
NYU
WIRELESS
Pioneering Research for Future Wireless Communications
www.nyuwireless.com

Sundeep Rangan
— Director, NYU WIRELESS, 2025

EN:
Educated in EE at **Waterloo** (B.A.Sc. ’92) and **UC Berkeley** (M.S. ’95, Ph.D. ’97);
Postdoctoral training at **University of Michigan** and **Bell Labs**.

Industry-to-academia 6G leader: co-founded **Flarion** (Flash-OFDM; acquired by Qualcomm) and later led engineering at **Qualcomm**.

Now **NYU ECE Professor & Director of NYU WIRELESS**; drives mmWave/FR3, Open RAN, AI-native networks; PI of **~$10M** NTIA SALSA.

IEEE Fellow (2016), **FCC TAC**; **100+** papers/patents.

NYU

NYU WIRELESS

– A Pioneering Academic Wireless Hub

NYU WIRELESS was founded in **2012** at NYU Tandon School of Engineering by

Prof. Theodore "Ted" Rappaport
David Lee/Ernst Weber Professor of Electrical Engineering;
Founding Director, NYU WIRELESS;
Member, National Academy of Engineering (NAE)

as a multidisciplinary center spanning engineering, computer science, and medicine.

NYU

From 2010

Prof. Ted Rappaport launches **NYU WIRELESS** at NYU Tandon, building on his success founding wireless centers at Virginia Tech and UT Austin.

2013

Published seminal paper "***Millimeter Wave Mobile Communications for 5G: It Will Work!***", providing first proof that mmWave frequencies can support mobile networks. This pioneering work changed industry perception of high-frequency spectrum.

2014

Held the inaugural ***Brooklyn 5G Summit*** in partnership with Nokia, convening global telecom leaders. Initially met with skepticism, the summit helped validate mmWave and set the agenda for 5G

2016

Open-sourced the first statistical **mmWave channel model (NYUSIM 1.0)** and released years of real-world measurement data. By sharing 2011–2014 NYC/Austin data openly, NYU WIRELESS accelerated global 5G R&D and standards.

2019

Pioneering **Massive MIMO** research recognized – **Prof. Tom Marzetta** (originator of Massive MIMO) becomes NYU WIRELESS Director. Under new leadership, the center broadens its focus to 6G and beyond.

2022

Established a one-of-a-kind **Terahertz (THz) Wireless Lab** with $3 M NSF funding, enabling device and propagation testing up to 500 GHz. This facility positions NYU WIRELESS at the forefront of sub-THz 6G research

Now 2025

Awarded nearly **$10 M** from NTIA's CHIPS Act fund for project "SALSA" – developing advanced radio chips for open 6G networks. The project is led by **Prof. Sundeep Rangan**, who in the same year became Director of NYU WIRELESS and Principal Investigator of SALSA. It is among the **largest** U.S. investments in Open RAN technology

NYU

Scale and Ecosystem

-People

NYU WIRELESS comprises **20+ faculty** from multiple NYU schools (Engineering, Computer Science, Medicine) and dozens of graduate students and postdocs. Our faculty includes IEEE fellows and National Academy members recognized for contributions to **antennas, communication theory, signal processing, networking**, and beyond.

Theodore Rappaport
Founding Director,
ECE, CS, Medicine

Sundeep Rangan
Director, ECE

John-Ross Rizzo
Associate Director,
NYU Langone Health

Dennis Shasha
Associate Director, CS

Elza Erkip
Institute Professor, ECE

Sundar Aditya
Post-Doctoral Associate

Ahmad Bazzi
Research Scientist

Henry Bertoni
Professor Emeritus, ECE

Marwa Chafii
Associate Professor, ECE

Aditya Dhananjay
Post-Doctoral Associate, ECE

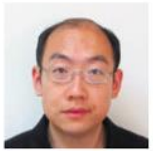
Yao Wang
Professor, ECE & BioMed

Fraida Fund
Post-Doctoral Associate

Siddharth Garg
Associate Professor, ECE

David Goodman
Professor Emeritus, ECE

Michael Knox
Industry Professor, ECE



Pei Liu
Research Scientist, ECE

Yong Liu
Professor, ECE

Giuseppe Loianno
Assistant Professor, ECE

Shivendra Panwar
Professor, ECE

Hamed Rahmani
Assistant Professor, ECE

Davood Shahrjerdi
Associate Professor, ECE

Farhad Shirani
Research Assistant Professor, ECE

Lakshminarayanan Subramanian
Associate Professor, CS

NYU

Scale and Ecosystem

- Partners & Collaboration

NYU WIRELESS partners with **over a dozen leading companies** through its Industrial Affiliates Program—spanning network vendors, chip makers, operators, and tech giants *(e.g., Nokia, Qualcomm, Samsung, Intel, AT&T)*—who gain early access to research and talent and engage via private workshops, student recruiting, and direct project collaborations. In parallel, the center is supported by **key U.S. agencies** (*NSF, DARPA, NIH, DoD*), whose federal grants have enabled large-scale efforts such as the THz lab and multi-university 6G projects.

Pioneering mmWave Communication for 5G

NYU WIRELESS proved that millimeter-wave (mmWave) bands can support **mobile 5G** by combining rigorous city-scale measurements with tractable channel models. Our open data and tools converted early skepticism into global adoption, and kick-started the ecosystem that later became mainstream in standards, products, and spectrum policy.

01. It Will Work — the inflection point

Landmark paper and demos shifted industry belief from “maybe” to “yes”.

02. Urban campaigns & sounders

NYC rooftops & street canyons at 28/38/60/73 GHz established realistic path-loss/ blockage.

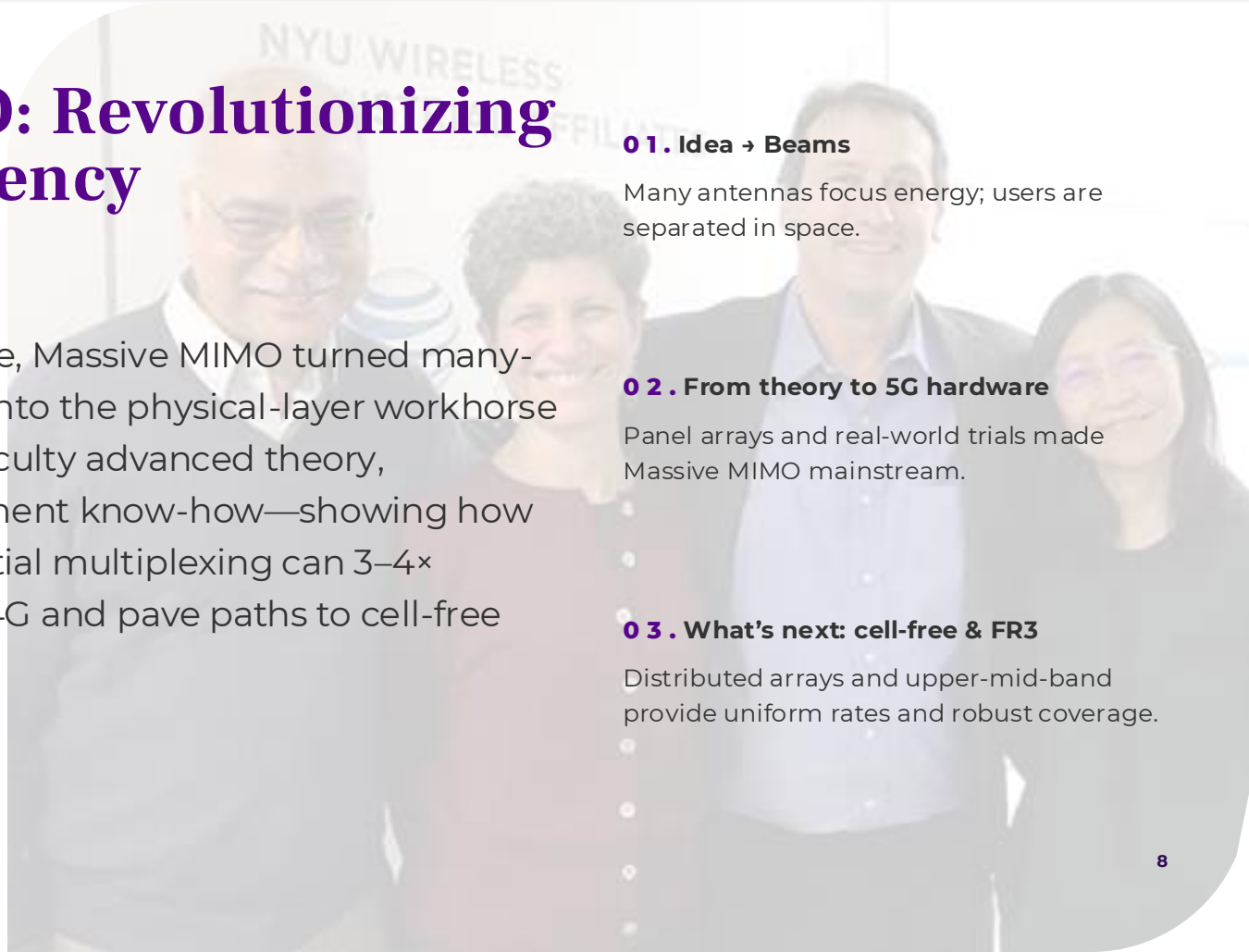
03. Open models → NYUSIM

First open statistical mmWave models enabled reproducible research and faster productization.

NYU

Massive MIMO: Revolutionizing Spectral Efficiency

From concept to practice, Massive MIMO turned many-antenna beamforming into the physical-layer workhorse of 5G. NYU WIRELESS faculty advanced theory, prototypes, and deployment know-how—showing how focused energy and spatial multiplexing can 3–4× spectral efficiency over 4G and pave paths to cell-free and FR3 arrays for 6G.



01. Idea → Beams

Many antennas focus energy; users are separated in space.

02. From theory to 5G hardware

Panel arrays and real-world trials made Massive MIMO mainstream.

03. What's next: cell-free & FR3

Distributed arrays and upper-mid-band provide uniform rates and robust coverage.

NYU

Open Tools & New Bands: NYUSIM, THz Lab & SALSA

We accelerate the field by building **open tools** and **frontier platforms**. NYUSIM lets anyone simulate realistic channels. Our THz facility pushes measurements toward 500 GHz for beyond-5G links and sensing. And **SALSA**, led by Director **Sundeep Rangan** as PI, targets the **upper mid-band (FR3)** with Open-RAN-ready RFICs—bridging coverage and capacity for 6G.

01. NYUSIM — open & reproducible

Free channel simulator used globally across academia and industry.

02. THz Measurement Lab

On-wafer probes & VNAs enable device/propagation up to ~500 GHz.

03. SALSA @ FR3 & O-RAN

Upper-mid-band RFICs and open radio units for agile, shareable 6G spectrum.

NYU

Signature Events – Connecting Academia and Industry

Annual Open House
(January)

Day-long demos & posters for Industrial Affiliates; prime venue for recruiting and feedback.

Brooklyn 5G/6G Summit
(Annual – November)

Invite-only with Nokia; keynotes/panels by CTOs, academics, policymakers—global bellwether for next-gen wireless. *(2025: Nov 5–7 @ NYU Tandon)*

NYU WIRELESS Workshops
(Periodic)

Deep-dive academic workshops (THz, wireless-AI, FR3) — often co-located with Open House to spark collaborations.

6G and Beyond

NYU WIRELESS advances 6G along three thrusts:

- **Upper mid-band FR3 (~7–24 GHz)**—via **SALSA**, developing RFICs and open radios for spectrum sharing and wide-area reliability;
- **Sub-THz/THz (>100 GHz)**—140-GHz measurements and prototypes targeting fiber-like throughput and high-resolution sensing;
- **Open, intelligent networks**—O-RAN-aligned disaggregation with **AI/ML** for beamforming, dynamic spectrum access, and edge self-optimization, turning fundamentals into deployable systems.