers) (2021)
- Malwarebytes Cybersecurity Scholarship (2020)
- Illinois Engineering Achievement Scholarship, Grainger College of Engineering (2020)
- CS Outstanding Course Assistant Award (5 out of ~600) (2020)
- Kleiner Perkins Engineering Fellowship Finalist (2019)
- Forbes Under 30 Scholar (2019)
- Illinois Engineering Achievement Scholarship, Grainger College of Engineering (2019)
- Illinois Engineering Achievement Scholarship, Grainger College of Engineering (2018)
- Edmund J. James Scholar (2017)
- AP Scholar with Distinction, College Board (2017)

RESEARCH

Peer-Reviewed Conference Papers

- [C1] Boru Chen, Yingchen Wang, **Pradyumna Shome**, Christopher W. Fletcher, David Kohlbrenner, Riccardo Paccagnella, and Daniel Genkin. "GoFetch: Breaking Constant-Time Cryptographic Implementations Using Data Memory-Dependent Prefetchers". In: *USENIX Security*. 2024. Real World Cryptography Symposium 2024 Talk. Pwnie Award for Best Cryptographic Attack.
- [C2] Jose Rodrigo Sanchez Vicarte, **Pradyumna Shome**, Nandeeka Nayak, Caroline Trippel, Adam Morrison, David Kohlbrenner, and Christopher W. Fletcher. "Opening Pandora's Box: A Systematic Study of New Ways Microarchitecture Can Leak Private Data". In: *International Symposium on Computer Architecture*. 2021. Intel Hardware Security Academic Award Honorable Mention 2022.

Posters

- [P1] **Pradyumna Shome** and Miuyin Marie Yong Wong. "Poster: 'Learning Too Much About Me': On The Security and Privacy Concerns of Generative AI Chatbots". In: *Symposium on Usable Privacy and Security (SOUPS)*. 2024.

Other Papers

- [O1] **Pradyumna Shome**. *SoK: Rowhammer in the Post-TRR Era*. Won Best Paper at CS 7001 Conference on Graduate Studies in Computing at Georgia Institute of Technology. Dec. 2022.

Talks

- [T1] *Small World with High Risks: A Study of Security Threats in the npm Ecosystem*. Security Seminar, School of Cybersecurity and Privacy, Georgia Institute of Technology, Sept. 2022.
- [T2] *Prime+Probe 1, JavaScript 0: Overcoming Browser-based Side-Channel Defenses*. Clean Slate Processor Design Seminar, University of Illinois at Urbana-Champaign, May 2021.
- [T3] *Broadway: Scaling Programming Education Through a Distributed Autograding Framework*. Undergraduate Research Symposium, University of Illinois at Urbana-Champaign, Apr. 2020.
- [T4] *PRISM: Protections Impeding Side-channel Attacks in Microarchitecture*. Illinois Computer Science Research Experiences for Undergraduates (REU), Aug. 2020.

EXPERIENCE

Georgia Institute of Technology

Researcher

Atlanta, GA, USA

August 2022 – Present

- Hardware Security and Microarchitectural Side-Channel Attacks (August 2022 to December 2023)
 - * Advisor: Daniel Genkin
 - * Publications: [C1, O1]
- Human Factors in Computer Security and Privacy (January 2024 to Present)
 - * Publications: [P1]

Flashbots

Research Intern

Atlanta, GA, USA

May 2024 – August 2024

- Mentor: Andrew Miller
- Ethereum VM Side-Channel Security
- Blog posts:
 - * Crypto Crossroads: Reflections from an IC3 Summer Camp Rookie
 - * Intel TDX Security and Side Channels
 - * Closing the Intel TDX Page Fault Side Channel, or, The Case for TDExit-Notify

Georgia Institute of Technology Student Security Seminar

Founder and Organizer

Atlanta, GA, USA

September 2022 – December 2022

- A venue for students and faculty to present, learn about, and discuss cutting-edge security and privacy research papers published at leading academic conferences.

University of Illinois at Urbana-Champaign

Researcher

Champaign-Urbana, IL, USA

August 2019 – May 2021

- Advisor: Christopher W. Fletcher
- Research in hardware security and microarchitectural side-channel attacks
- Publications: [C2]

Meta (formerly Facebook)

Software Engineer, Messenger Growth

Menlo Park, CA, USA

September 2021 – August 2022

AxisMED

Sourcing and Outreach Liaison

Champaign-Urbana, IL, USA

August 2021 – May 2022

Meta (formerly Facebook)

Software Engineering Intern, Privacy Control Infrastructure, Privacy and Data Use Org

Seattle, WA, USA

September 2020 – December 2020

Salesforce

Software Engineering Intern, Records Experience, Platform Cloud

San Francisco, CA, USA

June 2019 – August 2019

Virtusa

Software Engineering / Data Science Intern, Media & Content Division

New York, NY, USA

July 2018 – August 2018

HackIllinois

Systems Staff

Urbana, IL, USA

April 2018 – February 2019

Reflections | Projections

Director, Web Team and Lead Web Developer

Urbana, IL, USA

January 2018 – September 2018

i2i Telesolutions & Telemedicine

Software Engineering Intern, Heartnet India

Bangalore, KA, India

May 2017 – June 2017

TEACHING

Georgia Institute of Technology

Teaching Assistant, CS 6262: Network Security

- Spring 2024 and Fall 2024

Atlanta, GA, USA

January 2024 – December 2024

Coding Together / Harvard University

Section Leader, CS 50: Intro to Computer Science

Cambridge, MA, USA

June 2020 – August 2020

Stanford University

Section Leader, CS 106A: Programming Methodologies

Stanford, CA, USA

April 2020 – June 2020

University of Illinois at Urbana-Champaign

Course Assistant / Lead Course Assistant

Urbana, IL, USA

August 2018 – May 2021

- Fall 2018 / Course Assistant, CS 233: Computer Architecture
- Spring 2019 through May 2021 / Course Assistant → Lead Course Assistant, CS 241: System Programming

VOLUNTEERING AND SERVICE

USENIX Security 2023

Artifact Evaluation Committee Member

Anaheim, CA, USA

September 2022 – August 2023

Wave Learning Festival

Fundraising Analyst

Palo Alto, CA, USA

September 2021 – April 2022

College ARCH

Fellowship Mentor

Urbana, IL, USA

July 2021 – August 2021

ACM SIGPLAN Symposium on Principles of Programming Languages

Volunteer

Urbana, IL, USA

September 2020 – May 2021

IEEE Symposium on Security & Privacy 2021

Shadow Program Committee Member (sole undergrad)

San Francisco, CA, USA

December 2020 – February 2021

Illinois Women in Computer Science Bits and Bytes Program

Mentor ("Byte")

Urbana, IL, USA

September 2020 – August 2022

Illinois CS Undergraduate Mentorship Program

Mentor

Urbana, IL, USA

May 2020 – Present

CS @ Illinois SAIL

Teacher

Urbana, IL, USA

March 2019

CS @ Illinois SAIL

Volunteer

Urbana, IL, USA

March 2018

Ashwini Charitable Trust

Web Development Volunteer

Bangalore, KA, India

May 2016 – July 2016

Last updated: March 29, 2024