PRADYUMNA SHOME

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EDUCATION

Georgia Institute of Technology   Atlanta, Georgia, USA
Doctor of Philosophy - PhD, Computer Science, College of Computing   *August 2022 – May 2028*

Georgia Institute of Technology   Atlanta, Georgia, USA
Master of Science - MS, Computer Science, College of Computing   *August 2022 – Dec 2024*

University of Illinois at Urbana-Champaign   Champaign-Urbana, Illinois, USA
Bachelor of Science - BS, Computer Science, Grainger College of Engineering   *August 2017 – May 2021*

Advisor: Prof. Christopher W. Fletcher

National Public School, HSR Layout   Bangalore, Karnataka, India
All India Senior Secondary Certificate (High School Diploma), Science with Computer Science   *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. "'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 — Atlanta, GA, USA
Researcher — *August 2022 – Present*

- Hardware Security and Microarchitectural Side-Channel Attacks (August 2022 to December 2023)
  * Papers: [C1, O1]

Flashbots — Atlanta, GA, USA
Research Intern — *May 2024 – August 2024*

- Ethereum VM Side-Channel Security

Georgia Institute of Technology Student Security Seminar — Atlanta, GA, USA
Founder and Organizer — *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 — Champaign-Urbana, IL, USA
Researcher — *August 2019 – May 2021*

- Advisor: Prof. Christopher W. Fletcher
- Research in hardware security and microarchitectural side-channel attacks
- Published top-tier conference paper [C2]

Meta (formerly Facebook) — Menlo Park, CA, USA
Software Engineer, Messenger Growth — *September 2021 – August 2022*

AxisMED — Champaign-Urbana, IL, USA
Sourcing and Outreach Liaison — *August 2021 – May 2022*

Meta (formerly Facebook) — Seattle, WA, USA
Software Engineering Intern, Privacy Control Infrastructure, Privacy and Data Use Org — *September 2020 – December 2020*

Salesforce — San Francisco, CA, USA
Software Engineering Intern, Records Experience, Platform Cloud — *June 2019 – August 2019*

Virtusa — New York, NY, USA
Software Engineering / Data Science Intern, Media & Content Division — *July 2018 – August 2018*

HackIllinois — Urbana, IL, USA
Systems Staff — *April 2018 – February 2019*

Reflections | Projections — Urbana, IL, USA
Director, Web Team and Lead Web Developer — *January 2018 – September 2018*

i2i Telesolutions & Telemedicine — Bangalore, KA, India
Software Engineering Intern, Heartnet India — *May 2017 – June 2017*

TEACHING

Coding Together / Harvard University — Cambridge, MA, USA
Section Leader, CS 50: Intro to Computer Science — *June 2020 – August 2020*

Stanford University — Stanford, CA, USA
Section Leader, CS 106A: Programming Methodologies — *April 2020 – June 2020*

University of Illinois at Urbana-Champaign   Urbana, IL, USA
Course Assistant / Lead Course Assistant   *August 2018 – May 2021*

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

Volunteering and Service

USENIX Security 2023   Anaheim, CA, USA
Artifact Evaluation Committee Member   *September 2022 – August 2023*

Wave Learning Festival   Palo Alto, CA, USA
Fundraising Analyst   *September 2021 – April 2022*

College ARCH   Urbana, IL, USA
Fellowship Mentor   *July 2021 – August 2021*

ACM SIGPLAN Symposium on Principles of Programming Languages   Urbana, IL, USA
Volunteer   *September 2020 – May 2021*

IEEE Symposium on Security & Privacy 2021   San Francisco, CA, USA
Shadow Program Committee Member (sole undergrad)   *December 2020 – February 2021*

Illinois Women in Computer Science Bits and Bytes Program   Urbana, IL, USA
Mentor ("Byte")   *September 2020 – August 2022*

Illinois CS Undergraduate Mentorship Program   Urbana, IL, USA
Mentor   *May 2020 – Present*

CS @ Illinois SAIL   Urbana, IL, USA
Teacher   *March 2019*

CS @ Illinois SAIL   Urbana, IL, USA
Volunteer   *March 2018*

Ashwini Charitable Trust   Bangalore, KA, India
Web Development Volunteer   *May 2016 – July 2016*

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