

Sizhe Wang

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RESEARCH INTERESTS

Next-Gen Wireless Networks (LEO Satellite Networks / 5G / Open-RAN), Internet Content Routing, IP Geolocation

EDUCATION

Northeastern University, Boston, USA

Ph.D. in Computer Engineering, [NUWiNS Lab](#)

Advisor: [Dimitrios Koutsonikolas](#)

(Third Year) Jan 2024 – Present

M.S. in Electrical & Computer Engineering

Concentration: Computer Networks and Security

Sep 2022 – Dec 2023

Huazhong University of Science and Technology, Wuhan, China

Bachelor of Software Engineering

Concentration: Digital Media Technology

Sep 2015 – Jun 2019

TECHNICAL SKILLS

Network Protocols: 3GPP NTN, 5G, WiFi, Bluetooth, NFC, TCP/IP, Ethernet

Machine Learning / AI: Harness Engineering, Agentic Coding, MCP, LangChain / LangGraph, LLM, Transformers

Programming: Python, TypeScript/JavaScript, C++/C, Java, Swift, Shell Scripting

Data Analytics: SQL, Jupiter Notebook, Pandas, Numpy, Scikit-learn

Framework/Tools: Snowflake, Clickhouse, Prometheus, Grafana, Openairinterface, srsRAN, Network diagnosis tools (Wireshark, traceroute, etc.), Prefect, Snakemake

Server Management: CI/CD pipelines, Docker, Daemon, Cronjob

RESEARCH EXPERIENCE

NUWiNS Lab, Northeastern University, Boston, USA

Graduate Research Assistant

Jan 2024 – Present

- Demystified Starlink's PoP and satellite assignment strategy to mobile users with cross-US measurements.
- Conducted head-to-head measurements with LEO satellite (Starlink) and cellular networks (AT&T, T-Mobile, Verizon) in Alaska and Hawaii to analyze the digital divide regarding coverage and performance, and study the potential of multipath transport to bridge the connectivity gap in non-contiguous US regions.
- Crafted an automated network measurement testbed for multi-modal dataset collection of Starlink network including network performance, serving PoP and satellite identification, as well as dish telemetry, using Dockerized scripts (Python & Shell) with time-series DBs (Prometheus & ClickHouse) with real-time Grafana dashboards.
- Performed a pioneering study on Apple's spatial video codec (MV-HEVC) and streaming with Apple Vision Pro headsets, conducting QoE assessment on spatial videos and proposing a new multipath scheduling design tailored for spatial video streaming.

AT&T Research Lab, Bedminster, NJ, USA

Research Intern (2nd year)

Jun 2026 – Aug 2026

- Crafted AI harness workflow using LangGraph with a MCP server with agent skills of content routing that empower AI agents for in-depth research work.
- Designed a graph-based algorithm for detecting sub-optimal routes between mobile ISP and CDN networks.
- Developed dashboards for content routing analysis including route visualization, sub-optimality detection and optimization recommendations.

AT&T Research Lab, Bedminster, NJ, USA

Research Intern (1st year)

Jun 2025 – Aug 2025

- Deployed automated data pipelines for Internet-scale traffic processing, enabling content routing analysis on content provider networks.
- Built multi-dimensional datasets to support ML-based traffic classification for mobile network optimization.

WurQ Inc, Harvard Innovation Lab, Boston, USA

May 2023 – Dec 2023

Mobile App Developer (Co-op)

- Optimized Bluetooth Low-Energy (BLE) connectivity between wearable IMU devices and smartphones for robust real-time sensor data streaming.
- Developed a cross-platform bridge connecting native iOS/Android sensor SDKs with React Native, enabling synchronized multi-sensor data capture.
- Crafted real-time BLE data ingestion and frontend–backend synchronization pipeline for dual-IMU sensors, supporting ML-based movement recognition and fitness analytics.

Tencent Music Entertainment Group, Shenzhen, China

Oct 2020 – Mar 2022

Web Front-end Development Engineer

- Developed music games using React Native and Cocos2d, which are played by over 10 million users.
- Engineered message feed and comment components for the MOO Music app using Flutter.
- Developed a web system for campaign operation for the QQ Music app, boosting internal operation efficiency.

Tencent Computer System Corporation, Shenzhen, China

Jul 2019 – Oct 2020

Operation & Maintenance Engineer

- Built a Role-Based Access Control system with Restful APIs using Python, securing over 30 systems.
- Led the migration of admin systems to a SPA+API architecture, establishing CI/CD pipelines and unit tests to enhance agility and reliability.
- Developed front-end components for an asynchronous logging system and financial dashboards, streamlining the data visualization process.

PUBLICATIONS

Conference Papers

- [C1] **S. Wang**, M. Ghoshal, Y. Feng, I. Khan, P. Dinh, O. Basit, Z. Yu, Y. C. Hu, and D. Koutsonikolas. “Exploring the 5G Digital Divide in the Non-Contiguous US: LEO Satellites to the Rescue?” ACM SIGMETRICS, 2026.
- [C2] Y. Feng, P. Dinh, M. Ghoshal, O. Basit, **S. Wang**, Y. C. Hu, and D. Koutsonikolas. “Disentangling the Throughput Contributions of MIMO and Carrier Aggregation in 5G Networks.” PAM, 2026.
- [C3] M. Ghoshal, O. Basit, **S. Wang**, P. Dinh, I. Khan, Y. Feng, Z. Yu, Y. C. Hu, and D. Koutsonikolas. “A First Large-Scale Study of Operational 5G Standalone Networks.” ACM CoNEXT, 2025.
- [C4] M. Ghoshal, O. Basit, I. Khan, Z. J. Kong, **S. Wang**, Y. Feng, P. Dinh, Y. C. Hu, and D. Koutsonikolas. “Replication: Performance of Cellular Networks on the Wheels.” ACM IMC, 2025.

Journal & Magazine Articles

- [J1] M. Ghoshal, I. Khan, Z. J. Kong, O. Basit, **S. Wang**, Y. Feng, P. Dinh, J. Meng, Y. C. Hu, and D. Koutsonikolas. “Roads, Radios, and Reality: What 5G Looks Like From the Driver’s Seat.” ACM GetMobile, vol. 29, no. 4, pp. 20–24, 2025.

Workshop Papers & Posters

- [W1] **S. Wang**, J. Zhao, Y. Feng, Z. Yu, J. Pan, and D. Koutsonikolas. “A Cross-US View of Starlink’s PoP and Satellite Assignment Strategy to Mobile Users.” ACM LEO-NET, 2026.
- [W2] G. Chen*, **S. Wang***, J. Chakareski, D. Koutsonikolas, and M. Dasari. “Spatial Video Streaming on Apple Vision Pro XR Headset.” ACM HotMobile, 2025.
- [W3] Y. Guo, **S. Wang**, M. Ghoshal, Y. C. Hu, and D. Koutsonikolas. “The Power of Asynchronous SLAM in Multi-User AR over Cellular Networks: A Measurement Study.” ACM EMS, 2023.

- [P1] M. Ghoshal, I. Khan, P. Dinh, Z. Kong, O. Basit, **S. Wang**, Y. Feng, Y. C. Hu, and D. Koutsonikolas. “Handover Configurations in Operational 5G Networks: Diversity, Evolution, and Impact on Performance.” arXiv:2511.03116, 2025.
- [P2] **S. Wang**, M. Liu, M. Dasari, and D. Koutsonikolas. “A First Look at Apple’s Stereoscopic Video and its Potential in Live Video Streaming for XR Headsets.” Poster, ACM MobiCom, 2024.

** Equal contribution.*