

**HARI VENUGOPALAN**  
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## EDUCATION

**University of California, Davis** Sep 2017-Present (Expected graduation: Summer 2024)  
Davis, California, USA  
Master of Science/Doctor of Philosophy in Computer Science (GPA: 3.97/4.0)

**National Institute of Technology, Tiruchirappalli** Jul 2010-Aug 2014  
Tiruchirappalli, Tamil Nadu, India  
Bachelor of Technology in Production Engineering (GPA: 3.2/4.0)

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## RESEARCH INTERESTS

- Authentication and Anti-fraud systems.
  - Privacy enhancing technologies.
  - Hardware based fingerprinting.
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## RELEVANT EXPERIENCE

**Graduate Student Researcher, University of California, Davis** Sep 2018-Present  
Davis, California, USA  
*Applied ML and Systems research focusing on combating fraud and enhancing user-privacy.*

- Designed and implemented ML based security challenges on mobile to combat card-not-present credit card fraud.
- Designed and implemented a privacy enhancing system for mobile cameras to protect user privacy from untrusted apps.
- Currently working on employing the Rowhammer exploit to extract stable device fingerprints from the DRAM.
- Currently working on measuring the impact of anti-tracking technologies on bot detection.

**ML Research Intern, Blue Hexagon Inc** Jun 2019-Sep 2019  
Sunnyvale, California, USA  
*Research on adversarial techniques to mutate malware to evade antivirus engines*

- Identified mutations to Windows Portable Executables (PE files) that preserve their functionality.
- Developed feature vector based GAN to mutate malicious PE files based on identified mutations to evade detection by commercial Antivirus (AV) engines.

**Research Collaborator, University of Arizona** Jan 2015-May 2017  
*Collaborated on Facial Recognition research*

- Developed a face recognition system based on local binary patterns to provide graded authentication to users to access mobile apps.

**Member of Technical Staff, Oracle India Private Limited** Jun 2014-Jul 2017  
Bengaluru, Karnataka, India  
*Worked as software developer on the analytics team of Oracle Social Network(OSN).*

- Designed and developed a framework to periodically collect and compute analytics on enterprise social network activity.
- Designed features on the front-end in backbone.js for the webclient team of the same product.

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## SELECT PUBLICATIONS (Full list available on [my website](#))

### **Freqprint: CPU frequency fingerprinting**

Hari Venugopalan, Kartik Patwari, Brijesh Vora, Chen-Nee Chuah and Zubair Shafiq  
(In progress)

### **Etrigan: Can bots vanish under the cloak of Anti-Tracking?**

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

### **Centauri: A Practical Rowhammer Fingerprinting Attack**

Hari Venugopalan, Kaustav Goswami, Zainul Abi Din, Jason Lowe-Power, Samuel T. King and Zubair Shafiq  
(In review)

### **Aragorn: Enhancing User Privacy in Camera-based Apps**

Hari Venugopalan, Zainul Abi Din, Trevor Carpenter, Jason Lowe-Power, Zubair Shafiq and Samuel T. King  
(In review)

### **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*

### **Credit Card fraud is a Computer Security Problem**

Samuel T. King, Nolen Scaife, Patrick Traynor, Zainul Abi Din, Christian Peeters and Hari Venugopalan  
*IEEE Security and Privacy Magazine 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*

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## OTHER EXPERIENCE

### **Teaching Assistant, University of California, Davis**

Sep 2017-Jun 2018/Jan-2022

Davis, California, USA

*Handled discussions for undergraduate and graduate courses on computer security, object oriented programming, distributed database systems and programming languages.*

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## ACHIEVEMENTS AND AWARDS

- Awarded GGCS 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.
- Trained and certified by Oracle in J2SE, J2EE and PL/SQL.

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## REFERENCES

Samuel T. King  
Associate Professor of Computer Science

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University of California, Davis

Zubair Shafiq  
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