

Daniel HyunSeok Jang

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EDUCATION

Northwestern University

Ph.D. in Computer Science (Advisor: *Fabián E. Bustamante*)

Evanston, IL

September 2025 - Present

New York University Abu Dhabi

BSc in Computer Science; Minor in Applied Mathematics

Abu Dhabi, UAE

August 2018 - May 2023

PUBLICATIONS

Roam Without a Home: Unraveling the Airalo Ecosystem

[HyunSeok Daniel Jang](#), Matteo Varvello, Andra Lutu, Yasir Zaki

25th ACM Internet Measurement Conference (IMC), Madison, WI, USA, 2025

From GEO to LEO: First Look Into Starlink In-Flight Connectivity

[HyunSeok Daniel Jang](#), Matteo Varvello, Aravindh Raman, Yasir Zaki

25th ACM Internet Measurement Conference (IMC), Madison, WI, USA, 2025

PixLift: Accelerating Web Browsing via AI Upscaling

Yonas Atinafu, Sarthak Malla, [HyunSeok Daniel Jang](#), Nouar Aldahoul, Matteo Varvello, Yasir Zaki

5th ACM Conference on Computing and Sustainable Societies (COMPASS), Toronto, Canada, 2025

PEER-REVIEWED EXTENDED ABSTRACTS

Poster: A First Look at IPX Hub Breakout with Airalo

[HyunSeok Daniel Jang](#), Matteo Varvello, Andra Lutu, Yasir Zaki

24th ACM Internet Measurement Conference (IMC), Madrid, Spain, 2024

PREPRINTS

A Tale of Three Location Trackers: AirTag, SmartTag, and Tile

[HyunSeok Daniel Jang](#), Hazem Ibrahim, Rohail Asim, Matteo Varvello, Yasir Zaki

Under submission, 2026

Challenges and Opportunities for Global Cellular Connectivity

Viktoria Vomhof, [HyunSeok Daniel Jang](#), Matteo Varvello, Stefan Geißler, Yasir Zaki, Tobias Hofffeld, Andra Lutu

Under submission, 2025

TikTok's recommendations skewed towards Republican content during the 2024 U.S. presidential race

Hazem Ibrahim, [HyunSeok Daniel Jang](#), Aaron R. Kaufman, Talal Rahwan, Yasir Zaki

Under submission, 2025

AWARDS

Tamayyuz (Excellence) Research Fellowship

September 2023 - August 2024

Selected for a competitive post-graduation fellowship at NYU Abu Dhabi to conduct one year of full-time, independent research under the guidance of Prof. Yasir Zaki.

RESEARCH EXPERIENCE

Communication Networks Lab, NYU Abu Dhabi

Abu Dhabi, UAE

Research Assistant

September 2023 - August 2025

Global Cellular Connectivity via Mobile Network Aggregators (MNAs)

- Analyzed Airalo's global network infrastructure, identifying unique roaming topologies and routing inefficiencies via IP-based mapping and traceroute analysis.
- Evaluated performance implications of IPX-Hub Breakout (IHBO) deployment across latency, bandwidth, CDN, DNS, and video streaming metrics.
- Investigated Internet gateway deployment patterns of four MNAs, proposing location-aware allocation strategies to improve geographical granularity and performance in international roaming services.

Satellite Network for In-Flight Connectivity

- Characterized the tradeoffs between in-flight WiFi solutions using GEO or LEO satellite networks, collecting end-to-end latency profiles, bandwidth capacity, and routing topology data.
- Developed a methodology to correlate aircraft telemetry with routing paths, uncovering the impact of dynamic gateway switching on latency and diagnosing performance bottlenecks caused by inefficient DNS-based client geolocation.
- Extended an open-source network testbed by leveraging a backend of cloud servers to orchestrate synchronized, high-frequency UDP/TCP probing.

Bluetooth Low Energy (BLE) Location-Tracking Systems

- Led a large-scale empirical evaluation of major BLE trackers (AirTag, SmartTag, Tile) through controlled experiments and worldwide deployments, assessing accuracy and reliability.
- Formulated statistical models of positional error reported by trackers, applying empirical findings to enhance hypothetical cross-platform location tracking.

Dissemination of Political Content in TikTok

- Built TikTok user simulation and data collection pipeline on Android to analyze political content delivered through the platform's recommendation algorithm and assess its potential electoral implications.

INDUSTRY EXPERIENCE

Finakle

Seoul, South Korea

Backend Developer, Intern

June - August 2022

- Modernized legacy infrastructure by redesigning RESTful APIs and database models for a modern web stack.
- *Utilized:* Python FastAPI, AWS, MariaDB

TeamSparta Inc.

Seoul, South Korea

Software Engineer, Intern

April - November 2021

- Developed full-stack web applications for a coding education platform serving over 100k users, refactoring core services and establishing data-driven features that significantly boosted user engagement.
- Enhanced system reliability and key business metrics by leveraging AWS for elastic load balancing and New Relic for system monitoring to reduce server outage.
- *Utilized:* JavaScript, TypeScript, jQuery, React.js, Next.js, Python, Flask, Docker, AWS, MongoDB

CERTIFICATIONS

AWS Certified Solutions Architect - Associate

July 2023

Validation Number: ZRNNKBT1X2Q4QGKL

SKILLS

Programming

Bash, C, C++, Java, JavaScript, Python, SQL, Scala

Software/DevOps

AWS, Docker, Kubernetes, Git, Hadoop, Kafka, Spark