HARI VENUGOPALAN
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EDUCATION

University of California, Davis — Sep 2020-Present
Davis, California, USA — (Expected graduation: 2024/2025)
Doctor of Philosophy in Computer Science

University of California, Davis — Sep 2017-June 2020
Davis, California, USA
Master of Science in Computer Science

National Institute of Technology, Tiruchirappalli — Jul 2010-Aug 2014
Tiruchirappalli, Tamil Nadu, India
Bachelor of Technology in Production Engineering

OBJECTIVE

Impact-driven Ph.D. student in Computer Science, specializing in ML and systems research for security, seeking to work on combating fraud at PayPal for Summer 2024. Past experience in building software and publishing papers at top security conferences on overcoming card-not-present credit card fraud. Possessing diverse skills in ML, hardware security, privacy, etc., seeking to create impact in industry.

RESEARCH EXPERIENCE

Graduate Student Researcher, University of California, Davis — Sep 2018-Present
Davis, California, USA

- Conducted ML and mobile systems research on combating card-not-present credit card fraud.
- Credit card research led to the establishment of a startup that was acquired by Stripe in 2021.
- Led research to design a privacy enhancing system for mobile cameras to protect user privacy.
- Led research to extract device fingerprints from the bit flips produced by the Rowhammer vulnerability.
- Currently leading research to study adversarial fingerprints that abuse the blind-spots of bot detection.
- Currently leading research to exploit CPU frequency scaling as a power-side channel for fingerprinting.

ML Research Intern, Blue Hexagon Inc — Jun 2019-Sep 2019
Sunnyvale**,** California, USA

- Identified functionality-preserving mutations to Windows Portable Executables (PE files).
- Developed GAN to mutate malicious PE files based on identified mutations to evade detection.

Research Collaborator, University of Arizona — Jan 2015-May 2017
Remote

- Collaborated on face recognition research for graded authentication in mobile apps.
- Ran experiments using Haar-Cascades and Local Binary Pattern Histograms for face recognition.

PROFESSIONAL EXPERIENCE

Member of Technical Staff, Oracle India Private Limited — Jun 2014-Jul 2017
Bengaluru, Karnataka, India

- Developed analytics framework to periodically collect data on social network activity for Oracle Social Network (OSN).
- Implemented features for the web client of the same product.

TEACHING EXPERIENCE

Teaching Assistant, University of California, Davis — Various

Davis, California, USA

Handled discussions, held office hours, designed and graded programming assignments for undergraduate and graduate courses on Computer Security, Computer Networks, Object Oriented Programming, Distributed Database Systems and Programming Languages. (Full list on my website)

SELECTED PUBLICATIONS (Full list on my website)

Aragorn: A Privacy-Enhancing System for Mobile Cameras

Hari Venugopalan, Zainul Abi Din, Trevor Carpenter, Jason Lowe-Power, Samuel T. King and Zubair Shafiq
UbiComp 2024 (Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies)

Doing good by fighting fraud: Ethical anti-fraud systems for mobile payments

Zainul Abi Din, **Hari Venugopalan**, Henry Lin, Adam Wushensky, Steven Liu and Samuel T. King
IEEE Symposium on Security and Privacy 2021

Boxer: Preventing fraud by scanning credit cards

Zainul Abi Din, **Hari Venugopalan**, Jaime Park, Andy Li, Weisu Yin, Haohui Mai, Yong Jae Lee, Steven Liu and Samuel T. King
Usenix Security 2020

MultiLock: biometric-based graded authentication for mobile devices

Shravan Aras, Chris Gniady and **Hari Venugopalan**
MOBIQUITOUS: Mobile and Ubiquitous Systems 2019

FP-Hammer: Rowhammer-Based Device Fingerprinting

Hari Venugopalan, Kaustav Goswami, Zainul Abi Din, Jason Lowe-Power, Samuel T. King and Zubair Shafiq
In submission at Usenix Security 2024

Are bots in hiding? Exploring the blind spots of bot detection

Hari Venugopalan, Shaoor Munir, Tangbaihe Wang, Samuel T. King and Zubair Shafiq
(In progress)

CPU-Print: Power Side-Channels for device fingerprinting

Hari Venugopalan, Kaustav Goswami, Kartik Patwari, Ryan Swift, Chen-Nee Chuah, Jason Lowe-Power and Zubair Shafiq
(In progress)

TECHNICAL SKILLS

- Proficient in Python for scripting, data analysis, backend development, and machine learning.
- Proficient with diverse machine learning tools including pytorch, sktime, xgboost, sklearn etc.
- Proficient in Java and C++ for building mobile and desktop systems.
- Proficient in JavaScript for web measurement and development.
- Experience with SQL, particularly MySQL, PostgreSQL, and Oracle SQL.
- Experience with Swift for iOS development.

ACHIEVEMENTS AND AWARDS

- Awarded GGCS summer fellowship by the department of Computer Science at UC Davis in 2022.
- Ranked within the top 200 in India at the regional ACM-ICPC contest in 2013.
- Certified Competent Communicator and Advanced Leader Bronze by Toastmasters International.