

Dipankar Shakya

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[Google Scholar](#) | [LinkedIn](#)

Education

New York University, New York, USA

Ph.D. in Electrical Engineering

September 2019- Present

- Advisor: Prof. Theodore S. Rappaport
- Awards: Dean's Fellowship.
- Relevant Courses Completed: Analog IC design, Introduction to VLSI design, RF and microwave systems engineering, Electromagnetics, Digital communications, Digital signal processing, Probability & stochastic processes.

Kantipur Engineering College, Tribhuvan University, Nepal

B.E. Electronics and Communications Engineering, Distinction

September 2012- September 2016

Research

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 [1].
- Tested the performance of the PCB for interfacing with 142 GHz channel sounder using RF test equipment: oscilloscope, spectrum analyzer, and arbitrary waveform generator.

Evaluation of 180 GHz patch antennas using manual RF probe station

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

Outdoor wireless channel measurements at 142 GHz

- Operated the 142 GHz channel sounder hardware for outdoor sub-THz measurements. 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.

Work Experience

International Center for Integrated Mountain Development (ICIMOD)

Lalitpur, Nepal

Engineer for Community Based Flood Early Warning Systems (CBFEWS)

April 2018-May 2019

- Enhanced the telemetry-based water level monitoring system (TWLMS) hardware used in CBFEWS implemented in Afghanistan, India, Nepal, and Pakistan [2].
- Co-authored the resource manual for CBFEWS with TWLMS for field implementation [2].

Sustainable Eco Engineering (SEE)

Lalitpur, Nepal

Embedded Systems Design Engineer

May 2017-April 2018

- Led the design and development of TWLMS for flood monitoring and early warning in the CBFEWS framework of ICIMOD [2].

- Studied and supported the maintenance of the 92KW (peak) grid-interactive solar electric system installed on the premises for energy consumption analysis.

Research Interests

5G mmWave Communications, RF Integrated Circuits, Embedded Systems, Internet of Things, High Altitude Platform Stations, Clean Energy.

Accolades

Best Major Project Award 2016,

Kantipur Engineering College, Nepal

Project Title: Computer Numerical Control: Geometric-Craft (CNC: G-Craft)

A 3-axis CNC machine designed to cut or engrave on materials over a 20" × 24" cutting area.

1st prize: LOCUS 2016- National Technological Festival Project Competition (Open Hardware category),

Institute of Engineering, Nepal

Project Title: Heliplane-20

A remote-controlled model of a tiltrotor aircraft that can transition between a helicopter and a plane.

Skills

Software:

- Altium Designer, Cadence Virtuoso, High Frequency Structure Simulator (HFSS), Advanced Design System (ADS), MATLAB/Simulink, LTSpice for circuit and antenna design, simulations, and analysis in current research work.
- Arduino Design Environment, Atmel Studio, Codewarrior for XBee PRO, Android Studio used for programming microcontrollers and developing the TWLMS embedded hardware.
- Autodesk Inventor for the mechanical design in the CNC: G-Craft project.
- C, C++ programming in undergraduate projects.

Hardware:

- Experience using Oscilloscopes, Arbitrary Waveform Generators, Spectrum Analyzers, Vector Network Analyzers, and Manual Probe Station for ongoing research work.
- Experience using LPKF Protomat D104 for PCB fabrication, and reflow soldering for assembly.

Publications

[1] 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://arxiv.org/pdf/2009.13490.pdf>

[2] 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>