Dhruv Kuchhal

Anti-Abuse/Fraud at Amazon WW Stores
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Google Scholar

About Me

I specialize in large-scale investigations of Web-based security and privacy issues. Using data-driven approaches, my work reveals the impact of real-world systems on end user security, and leads to designing better solutions. My methods include Internet/Web-wide measurements, network traffic analysis, and large-scale data mining.

Industry Work Experience

- **Amazon.com** — Seattle, WA
  Senior Security Researcher (L6), Special Projects and Investigations — *May 2024 - Present*
  - Leading large-scale cross-organizational initiatives to remove bad actors from the Amazon marketplace.
  - SME on Web Authentication: Implemented public credential intelligence-based sanitization pipelines to secure X M customers/month + driving major initiatives to improve efficiencies in the ATO space.
  - Innovation Award (Q4 '24): multi-modal LLM-based fraud inspector to identify bad product listings.

- **Lacework, Inc. (acquired by Fortinet, Inc.)** — Mountain View, CA
  Senior Security Engineer, Lacework Labs — *March 2024 - May 2024*
  - Cloud Security Research: Engineered detections for proactively alerting for attacks in the cloud environments (GCP, AWS, Azure), based on telemetry from agents as well as agentless log data.

- **PayPal, Inc.** — Scottsdale, AZ
  Senior Research Scientist, Anti-Fraud — *Summers of 2021 and 2022, August 2023 - February 2024*
  - Developed capabilities for passkey risk monitoring, and presented a paper on the practical attacks and defenses for real-world FIDO2 deployments at ACM CCS 2023.
  - Reported a bug in Google Chrome that could be exploited to trick a user enrolled in WebAuthn into authenticating an attacker-controlled sensitive action on their account. [Chromium Issue 1341134].
  - Built data pipelines for scam merchant detection. Established a strategic collaboration with GASA.
  - Prototyped a LLM-based solution for early fraud alerting based on threat intelligence from Telegram.
  - SME on policy issues such as Authentication and related Anti-Trust legislation in the EU.

Academic Work Experience

- **Georgia Institute of Technology (GT)** — Atlanta, GA
  PhD Candidate, Advisor: Prof. Frank Li. — *2020 - 2023*
  - Research in Web Security, Privacy, and Abuse (IMC '21, WWW '22, CCS '23, IMC '24).

- **University of Maryland, College Park** — College Park, MD
  Research Assistant, Advisor: Prof. Michelle Mazurek. — *2018 - 2019*
  - Evaluated response biases in security user studies (CCS '18).
  - Developed tools to measure the readability of security advice (EMNLP '19).

- **Indraprastha Institute of Information Technology** — Delhi, India
  Research Associate, Advisor: Prof. Ponnurangam Kumaraguru. — *2017 - 2019*
  - Analyzed misinformation on end-to-end encrypted platforms such as WhatsApp (Times of India, 2019).
  - Characterized spam campaigns abusing phone numbers on online social networks (WebSci '18).

Highest Education

- **Georgia Institute of Technology** — Atlanta, GA
  Doctor of Philosophy in Computer Science. Advised by Prof. Frank Li. — *2019 – 2023*

Selected Publications

Conference

- **Kuchhal, D.**, Ramakrishnan, K., and Li, F.,
  Whatcha Lookin' At: Investigating Third-Party Web Content in Popular Android Apps.
  ACM Internet Measurement Conference **(IMC)**, 2024.
  Acceptance Rate: 21.34% (54/253) [dl.acm.org][pdf]

- **Kuchhal, D.**, Saad, M., Oest, A., and Li, F.,
  Evaluating the Security Posture of Real-World FIDO2 Deployments.
  ACM Conference on Computer and Communications Security (**CCS**), 2023.
  Acceptance Rate: 19.1% (234/1222) [dl.acm.org][pdf] ☆ [FIDO Security Bulletin]

- **Kuchhal, D.** and Li, F.,
  A View into YouTube View Fraud.
  ACM Web Conference **(WWW)**, 2022.
  Acceptance Rate: 17.7% (323/1822) [dl.acm.org] [pdf] [video]

- **Kuchhal, D.** and Li, F.,
  Knock and Talk: Investigating Local Network Communications on Websites.
  ACM Internet Measurement Conference **(IMC)**, 2021.
  Acceptance Rate: 27% (53/196) [dl.acm.org] [pdf] [video]

- Gupta, S., **Kuchhal, D.**, Gupta, P., Ahamad, M., Gupta, M. and Kumaraguru, P.,
  Under the Shadow of Sunshine: Characterizing Spam Campaigns Abusing Phone Numbers Across Online Social Networks*.
  ACM Conference on Web Science (**WebSci**), 2018.
  Acceptance Rate: 27% (30/113) [dl.acm.org] [pdf]
  Award: **Runner up for Best Student Paper**

Achievements/Honors

- **FIDO Alliance**: A security bulletin was distributed by the FIDO Alliance, emphasizing our threat model and attacks.
- **Y Combinator 2023**: Admitted to the Summer 2023 batch (1.5% acceptance rate; USD 500k pre-seed investment), to innovate on a GenAI-hardened replacement for CAPTCHAs on the Web.
- **RSAC Security Scholar 2023**: Selected among 50 cybersecurity students across US to attend the RSA Conference.
- **USC Annenberg Fellowship, 2019**: Received a 4-year top-up fellowship for a CS PhD at USC (top 1% of admits).
- **Smart India Hackathon, 2017**: Our team of 6 members, advised by Dr. Sambuddha Roy won the first prize at India's national hackathon (10k+ students), with a cash prize of Rs. 1 lakh awarded by Government of India. [GitHub]

Service

- **ACM CCS**: PC Member, 2025.
- **ACM WebConf (WWW)**: PC Member, 2024-2025.
- **ACM IMC**: PC Member, 2024-2025.
- **PETS**: External Reviewer, 2022-2023. Publication Co-Chair, 2023 and 2024. PC Member, 2024-2025.
- **Georgia Tech School of Cybersecurity and Privacy**: Member, Faculty Recruiting Committee, 2022.
- **Georgia Tech School of Computer Science**: Founding Communications Chair of GSA, 2021-22 AY.

Technologies

Python, MongoDB, SQL, BigQuery, Wireshark, mitmproxy, ChromeDevTools, C++.

References

Dr. Adam Oest (Amazon; aoest@asu.edu), **Prof. Frank Li** (Georgia Tech; frankli@gatech.edu).