

HYUNSEOK (DANIEL) JANG

+971 56-320-6803 ◊ daniel.jang@nyu.edu ◊ [LinkedIn](#) ◊ [GitHub](#) ◊ [Homepage](#)

Research Interests: Network Measurement, Wireless and Cellular Communication, Web, IoT

EDUCATION AND GRANTS

Tamayyuz (Excellence) Research Fellowship
New York University Abu Dhabi

September 2023 - August 2024

New York University Abu Dhabi
BSc Computer Science; Applied Mathematics Minor

August 2018 - May 2023

PREPRINTS

Roam Without a Home: Unraveling the Airalo Ecosystem [[Manuscript](#)]

- HyunSeok Daniel Jang, Matteo Varvello, Andra Lutu, Yasir Zaki
- *Under Submission, MobiSys '25*

Challenges and Opportunities for Global Cellular Connectivity [[Manuscript](#)]

- Viktoria Vomhof, HyunSeok Daniel Jang, Matteo Varvello, Stefan Geißler, Yasir Zaki, Tobias Hofffeld, Andra Lutu
- *Under Submission, CCR '25*

RESEARCH EXPERIENCE

NYUAD Communication Networks Lab
Research Assistant

September 2023 - Present
Abu Dhabi, UAE

Global Cellular Connectivity via Mobile Network Aggregators (MNAs)

2 papers under submission

- Conducted in-depth analysis of Airalo's global network infrastructure, discovering unique roaming topologies and routing inefficiencies through extensive IP-based mapping and traceroute analysis, providing key insights into current IPX Hub Breakout implementations and performance implications.
- Investigated Internet gateway deployment patterns of four MNAs, proposing location-aware allocation strategies to improve geographical granularity and performance in international roaming services.

Bluetooth Low Energy (BLE) Location-Tracking Systems

Paper manuscript in progress, to be submitted for publication in winter 2024

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

Satellite Network for In-Flight WiFi

Paper manuscript in progress, to be submitted for publication in spring 2025

- Executing longitudinal performance measurements of in-flight WiFi solutions using GEO or MEO satellite networks.
- Constructing emulated measurements on LEO satellite networks for aviation, assessing their potential to improve inflight WiFi experience while addressing connectivity challenges such as frequent handovers.

Amigo: Mobile Network Measurement Testbed

- Scaled compatibility of an open-source network testbed, enabling automated network diagnostics via varied Android devices, network configurations, and user scenarios.
- Engineered and integrated mobile apps, browser plugins and server infrastructure to collect comparative network metrics (e.g., ping, bandwidth, CDN performance) across diverse network providers.

Dissemination of Political Content in TikTok

Data collection and analysis in progress

- Developed an automated 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.

CONFERENCES

RELATED PROFESSIONAL EXPERIENCE

FINAKLE <i>Backend Developer, Intern</i> · Modernized legacy infrastructure and designed backend APIs for a FinTech platform · <u>Utilized</u> : Python FastAPI, AWS, MariaDB	June - August 2022 Seoul, South Korea
TeamSparta Inc. <i>Software Engineer, Intern</i> · Developed web applications for a large-scale education platform, improving user engagement and system reliability · <u>Utilized</u> : JavaScript, TypeScript, jQuery, React.js, Next.js, Python, Flask, Docker, AWS, MongoDB	April - November 2021 Seoul, South Korea

PROJECTS

Renta-Cloth · Built male clothing rental service as a progressive web application (PWA) by using Next.js FE and Node.js BE · Recipient of honors and funding from Korea University Business School Startup Institute for outstanding achievement in the annual entrepreneurship competition	July 2021 - January 2022
The Gazelle <i>Deputy Web Chief</i> · Maintained student publication website with React.js and Node.js to provide reliable service for 1,500 readers	September - December 2020
Print Overflow · Built an email automation service updating students with their print history to help reduce paper waste on campus · Received First Place Award at NYUAD Annual Hackathon 2019	November 2019

CERTIFICATIONS

AWS Certified Solutions Architect - Associate <i>Validation Number: ZRNNKBT1X2Q4QGKL</i>	July 2023
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SKILLS

Programming	C, C++, Java, JavaScript, Python, SQL, Scala
Web	HTML, CSS, jQuery, React.js, Node.js, Flask, PHP, FastAPI
Software	Docker, Hadoop, Spark