Department of Computer Science
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Yash Vekaria

Research Interests

Cybersecurity & Web Privacy; Web Tracking; Digital Advertising Ecosystem; Ad-fraud; Ad-targeting; Large-scale Internet Measurements; Online Misinformation; Applied Machine Learning.

Education

2021–Present	**Ph.D. in Computer Science** *3.98/4.00* University of California, Davis
2016–20	**B.Tech. in Computer Science** *9.04/10.00* The LNM Institute of Information Technology (LNMIIT), India.

Publications

IEEE S&P 2024 — **The Inventory is Dark and Full of Misinformation: Understanding the Abuse of Ad-Tech Supply Chain**
Yash Vekaria, Rishab Nithyanand, Zubair Shafiq
45th IEEE Symposium on Security & Privacy (Oakland), 2024
Acceptance rate: 17.8% (261/1463)

ACM IMC 2024 — **Watching TV with the Second-Party: A First Look at Automatic Content Recognition in Smart TVs**
Gianluca Anselmi*, **Yash Vekaria***, Alex D'Souza, Patricia Callejo, Anna Maria Mandalari, Zubair Shafiq (**joint first authors*)
24th ACM Internet Measurement Conference (IMC), 2024
Acceptance rate: 21.3% (54/253)

2024 — **Exploring Large-Scale Vulnerability Notifications to Improve Ad-Tech Supply Chain Security**
Yash Vekaria, Rishab Nithyanand, Zubair Shafiq
Under Submission, 2024

2024 — **Auditing the Compliance and Enforcement of Twitter's Advertising Policies**
Yash Vekaria, Zubair Shafiq, Savvas Zannettou
Under Submission, 2024

WebSci 2021 — **Differential Tracking Across Topical Webpages of Indian News Media**
Yash Vekaria*, Vibhor Agarwal*, Pushkal Agarwal, Sangeeta Mahapatra, Sakthi Balan Muthiah, Nishanth Sastry, Nicolas Kourtellis (**joint first authors*)
13th ACM Web Science Conference, 2021

ICWSM 2021 — **Under the Spotlight: Web Tracking in Indian Partisan News Websites**
Vibhor Agarwal*, **Yash Vekaria***, Pushkal Agarwal, Sangeeta Mahapatra, Sakthi Balan Muthiah, Nishanth Sastry, Nicolas Kourtellis (**joint first authors*)
15th International AAAI Conference on Web and Social Media (ICWSM), 2021
Acceptance rate: 22.4% (30/134)

RCIS 2021 — **A Metadata-based Event Detection Method using Temporal Herding Factor and Social Synchrony on Twitter Data**
Nirmal Kumar Sivaraman, Vibhor Agarwal, **Yash Vekaria**, Sakthi Balan Muthiah
15th International Conference on Research Challenges in Information Science (RCIS), 2021

Ongoing Research Projects

- Studying Cross-device Tracking and Ad Targeting in Smart TVs
- Towards Detecting and Blocking Privacy Invasive Pixel Tracking

Experiences

Sep 2021 – Present **University of California, Davis** **Davis, USA**
Research Assistant, *Breakerspace Lab*,
Advisor: Prof. Zubair Shafiq

Research focus is towards investigating and improving security, privacy, and transparency issues in the online tracking and advertising ecosystem through internet measurements.

Summer 2024 **Quantcast** **San Francisco, USA**
Software Engineering Intern, *Modeling Platform Infrastructure Team*

Developed an internal web-service to extract cookie-based and cookie-less audience segments and scoring them against Machine Learning models to understand effectiveness of ad targeting and conversion models.

Summer 2022 **Max Planck Institute für Informatics** **Saarbrücken, Germany**
Visiting Research Fellow, *Internet Architecture Group (INET)*,
Advisor: Prof. Savvas Zannettou

Research project aimed at detecting and studying the problematic advertising on Twitter to understand the compliance and violations of its advertising policies, problematic advertiser practices and effectiveness of Twitter's ad moderation strategies.

Jan 2020 – Aug 2021 **Innovaccer** **Noida, India**
Data Scientist

- Built *ML* and *DL* models and performed *statistical data analysis* on healthcare data to improve cost and harm minimization for patients (like reduction of unnecessary imaging).
- Worked on *healthcare data analytics*, dashboard building and data insights generation for 2 USA clientele ACO projects: *Orlando Health* (Florida) and *Dignity Health* (California).
- Developed *automations* to streamline repetitive tasks like converting measure definition JSON files to SQL queries.

Summer 2019 **Innovaccer** **Noida, India**
Decision Science Intern

- *Improved* Innovaccer's data model by *optimizing* PostgreSQL queries, thereby reducing the overall execution time from 10 hours to 3 hours.
- Used *ML* to predict patient in-hospital revisits after discharge.

Honors & Awards

2024 **GGCS Ph.D. Fellowship** *University of California, Davis, USA*
Fellowship worth $10,000 awarded by Graduate Group in Computer Science.

2023 **Cybersecurity Summer Fellow** *Georgia Tech, USA*
One of the 20 fellows selected from across the globe.

2016–2018 **Merit Scholarships** *The LNM Institute of Information Technology, India*
Awarded to Top 5% students based on GPA.

2019, 2021 **Spot Awards** *Innovaccer, India*
Two quarterly spot awards received: One for efficient optimization of data model from 10 hrs to 3 hrs. Second for minimizing patient costs.

Teaching

Spring 2022 **Computer Networks (ECS 152A)** *Teaching Assistant*
University of California, Davis, USA

Spring 2019 **Data Structures & Algorithms** *Teaching Assistant*
The LNM Institute of Information Technology, India

Fall 2018	**Computer Organization & Architecture** *Teaching Assistant*
	The LNM Institute of Information Technology, India
Fall 2017	**Computer Programming** *Teaching Assistant*
	The LNM Institute of Information Technology, India

Skills

General	*Network Measurements, Computational Social Science, Data Science, Data Analytics, Data Visualization, Machine Learning, Deep Learning, Data & Text Processing, Natural Language Processing, Image Processing, Web Crawling*
Languages	*Python, C, C++, Golang, Flask, HTML, Javascript, SQL/PostgreSQL, NoSQL*
ML	*Pandas, Numpy, Matplotlib, Scipy, PyTorch, OpenCV, BeautifulSoup*
Technologies	*Spark, Aerospike, Kubernetes, Docker*
Tools	*Git/GitHub, LaTeX, CI/CD, Selenium*

Leadership

| Spring 2023 | **E-PRIME Mentor** *UC Davis* |
| | Mentored undergraduate students on research project as part of the E-PRIME (Education Partnership in Research, Inclusion and Mentoring Experiences) Mentorship Program. |

Services

PC	**Program Committee Member**
	USENIX Security Symposium (2025)
	ACM Conference on Computer and Communications Security (CCS) (2024)
	Workshop on Measurements, Attacks, and Defenses for the Web (MADWeb) (2024)
	ACM Workshop on Artificial Intelligence and Security (AISec) (2023, 2024)
	ACM Conference on Fairness, Accountability, and Transparency (FAccT) (2023)
	ACM Web Science Conference (WebSci) (2023, 2024)
	IEEE Conference on Sensing, Communication, and Networking (SECON) (2023)
AEC	**Artifact Evaluation Committee Member**
	Privacy Enhancing Technologies Symposium (PETS) (2024, 2025)
	Network and Distributed System Security Symposium (NDSS) (2024)
	IEEE Workshop on Offensive Technologies (WOOT) (2023)

Travel Grants

2024	*IEEE S&P (Oakland), PETS*
2023	*ACM SIGMETRICS*
2022	*PETS, ACM WiSec*
2021	*IEEE S&P (Oakland) (Virtual), IEEE CSF (Virtual)*

Invited Talks

Jul 2024	**Uncovering hidden security and privacy threats in online advertising**
	University College London (UCL), United Kingdom
May 2023	**Be Aware: Dark Pooling Uncovered**
	AdExchanger's Programmatic I/O, MGM Las Vegas
Jul 2021	**Differential Tracking Across Topical Webpages of Indian News Media**
	CMLBDA, The LNM Institute of Information Technology, India

Media Coverage

Sep 2023 **Elon Musk's X is ignoring its own ad policies, a new study finds**
Fast Company article by *Chris Stokel-Walker*

Mar 2021 **Tracking the Trackers**
Open (The Magazine) article by *Ullekh NP*

References

Prof. Zubair Shafiq
Associate Professor, University of California, Davis
Email: zshafiq@ucdavis.edu
Webpage: `https://web.cs.ucdavis.edu/~zubair/`

Prof. Rishab Nithyanand
Assistant Professor, University of Iowa, Iowa
Email: rishab-nithyanand@uiowa.edu
Webpage: `https://sparta.cs.uiowa.edu/people/rishab/`

Prof. Savvas Zannettou
Assistant Professor, TU Delft, Netherlands
Email: s.zannettou@tudelft.nl
Webpage: `https://zsavvas.github.io`