Liz Izhikevich

https://lizizhikevich.github.io
lizhikev@stanford.edu

Research Overview

My research brings a data-driven approach to understanding and improving the Internet's performance and security. I build systems that collect data about network, operator, and attacker behaviors. I use quantitative analysis, including rigorous statistics, on the data my systems collect to surface operational challenges and threats.

Education

Ph.D. in Computer Science, *Stanford University* 2018–2024
– Advisor: Zakir Durumeric

M.S. in Computer Science, *Stanford University* 2023

M.S. in Computer Science, *University of California, San Diego* 2017–2018
– Thesis: "Building and Breaking Burst-Parallel Systems"

B.S. in Computer Science, *University of California, San Diego* 2014–2017
– Minor: Mathematics.

Positions

Netflix June 2023–Present
Graduate Research Fellow
– Collaborating with SpaceX-Starlink to improve the quality of experience for streaming via satellite Internet.

Fellowships

- Graduate Research Fellowship, National Science Foundation ("NSF GRFP") 2018
- Graduate Fellowship in Science and Engineering, Stanford University ("Stanford SGF") 2018

Awards

- EECS Rising Star, International Recognition 2023
- Community Impact Award, Stanford University 2023
- Student Services Award, Stanford University Computer Science Department 2023
- Community Contribution Paper Award, ACM Internet Measurement Conference 2022
- Department Award for Excellence in Teaching, UC San Diego 2018

Publications

† indicates mentee, ∗ indicates co-first authorship

Conference Proceedings

[1] 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*, 2022 ⋆**Community Contribution Award**⋆.

[5] L. **Izhikevich**, M. Tran†, M. Kallitsis, A. Fass, and Z. Durumeric, "Cloud Watching: Understanding Attacks Against Cloud-Hosted Services", in *Proceedings of the 23rd ACM Internet Measurement Conference*, 2023.

[6] L. **Izhikevich**, R. Teixeira, and Z. Durumeric, "Predicting IPv4 Services Across All Ports", in *Proceedings of the ACM SIGCOMM Conference*, 2022.

[7] J. Cable*†, D. Gregory*†, L. **Izhikevich***, and Z. Durumeric, "Stratosphere: Finding Vulnerable Cloud Storage Buckets", in *Proceedings of the 24th International Symposium on Research in Attacks, Intrusions and Defenses*, 2021.

[10] L. **Izhikevich**, R. Teixeira, and Z. Durumeric, "LZR: Identifying Unexpected Internet Services", in *30th USENIX Security Symposium*, 2021.

[11] M. Ziv†, L. **Izhikevich**, K. Ruth, K. Izhikevich†, and Z. Durumeric, "ASdb: A System for Classifying Owners of Autonomous Systems", in *Proceedings of the 21st ACM Internet Measurement Conference*, 2021.

[12] G. Wan, L. **Izhikevich**, D. Adrian, K. Yoshioka, R. Holz, C. Rossow, and Z. Durumeric, "On the Origin of Scanning: The Impact of Location on Internet-Wide Scans", in *ACM Internet Measurement Conference*, 2020.

[13] L. Ao, L. **Izhikevich**, G. M. Voelker, and G. Porter, "Sprocket: A Serverless Video Processing Framework", in *Proceedings of the Ninth ACM Symposium on Cloud Computing*, 2018.

[16] L. **Izhikevich**, E. Peterson, and B. Voytek, "Neural oscillatory power is not Gaussian distributed across time", in *Program No. 271.03. 2016 Neuroscience Meeting Planner*, 2016.

Books

[17] N. Moshiri and L. **Izhikevich**, *Design and Analysis of Data Structures*. 2016, ISBN: 978-1981017232.

Pre-Prints

[2] L. **Izhikevich**, M. Tran†, K. Izhikevich†, G. Akiwate, and Z. Durumeric, "Democratizing LEO Satellite Network Measurement", *Under submission to ACM SIGMETRICS*, https://arxiv.org/abs/2306.07469.

[3] K. Izhikevich, G. Voelker, S. Savage, and L. **Izhikevich**, "Using Honeybuckets to Characterize Serverless Storage Scanning in the Wild", *Under submission to Euro S&P*, 2023.

[4] L. **Izhikevich**, R. Teixeira, and Z. Durumeric, "Kronos: A System for Adaptively Tracking Internet Service Dynamics", *Under submission to NSDI*, 2023.

[15] L. **Izhikevich**, R. Gao, E. Peterson, and B. Voytek, "Measuring the average power of neural oscillations", *bioRxiv*, 2018. eprint: https://www.biorxiv.org/content/early/2018/10/13/441626.full.pdf.

Thesis

[14] L. **Izhikevich**, "Building and Breaking Burst-Parallel Systems", M.S. thesis, University of California, San Diego, 2018.

Professional Service

Technical Program Committees

- IEEE Security and Privacy 2023
- Internet Measurement Conference 2023–2024
- Symposium on Research in Attacks, Intrusions, and Defenses 2022–2023
- The Passive and Active Measurement Conference 2022
- IEEE Security and Privacy (External Reviewer) 2022
- USENIX Security (External Reviewer) 2019–2022
- Internet Measurement Conference (External Reviewer) 2019–2021

Department and University Service

- Data Science Faculty Search Committee, Stanford University 2022–2023
- Ethics & Society Review of HAI Seed Grants Committee, Stanford University 2022
- Chair of Ph.D. Applicant Support Program, Stanford University 2021–2023
- Ph.D. Admissions Committee, Computer Science, Stanford University 2019–2022

Teaching

- **Instructional Assistant** at Stanford University Winter 2022
  CS356: Topics in computer Networking and Security, https://cs356.stanford.edu/
- **Co-Creator/Co-Lecturer/Instructional Assistant** at Stanford University Fall 2021
  CS249i: The Modern Internet, https://cs249i.stanford.edu/
- **Instructional Assistant/Discussion Section Leader** at UC San Diego Fall 2015–Winter 2017
  CSE100: Advanced Data Structures in C++, assisted 4 times and textbook author
- **Instructional Assistant/Discussion Section Leader** at UC San Diego Spring 2017
  CSE8B: Introduction to Programming in Java, Part 2
- **Instructional Assistant/Discussion Section Leader** at UC San Diego Fall 2017
  CSE12: Introduction to Data Structures
- **Instructional Assistant/Discussion Section Leader** at UC San Diego Winter 2018
  CSE8A: Introduction to Programming in Java, Part 1

Mentoring

(those who have published a peer-reviewed article as part of their independent study)

- Manda Tran (M.S.) 2021–2023
- Anna Ascheman (B.S) 2022
- Briana Berger (B.S/M.S.) 2021–2022
- Spencer Drakontaidis (B.S.) 2021–2022

- Jack Cable (B.S.) 2020–2021
- Drew Gregory (B.S.) 2020–2021
- Maya Ziv (M.S.) 2020–2021
- Katherine Izhikevich (B.S/M.S.) 2018–Current

References

Zakir Durumeric
Assistant Professor of Computer Science
Stanford University

Renata Cruz Teixeira
Former Director of Research
Inria Paris

Geoffrey M. Voelker
Professor of Computer Science and Engineering
University of California, San Diego

Stefan Savage
Professor of Computer Science and Engineering
University of California, San Diego