

# GAUTAM AKIWATE

Postdoctoral Researcher, Stanford University

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## EXPERIENCE

Postdoctoral Researcher – Security

Stanford University

Sept 2022 – Ongoing

Stanford, CA

- Initiated and executed projects with both industry and academic collaborators, including writing grants to fund research projects
- Mentored and advised students on projects leading to publications
- Worked to standardize research recommendations into RFC at IETF
- Presented findings to both policy and technical audiences, effectively distilling complex concepts and communicating them clearly to a broad audience including standards and regulatory bodies

Graduate Researcher – Security

UC San Diego

Sept 2017 – June 2022

La Jolla, CA

- Directed 10+ projects from ideation to execution to publication
- Built systems to collect and analyze risks to Internet ecosystems
- Research recognized at both security and networking conferences with multiple awards

Member of Technical Staff – Performance

Pure Storage

Aug 2015 – May 2017

Mountain View, CA

- Designed and built a performance analysis framework
- Rearchitected core subsystems to improve latency and throughput based on data from the framework

Intern – Automation and Tools

Mozilla

June 2014 – Sept 2014

San Francisco, CA

- Analyze test run data to identify a subset of high-fidelity tests with a goal to build tooling to reduce load on the test cluster

Engineer – Android/Linux Performance

Qualcomm

June 2012 – Aug 2013

Hyderabad, India

- Improved performance for resource constrained Android phones

Intern – Android/Linux Performance

Qualcomm

May 2011 – July 2011

Hyderabad, India

- Designed a prototype analysis framework, which was later put into production, to analyze performance across Android subsystems

## EDUCATION

Ph.D. in Computer Science

UC San Diego

2017 – 2022

La Jolla, CA

*Thesis: Identifying DNS Infrastructure Hijacks using Large Scale Measurements*

**Advisors:** Geoffrey Voelker, Stefan Savage, and KC Claffy

**GPA:** 3.96 / 4.00

M.S. in Computer Science

UC San Diego

2013 – 2015

La Jolla, CA

*Thesis: A New Look at DMCA Section 512*

**Advisors:** Geoffrey Voelker, Stefan Savage

**GPA:** 3.96 / 4.00

B.Tech. in Information Technology

College of Engineering, Pune

2008 – 2012

Pune, India

## SKILLS

Python

Golang

C

Shell

DNS

BGP

TLS

SPF/DKIM

Spark

BigQuery

Hive

SQL

Network Security

Email Security

## HONORS AND AWARDS



**Applied Networking Research Prize  
2021, 2022**

Awarded by the Internet Society and Internet Research Task Force (IRTF)



**Best Paper Award  
IEEE Euro S&P 2023**



**Community Contribution Award  
ACM IMC 2022**



**Best Paper Award  
TMA IFIP 2021**



**Best Paper Award  
ACM SIGCOMM 2018**

## SELECT PUBLICATIONS

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- L. Izhikevich, M. Tran, K. Izhikevich, **G. Akiwate**, and Z. Durumeric, “Democratizing LEO Satellite Network Measurement,” in *ACM SIGMETRICS / IFIP Performance*, Venice, Italy, Aug. 2024.
- E. Liu, **G. Akiwate**, M. Jonker, A. Mirian, G. Ho, G. M. Voelker, and S. Savage, “Forward Pass: On the Security Implications of Email Forwarding Mechanism and Policy,” in *IEEE 8th European Symposium on Security and Privacy*, Delft, Netherlands, Jul. 2023.
- A. Mirian, A. Ukani, I. Foster, **G. Akiwate**, T. Halicioglu, C. T. Moore, A. C. Snoeren, G. M. Voelker, and S. Savage, “In the Line of Fire: Risks of DPI-Triggered Data Collection,” in *Proceedings of the 16th Cyber Security Experimentation and Test Workshop*, Marina del Rey, CA, USA, Aug. 2023.
- **G. Akiwate**, R. Sommesse, M. Jonker, Z. Durumeric, K. Claffy, G. M. Voelker, and S. Savage, “Retroactive Identification of Targeted DNS Infrastructure Hijacking,” in *Proceedings of the 22nd ACM Internet Measurement Conference*, Nice, France, Oct. 2022.
- L. Izhikevich, **G. Akiwate**, B. Berger, S. Drakontaidis, A. Ascheman, P. Pearce, D. Adrian, and Z. Durumeric, “ZDNS: A Fast DNS Toolkit for Internet Measurement,” in *Proceedings of the 22nd ACM Internet Measurement Conference*, Nice, France, Oct. 2022.
- L. Oliver, **G. Akiwate**, M. Luckie, B. Du, and K. Claffy, “Stop, DROP, and ROA: Effectiveness of Defenses through the Lens of DROP,” in *Proceedings of the 22nd ACM Internet Measurement Conference*, Nice, France, Oct. 2022.
- **G. Akiwate**, S. Savage, G. M. Voelker, and K. C. Claffy, “Risky BIZ-ness: Risks Derived from Registrar Name Management,” in *Proceedings of the 21st ACM Internet Measurement Conference*, Virtual Event, Nov. 2021.
- V. G. Li, **G. Akiwate**, K. Levchenko, G. M. Voelker, and S. Savage, “Clairvoyance: Inferring Blocklist Use on the Internet,” in *Passive and Active Measurement*, Virtual Event, Germany: Springer, Mar. 2021.
- A. Randall, E. Liu, R. Padmanabhan, **G. Akiwate**, G. M. Voelker, S. Savage, and A. Schulman, “Home is Where the Hijacking is: Understanding DNS Interception by Residential Routers,” in *Proceedings of the 21st ACM Internet Measurement Conference*, Virtual Event, Nov. 2021.
- **G. Akiwate**, M. Jonker, R. Sommesse, I. Foster, G. M. Voelker, S. Savage, and K. Claffy, “Unresolved issues: Prevalence, persistence, and perils of lame delegations,” in *Proceedings of the 20th ACM Internet Measurement Conference*, Virtual Event, USA, Oct. 2020.
- L. F. DeKoven, A. Randall, A. Mirian, **G. Akiwate**, A. Blume, L. K. Saul, A. Schulman, G. M. Voelker, and S. Savage, “Measuring Security Practices and How They Impact Security,” in *Proceedings of the 19th Internet Measurement Conference*, Amsterdam, Netherlands, Oct. 2019.
- A. Dhamdhare, D. D. Clark, A. Gamero-Garrido, M. Luckie, R. K. P. Mok, **G. Akiwate**, K. Gogia, V. Bajpai, A. C. Snoeren, and K. Claffy, “Inferring Persistent Interdomain Congestion,” in *Proceedings of the 2018 ACM Special Interest Group on Data Communication*, Budapest, Hungary, Aug. 2018.

## SELECT PROJECTS

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### Identify Domain Hijacks in Real-Time

Threat actors regularly compromise key **DNS** and **BGP** infrastructure to hijack domains belonging to governments, network operators, and popular Internet services. I built and deployed a global monitoring system to uncover hijacks close to real-time with collaborators from academia, industry, and law enforcement. Work funded by **Google**, and **Digicert**.

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### Vulnerabilities in the Email Ecosystem

In this project we showed that security guarantees of the email protocols (**SPF**, **DKIM**, **DMARC**) can be undermined through forwarding, allowing attackers to not only deliver spoofed email messages to email providers (e.g., Gmail, Outlook), but also reliably spoof email for thousands of popular domains including domains used by government, finance, and news organizations leading to major operational changes at these email providers.

## ACTIVITIES

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### ICANN Security Stability Advisory Committee (SSAC)

#### Member

📅 June 2023 – Ongoing

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### Registrar Name Management Work Party, ICANN SSAC

#### Co-Chair

📅 March 2023 – Ongoing

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### Organizing Committee

#### ACM Internet Measurement Conference

📅 2023

📍 Montreal, Canada

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### Program Committee

- ACM IMC 2023, 2024
- IETF ANRP Award Committee
- TMA 2024
- PAM 2023
- RAID 2023