

PERSONAL INFORMATION

Dipankar Shakya



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Sex Male | Date of birth 22/12/1994 | Nationality Nepalese

EDUCATION AND TRAINING

September 2019-
Present

Ph.D. in Electrical Engineering

New York University, New York, USA

- Advisor: Prof. Theodore S. Rappaport
- Honors and Awards:
 - School of Engineering Fellowship
 - Theodor Tamir Award for Best MS Thesis in Electrical and Computer Engineering
 - NYU Research Catalyst Prize
 - Li Publication Award
 - NSF: Major Research Instrumentation grant for the THz Measurement Facility
 - Best Paper Award, IEEE Global Communications Conference 2023
 - David Goodman Leadership and Academic Excellence Award 2024
- Courses Completed:
 - Wireless Communications, mmWave IC design (Columbia University), Analog IC design, Introduction to VLSI design, Wireless Communication Circuits and Systems, Agile SoC design, RF and microwave systems engineering, Electromagnetics, CMOS Frequency Synthesizers, Digital communications, Information Theory, Digital signal processing, Probability & stochastic processes, Introduction to Machine Learning.

September 2019-
September 2021

Master of Science in Electrical Engineering

New York University, New York, USA

- Advisor: Prof. Theodore S. Rappaport
- Honors and Awards:
 - School of Engineering Fellowship
 - Theodor Tamir Award for Best MS Thesis in Electrical and Computer Engineering

November 2012-
September 2016

Bachelor's in Electronics and Communications Engineering

Kantipur Engineering College, Dhapakhel, Lalitpur

Distinction

- Honors and Awards:
 - Full Scholarship 2012-16, Class Topper Award for all eight semesters.
- Trainings Completed:
 - Microcontroller programming training
 - Basic Electronics training for circuit design and development
 - Advanced Java with Spring/Hibernate framework

September 2010-
August 2012

10+2: Science

United Academy, Kumaripati, Lalitpur

Distinction

- Attended the "National School on Space Science specially focusing on Astronomy and Astrophysics" organised by Ministry of Science and Technology, Government of Nepal

2000- July 2010

School Leaving Certificate

United School, Satdobato, Lalitpur

Distinction

RESEARCH

FR3 and FR1C upper mid-band radio propagation system, measurements, and modeling

Indoor, Outdoor, and Factory wireless channel measurements at 6.75 GHz (FR1C) and 16.95 GHz (FR3)

- Led the planning and execution for the measurement campaigns for indoor (NYU Wireless Center, 370 Jay Street, Brooklyn, NY), Outdoor (Metrotech Commons, Brooklyn, NY), and Factory (NYU MakerSpace, 6 MetroTech, Brooklyn, NY) [1]-[9].
- Enhanced the NYU channel sounder with precision time protocol (PTP) to achieve absolute timing ([patent filed, \[P1\]](#)) [10]. The upgraded channel sounder is based on NI PXI-e FPGA system and LabView, includes picosecond absolute timing sync. with PTP and Rubidium (Rb) clocks, and RF PAs, filters, LNAs, mixers, etc for RFFE and sliding correlation sounding.
- Conducted system calibration, path loss measurements, and extracted spatiotemporal multipath statistics for propagation modelling and future 5G and 6G applications.

THz Metrology

THz measurement facility

- Designed and developed a novel measurement facility up to 500 GHz at NYU through a \$3.5M grant from the National Science Foundation: Major Research Instrumentation program [11].
- Worked closely with vendors and collaborators to generate specifications for the world's first four-port probe stations, banded waveguide probes, state-of-the-art network analyzer (VNA), frequency extenders, and frequency converters. Additionally the lab features spectrum analyzers (VSA), arbitrary waveform generators (AWG), signal generators (VSG), and frequency synthesizers.
- Developed a novel four-port SOLR calibration standard and technique to characterize devices using the four-port probe station up to 125 GHz [12] ([patent filed, \[P2\]](#)). Calibration standards were taped-out using UMC 28 nm CMOS process.

FR3 RFCMOS phase shifter design for next-generation wireless

Design, fabrication of a FR3 phase vector modulating phase shifter

- Explored the details of the UMC 28 nm high-compact RF foundry development kit for the design of transceiver system components [13].
- Designed and taped-out a 24 GHz vector modulator phase shifter comprising passive coupler, active balun, variable gain amplifier, polarity switch, and power combiners using IC design tools.

Sub-THz channel modeling at 142, 73, and 28 GHz

Channel modeling for Urban Microcells at mmWave and sub-THz frequencies

- Extracted spatiotemporal statistics describing the multipath propagation behavior in outdoor urban environments from measured data at 142, 73, and 28 GHz collected around the NYU campus in Manhattan and Brooklyn in New York City from 2010 to 2022 [14].
- Contrasted the characteristics across three frequency bands and derived insights regarding increasing sparsity of multipath moving from mmWave into sub-THz frequencies.

Sub-THz wireless propagation measurements

Outdoor and Factory wireless channel measurements at 142 GHz

- Employed the 142 GHz sub-THz channel sounder hardware for measurements in outdoor and four indoor factories in NYC [15].
- Conducted system calibration and measurements of path loss for 6G applications.
- Conducted outdoor propagation measurements at 142 GHz for ground-based and rooftop urban microcell scenario in Downtown, Brooklyn.
- Conducted passive reflective surface analysis at 142 GHz for indoor factories.

RF circuit design and prototyping

Evaluation board for channel sounder integrated circuit

- Designed and fabricated a four-layer evaluation printed circuit board (PCB) for a mixed-signal channel sounder integrated circuit (IC) fabricated in 65nm CMOS integrating differential to single-ended amplifiers, baluns, clock buffers, filters, and mixers [16].
- Tested the performance of the PCB for interfacing with 142 GHz channel sounder using RF test equipment: oscilloscope, spectrum analyzer, and arbitrary waveform generator.
- Integrated the fabricated PCB with the channel sounder system for wireless channel measurements through the acquisition of power delay profiles [17].

Sub-Terahertz (sub-THz) antenna evaluation

Evaluation of 180 GHz patch antennas using manual RF probe station

- Calibrated the Summit 11000B manual RF probe station for 140-220 GHz probing.
- Measured S-parameters of 180 GHz patch antennas on the calibrated probe station using VNA.

Waste Factor and Waste Figure

A Novel Energy Efficiency metric for any device, cascade, or system ([patent filed, \[P3\]](#))

Research Interests

- Supported the development of a novel metric, Waste Factor (W), for characterizing the power wasted by any device, cascade, or system [18], [19],[25]-[28].
- 5G mmWave Communications
- Upper mid-band and Sub-THz Communications
- RF Integrated Circuits
- Embedded Systems
- Internet of Things
- High Altitude Platform Stations

WORK EXPERIENCE

June 2024- August 2024

Radio Frequency System Architecture (mmWave) Intern

Samsung Semiconductor, Inc., San Diego, California, USA

Tel: +1 (408)544-4000

<https://semiconductor.samsung.com/>

- Collaborate with other team members on evaluation of radar prototype system using R&S FSW67
- Develop signal processing software to enhance system performance for applications such as proximity sensing, vital sign detection, motion detection and safety.
- Optimize hardware parameters to improve radar system performance.

Business or Sector Communications and Radar

June 2023- August 2023

June 2022- August 2022

mmWave ASIC Research Summer Intern

Nokia Bell Labs, New Providence, New Jersey, USA

Tel: +1 908 582 3000

<https://www.bell-labs.com/>

- Explored mTRL and LRRM calibration techniques for WR6.5 and WR5.1 bands
- S-parameter measurements for distributed amplifiers
- Carried out noise figure and linearity measurements for E-band transceivers
- Automated measurements over network including Keysight PSGs, PXAs, and PSUs and Matlab Instrument Control toolbox.

Business or sector Semiconductor fabrication and measurements

June 2021- August 2021

mmWave Systems Intern

(mmWave Systems Bell Labs Summer Intern at Nokia Bell Labs)

Nokia Bell Labs, New Providence, New Jersey, USA

- Investigated indoor coverage from outdoor base stations at 5G frequencies for 5G cellular deployments [20].
- Examined the urban macro-cell street grid scenario and building material properties for analysing indoor coverage.

Business or sector Telecommunications

April 2018- May 2019

Engineer in SSA for CBFEWS

(Special Service Agreement for Community Based Flood Early Warning Systems)

International Centre for Integrated Mountain Development, Khumaltar, Lalitpur, Nepal

Tel: +977-1-5275222

<http://www.icimod.org/>

- Enhanced the Telemetry based Water Level Monitoring System (TWLMS) used in CBFEWS. Addition of Remote Firmware Update capability to TWLMS [23].
- Supported the implementation of CBFEWS in river tributaries in Afghanistan, India, Nepal, and Pakistan through partners and field-based work.
- Trained the participants and facilitate the regional hands-on training and co-author the resource manual for CBFEWS with TWLMS for field implementation [23,24].

Business or sector Environmental and Social Welfare

May 2017- April 2018

Embedded Systems Design Engineer

Sustainable Eco Engineering P. Ltd., Lalitpur, Nepal

Tel: +977-1-5261472 - Email: info@susecoeng.com

- Led the team for Development of Energy Monitoring System for monitoring the energy contribution from different sources such as solar, grid, and generator for an organizational complex. System was based on R-pi integrated with current sensors for high current switch boxes using RS485 interface.
- Designed Embedded Systems for Environmental sensing integrating ultrasonic/radar water level sensors with microcontroller based data logging and telemetry systems using RF and cellular modules.
- Client Relations

Business or sector Engineering Solutions

December 2016-
May 2017

Engineering Intern

International Centre for Integrated Mountain Development, Khumaltar, Lalitpur, Nepal

Tel: +977-1-5275222

<http://www.icimod.org/>

- Led the Design and Development of TWLMS for flood monitoring and early warning in CBFEWS framework of ICIMOD.
- Studied and supported maintenance of the 92KW (peak) grid interactive solar electric system installed in the premises.
- Analyzed the prevalent energy consumption patterns at ICIMOD.

Business or sector Environmental and Social Welfare

July 2014- August 2015

Technical Assistant (Voluntary)

Sustainable Eco Engineering P. Ltd., Lalitpur, Nepal

Tel: +977-1-5261472 - Email: info@susecoeng.com

- Assisted in development of Wireless CBFEWS.
- Resource Person and Trainer in the "Regional Hands-On Training on Community Based Flood Early Warning System" organised by ICIMOD.
- Co-authored CBFEWS resource manual for field implementation.

Business or sector Engineering Solutions

PERSONAL SKILLS

Mother tongue(s) Newari, Nepali, Hindi

Other language(s)

	UNDERSTANDING		SPEAKING	WRITING
	Listening	Reading		
English	8.5	8.5	7.5	6.5
IELTS (CEFR Level) C1				

Communication skills ▪ good communication skills gained through field based technical and social scoping for CBFEWS

Job-related skills

- skilled in RF hardware and circuit design (Cadence Virtuoso, Calibre DRC, LVS, PEX, and post-Layout, peakView 3D EM simulator, Ansys High Frequency Structure Simulator (HFSS), Altium Designer, Eagle, Advanced Design system (ADS), System Verilog VHDL, LTSpice, Vector Network Analyzers, Banded Waveguide Frequency Extenders, Oscilloscope, Spectrum Analyzers, Arbitrary Waveform Generator, LPKF machine, Manual Probe Station, Soldering)
- good command of hardware programming (NXP, XBee PRO Zigbee and Digimesh, AVR, Android, SIM900 GSM/ Huawei MC509 CDMA modules, Arduino)
- good command of programming languages and platforms (Matlab, C, C++, Java, Python)
- sharp presentation skills (through topic and project presentations at conferences, seminars, and defenses; as trainer and facilitator in Hand-On training on CBFEWS)

Reasoning

GRE					
Quantitative Reasoning	Quantitative Reasoning Percentile	Verbal Reasoning	Verbal Reasoning Percentile	Writing	Writing Percentile
167	91	159	83	4.5	82

Totals: Quantitative Reasoning:170 – Verbal Reasoning:170 – Writing:6

General Software skills

- experienced in 3D model design (Autodesk Inventor through Major project in college)
- experienced in 2D graphics design (Adobe Photoshop and Adobe Illustrator through training camp attended in school and content development for projects)
- good experience in MS Office Suite (Word, Excel, Powerpoint, Visio via projects in school and work)

ADDITIONAL INFORMATION

Additional Projects

- 60 GHz Phased antenna array receiver design
Designed and simulated, using Cadence Virtuoso, a 60 GHz phased antenna array receiver with noise and gain optimized low noise amplifier, vector modulator-based active phase shifter, and Wilkinson power combiner implementing matching networks between each component.
- Embedded Challenge: Blood Pressure Monitoring System
An embedded automatic cuff-based blood pressure monitoring system with an ARM Cortex M4-based STM32 series microcontroller unit (MCU). A pressure sensor interfaced to the MCU via I2C communicated the pressure readings with time at 150 measurements/sec, which was interpreted into Systolic and Diastolic blood pressure readings.
- Design and simulation of inset feed patch antenna phased arrays at 28 GHz
An inset feed patch antenna at 28 GHz was designed and tuned in HFSS, then simulated in Matlab as part of an end-to-end communication system with uniform linear and rectangular phased antenna arrays that implemented beamforming. Developed as class project for "Wireless Communications" at New York University.
- Design and simulation of Folded Cascode Amplifier
A folded cascode amplifier design in 45nm CMOS technology with 72 dB gain, 16 kHz bandwidth, and 186 μ W power consumption among key measured specifications, using Cadence Virtuoso; Developed as a class project for "Fundamentals of Analog IC design" at New York University.
- Finite State Markov Chains in Wireless Communications: Channel Modeling, Capacity, and Applications
Explored the utility and application of Markov chains in describing wireless channels, particularly modeling channel fading, and evaluating the capacity and exploring potential applications of the Markov chain model for wireless communications. Study conducted as part of "Information Theory" curriculum at New York University.
- Energy Monitoring System
System designed to monitor electrical parameters –primarily power –of electric supply and distribution lines for an electrical setup at home, office or industry incorporating multiple sources such as generators, grid interactive solar and utility grid supplying the load demand; Developed with Sustainable Eco Engineering P. Ltd.
Role: Coordination of system design and development. Concept development. Development of firmware components.
- Telemetry based Water Level Monitoring System
Instrument designed to generate flood early warning information for vulnerable communities while also allowing remote monitoring via telemetry through utilisation of Zigbee wireless protocols and cellular data; developed with Sustainable Eco Engineering P. Ltd. as part of the CBFWS framework developed by ICIMOD.
Role: Coordination of system design and development. Development of hardware and firmware components.
- Computer Numerical Control: Geometric Craft
College Major Project. A 3 Axis CNC machine controlled via G-codes that is designed to cut or engrave on materials such as wood, paper, plastic, etc. over a 50cm by 60cm cutting board.
Role: Organised project Tasks and facilitated execution within schedule. Concept and 3D CAD model design. Development of control electronics.
- Heliplane-20
College Minor Project: A remote controlled model of a tiltrotor airplane that can transition between a helicopter and a plane; is based on the Bell Boeing V22 Osprey.
Role: Project coordination and management. Electronic control system design. 3D modelling.

Honours and awards

- David Goodman Leadership and Academic Excellence Award 2024 for leading pioneering FR1(C) and FR3 propagation measurements in outdoor, indoor, and factory environments for 5G advanced and 6G communications
- Best Paper Award in the IEEE Global Communications Conference 2023 for the paper titled: "Waste Factor: A New Metric for Evaluating Power Efficiency in any Cascade"
- Li Publication Award for the paper titled: "A power efficiency metric for comparing energy consumption in future wireless networks in the millimeter-wave and terahertz bands"
- NSF: Major Research Instrumentation grant for the THz Measurement facility.
- NYU Research Catalyst Prize 2022.
- Theodor Tamir Award for the Best Master's Thesis in Electrical and Computer Engineering awarded by New York University Tandon School of Engineering in 2021.
- School of Engineering fellowship awarded by New York University for Ph.D. in Electrical Engineering.
- Best Major Project of 2016 for Computer Numerical Control: Geometric Craft awarded by Kantipur Engineering College
- 1st Position for Heliplane-20 in "LOCUS 2016- 13th National Technological Festival Project Competition (Open Hardware category)" organised by the Institute of Engineering, Nepal
- Full scholarship awarded by Kantipur Engineering College for Bachelor's in Electronics and Communications Engineering from 2012 to 2016.

PUBLICATIONS

- [1] D. Shakya, N. A. Abbasi, M. Ying, I. Jariwala, J. J. Qin, I. S. Gupte, B. Meier, G. Qian, D. Abraham, T. S. Rappaport, A. F. Molisch, "Standardized Machine-Readable Point-Data Format for Consolidating Wireless Propagation Across Environments, Frequencies, and Institutions", (invited) IEEE MILCOM 2025, Los Angeles, USA, Oct. 2025, pp. 1–6.
Link: <https://arxiv.org/pdf/2510.00141>
- [2] D. Shakya, M. Ying and T. S. Rappaport, "Angular Spread Statistics for 6.75 GHz FR1(C) and 16.95 GHz FR3 Mid-Band Frequencies in an Indoor Hotspot Environment," 2025 *IEEE Wireless Communications and Networking Conference (WCNC)*, Milan, Italy, 2025, pp. 1-6, doi: 10.1109/WCNC61545.2025.10978475.
Link: <https://ieeexplore.ieee.org/abstract/document/10978475>
- [3] D. Shakya, M. Ying, T. S. Rappaport, P. Ma, Y. Wang, I. Al-Wazani, Y. Wu, and H. Poddar "Upper Mid-Band Channel Measurements and Characterization at 6.75 GHz FR1(C) and 16.95 GHz FR3 in an Indoor Factory Scenario", IEEE International Conference on Communications (ICC), Montreal, Canada, Jun. 2025, pp. 1–6.
Link: <https://ieeexplore.ieee.org/abstract/document/11160744>
- [4] D. Shakya, M. Ying, T. S. Rappaport, P. Ma, I. Al-Wazani, Y. Wu, Y. Wang, D. Calin, H. Poddar, A. Bazzi, M. Chafii, Y. Xing, and A. Ghosh, "Urban Outdoor Propagation Measurements and Channel Models at 6.75 GHz FR1(C) and 16.95 GHz FR3 Upper Mid-band Spectrum for 5G and 6G," IEEE International Conference on Communications (ICC), Montreal, Canada, Jun. 2025, pp. 1–6.
Link: <https://ieeexplore.ieee.org/abstract/document/11161884>
- [5] T. S. Rappaport, D. Shakya, and M. Ying, "Point Data for Site-Specific Mid-band Radio Propagation Channel Statistics in the Indoor Hotspot (InH) Environment for 3GPP and Next Generation Alliance (NGA) Channel Modeling", IEEE International Conference on Communications (ICC), Montreal, Canada, Jun. 2025, pp. 1–6.
Link: <https://ieeexplore.ieee.org/abstract/document/11161652>
- [6] D. Shakya *et al.*, "Comprehensive FR1(C) and FR3 Lower and Upper Mid-Band Propagation and Material Penetration Loss Measurements and Channel Models in Indoor Environment for 5G and 6G," in *IEEE Open Journal of the Communications Society*, vol. 5, pp. 5192-5218, 2024, doi: 10.1109/OJCOMS.2024.3431686.
Link: <https://ieeexplore.ieee.org/abstract/document/10605910>
- [7] Dipankar Shakya, Mingjun Ying, and Theodore S. Rappaport, "Angular Spread Statistics for 6.75 GHz FR1(C) and 16.95 GHz FR3 Mid-Band Frequencies in an Indoor Hotspot Environment", IEEE Wireless Communications and Networking Conference, Milan, Mar. 2025, pp. 1–6.
Link: <https://ieeexplore.ieee.org/abstract/document/10978475>
- [8] D. Shakya *et al.*, "Propagation measurements and channel models in Indoor Environment at 6.75 GHz FR1(C) and 16.95 GHz FR3 Upper-mid band Spectrum for 5G and 6G," *GLOBECOM 2024 - 2024 IEEE Global Communications Conference*, Cape Town, South Africa, 2024, pp. 998-1003, doi: 10.1109/GLOBECOM52923.2024.10901735.
Link: <https://ieeexplore.ieee.org/document/10901735>
- [9] D. Shakya *et al.*, "Wideband Penetration Loss through Building Materials and Partitions at 6.75 GHz in FR1(C) and 16.95 GHz in the FR3 Upper Mid-band spectrum," *GLOBECOM 2024 - 2024 IEEE Global Communications Conference*, Cape Town, South Africa, 2024, pp. 1665-1670, doi: 10.1109/GLOBECOM52923.2024.10901400.
Link: <https://ieeexplore.ieee.org/document/10901400>
- [10] D. Shakya, H. Poddar and T. S. Rappaport, "A Sub-Terahertz Sliding Correlator Channel Sounder with Absolute Timing using Precision Time Protocol over Wi-Fi," *GLOBECOM 2023 - 2023 IEEE Global Communications Conference*, Kuala Lumpur, Malaysia, 2023, pp. 5793-5798.
Link: <https://ieeexplore.ieee.org/abstract/document/10436748>
- [11] D. Shakya, T. S. Rappaport, D. Shahrjerdi, M. E. Knox, S. Nie, A. Madanayake, Z. Popovic, and H. Wang "Exploring Millimeter-Wave and Terahertz Circuits and Systems With a Novel Multiuser Measurement Facility: Multiuser Terahertz Measurement Facility (THz Lab)," in *IEEE Microwave Magazine*, vol. 25, no. 2, pp. 68-79, Feb. 2024.
Link: <https://ieeexplore.ieee.org/abstract/document/10388019>
- [12] D. Shakya *et al* "Four-Port Probe Stations and SOLR Calibration Standard Design up to 125 GHz on 28 nm CMOS," (Accepted) *IEEE Asia-Pacific Microwave Conference (APMC) 2025*, Jeju, S. Korea, 2025, pp 1-3. Link: <https://arxiv.org/abs/2510.00435>
- [13] J. M. Jornet *et al.*, "The Evolution of Applications, Hardware Design, and Channel Modeling for Terahertz (THz) Band Communications and Sensing: Ready for 6G?," in *Proceedings of the IEEE*, doi: 10.1109/JPROC.2024.3412828.
Link: <https://ieeexplore.ieee.org/document/10579941>

- [14] D. Shakya, S. Ju, O. Kanhere, H. Poddar, Y. Xing, and T. S. Rappaport, "Radio Propagation Measurements and Statistical Channel Models for Outdoor Urban Microcells in Open Squares and Streets at 142, 73, and 28 GHz," in *IEEE Transactions on Antennas and Propagation*, 2024, pp 1-15.
Link: <https://ieeexplore.ieee.org/abstract/document/10444718>
- [15] S. Ju, D. Shakya, H. Poddar, Y. Xing, O. Kanhere and T. S. Rappaport, "142 GHz Sub-Terahertz Radio Propagation Measurements and Channel Characterization in Factory Buildings," in *IEEE Transactions on Wireless Communications*, Jan 2023, pp 1-15.
Link: <https://ieeexplore.ieee.org/abstract/document/10346993>
- [16] D. Shakya, T. Wu, and T. S. Rappaport, "A Wideband Sliding Correlator based Channel Sounder in 65 nm CMOS: An Evaluation Board Design", in 2020 IEEE Global Communications Conference (GLOBECOM 2020), Taipei, Taiwan, Dec. 2020, pp. 1–6.
Link: <https://ieeexplore.ieee.org/document/9322622>
- [17] D. Shakya, T. Wu, M. E. Knox and T. S. Rappaport, "A Wideband Sliding Correlation Channel Sounder in 65 nm CMOS: Evaluation Board Performance," in *IEEE Transactions on Circuits and Systems II: Express Briefs*, Sep. 2021, pp. 1–5
Link: <https://ieeexplore.ieee.org/document/9447829>
- [18] M. Ying, D. Shakya, H. Poddar and T. S. Rappaport, "Waste Factor: A New Metric for Evaluating Power Efficiency in any Cascade," *GLOBECOM 2023 - 2023 IEEE GLOBECOM*, Kuala Lumpur, Malaysia, 2023, pp. 6735-6740. **(Best Paper)**
Link: <https://ieeexplore.ieee.org/abstract/document/10436843>
- [19] O. Kanhere, H. Poddar, Y. Xing, D. Shakya, S. Ju and T. S. Rappaport, "A Power Efficiency Metric for Comparing Energy Consumption in Future Wireless Networks in the Millimeter-Wave and Terahertz Bands," in *IEEE Wireless Communications*, vol. 29, no. 6, pp. 56-63, December 2022.
Link: <https://ieeexplore.ieee.org/abstract/document/9864328>
- [20] D. Shakya, D. Chizhik, J. Du, R. A. Valenzuela and T. S. Rappaport, "Dense Urban Outdoor-Indoor Coverage from 3.5 to 28 GHz," *ICC 2022 - IEEE International Conference on Communications*, Seoul, Korea, Republic of, 2022, pp. 932-937.
Link: <https://ieeexplore.ieee.org/abstract/document/9838919>
- [21] D. Shakya, "Towards Channel Sounder Miniaturization: Prototyping Circuit Design for a Wideband Sliding Correlation Baseband IC in 65 Nm CMOS and an RF Probe Station Environment," Master's Thesis, Dept. of Elec. and Computer Engg., NYU Tandon School of Engineering, 2021.
Link: <https://www.proquest.com/docview/2818622063?pq-origsite=gscholar&fromopenview=true>
- [22] H. Poddar, S. Ju, D. Shakya and T. S. Rappaport, "A Tutorial on NYUSIM: Sub-Terahertz and Millimeter-Wave Channel Simulator for 5G, 6G and Beyond," in *IEEE Communications Surveys & Tutorials*, Jan 2023, pp.1-30.
Link: <https://ieeexplore.ieee.org/abstract/document/10367974>
- [23] D. Shakya, V. R. Khadgi, N. Bajracharya, S. R. Bajracharya, S. K. Rai & N. S. Pradhan, "Community based flood early warning system: Resource manual - Revised edition for telemetry-based instrumentation." ICIMOD, Kathmandu, May 2019.
Link: <https://lib.icimod.org/record/34493>
- [24] N.S. Pradhan, N. Bajracharya, S.R. Bajracharya, S.K. Rai, D. Shakya, "Community based flood early warning system- Resource manual." ICIMOD, Kathmandu, Nov. 2016.
Link: <http://lib.icimod.org/record/32318>
- [25] M. Ying, D. Shakya, P. Ma, G. Qian, T. S. Rappaport, "Site-Specific Location Calibration and Validation of Ray-Tracing Simulator NYURay at Upper Mid-Band Frequencies," (submitted to) *npj Wireless Technology*, July 2025
Link: <https://arxiv.org/pdf/2507.22027>
- [26] M. Ying, D. Shakya, and T. S. Rappaport, "Using Waste Factor to Optimize Energy Efficiency in Multiple-Input Single-Output (MISO) and Multiple-Input Multiple-Output (MIMO) Systems", in 2024 IEEE Global Communications Conference (GLOBECOM), Cape Town, South Africa, Dec. 2024, pp. 1–6.
Link: <https://arxiv.org/pdf/2405.01352>
- [27] M. Ying, P. Ma, D. Shakya, T. S. Rappaport, "Multi-Stage Location Optimization Through Power Delay Profile Alignment Using Site-Specific Wireless Ray Tracing," (accepted) *GLOBECOM 2025- 2025 IEEE Global Communications Conference*, Taipei, Taiwan, Dec. 2025, pp. 1-6.
Link: <https://arxiv.org/pdf/2509.11923>
- [28] T. S. Rappaport, M. Ying, D. Shakya, "Waste figure and waste factor: New metrics for evaluating power efficiency in any circuit or cascade," (Invited) *Microwave Journal*. 67 (5), 2024, pp. 1-16.
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PATENTS

- [P1] D. Shakya, T. S. Rappaport, "A Sub-THz Sliding Correlator Channel Sounder with Absolute Timing using Precision Time Protocol over Wi-Fi," U.S. Patent Application 63/536,630, NYU RAP03-09 PRO, filed, Sep 5, 2023.
- [P2] T. S. Rappaport, D. Shakya, "4-port Probe Station," U.S. Patent Application 63/815,145, NYU RAP03-15 PRO, filed, May 30, 2026.
- [P3] T. S. Rappaport, D. Shakya, M. Ying, "Using Waste Factor to Optimize Energy Efficiency in SISO and MIMO Systems," U.S. Patent Application No. 2025/023022, NYU RAP03-11 PRO, filed Apr. 9, 2024.