Asif Al Noor

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Summary

Intermediate radio frequency engineer with a strong background in electromagnetics and more than 5 years of experience in developing a wide range of RF components and devices from concept through to manufacture.

- In-depth knowledge of radio communication systems design, development, verification and optimization.
- Strong capabilities of antenna research, design simulation, fabrication and testing using industry-standard modeling tools: CST, ADS, HFSS, Feko.
- Experience in RF field measurements, as well as characterization and evaluation of RF products and systems.
- Strong programming and scripting skills: Python, MATLAB, C/C++.
- Extensive experience with device debugging and QC process, and lab equipment: VNA, signal generators, spectrum analyzer, oscilloscopes.
- Solid knowledge of Circuit Theory and Analysis, Electronic Circuits, Signals and Systems, Electromagnetics and Transmission Line Theory, Digital Communications Theory, Wireless Systems and Radio Frequency/Microwave Circuits.

Education

University of British Columbia — Kelowna, BC
MASc in Electrical Engineering. Authored 2 publications. thesis URL — *Aug. 2014 – Oct. 2016*

Islamic University of Technology — Dhaka, Bangladesh
BSc in Electrical and Electronic Engineering. Co-authored 5 publications. — *Jan. 2010 – Oct. 2013*

Professional Experience

SMT Research Ltd. — April 2020 – Present
Intermediate RF Engineer — *Vancouver, BC*

- Modernized, developed, tested and installed wireless system upgrade to the existing structural monitoring system to reduce installation costs while maintaining computational accuracy.
- Designed, tested and verified antenna and other components for an RF power harvesting circuit at 915 MHz. The circuit performs measurements from a battery-free sensor network.
- Pioneered custom battery-assisted RFID passive sensor tags for remote datalogging and developed an RFID based tracking system to pinpoint hidden sensor location.
- Carried out numerical analysis, software simulation to characterize electrical properties and RF propagation through various roof assemblies. Developed test setup to run field experiments and verify the characterization.
- Performed QC tests on sensors and data-loggers, and investigated circuit hardware failures.
- Installed sensors and dataloggers in active sites and provided technical support to technicians during installation.
- Drafted and edited testing procedures, reports, papers and other documents.

Direct Kinetic Solutions — Oct. 2019 – March 2021
RF Engineering Consultant — *El Paso, TX (Remote)*

- Developed RF system and cubesat EPS, researched solutions, recommended equipment based on client tech.
- Produced preliminary cubesat payload concepts for clients, including antenna deployment, antenna performance, payload block diagram, link budgets, power budgets, mass budgets.
- Developed RF solutions for the US Army contract bids and wrote technical proposals within strict deadlines.
- Proposed a standard 6U CubeSat platform to obtain a high resolution (5 m colour and 3m monochromatic) image and high-definition (HD) movie for high-speed ISR applications.
- Identified new product opportunities, market trends and competitiveness in the marketplace.

Helios Wire Inc. — July 2017 – May 2019
Lead RF Engineer — *Vancouver, BC*

- Designed, simulated and successfully deployed CubeSat C-, X- and S-Band antennas for CubeSat data and TT&C communication. Conducted studies with a 3 ft S-band reflector antenna in the ground station.

- Performed system analysis and carried out calculations such as switch/hybrid and filter assemblies, link-budget, power budget, power flux density, mass budget analysis, etc.
- Conceptualized and modelled an outdoor-rated access point/gateway to connect to Cubesat and IoT tags.
- Committed to the new product development process, such as defining product requirement documents (PRD), developing product roadmap, and producing the conceptual design.
- Interfaced with subcontractors to determine RF product requirements, negotiate prices and terms.
- Collaborated with vendors to troubleshoot antenna production as well as to purchase equipment, including Power Amplifiers, LNAs, Filters, etc., for RF subsystem.

Academic Experience

Markley Electromagnetics Research Group, UBC Sept. 2014 - Dec. 2016

Research Assistant *Kelowna, BC*

- Investigated passive electromagnetic architectures and solutions, such as optical sensors, metamaterials, antennas, frequency selective surfaces, and wireless power transfer.
- Developed and characterized a planar broadband leaky-wave antenna for planar applications using COMSOL.

Teaching Assistant

- Taught APSC 178 (Electricity, Magnetism, & Waves) course for two semesters, held office hours and received excellent reviews from the first year engineering students.

Electromagnetics Research Group, IUT Nov. 2012 - Dec. 2013

Undergraduate Research Assistant *Dhaka, Bangladesh*

- Researched characteristics of Surface-Plasmon-Polariton (SPP) through various waveguides and determined the optimum design for different applications.

Selected Projects

Microwave Amplifier Design | *AWR, VNA, Signal Generator* March 2015

- Designed a UHF microwave amplifier at 1 GHz using AWR microwave office and adopted it on Rogers RO4350 substrate with NXP BFR520 transistor.

Fabrication of Graded-dielectric Materials for Antenna Applications | *MATLAB, VNA* Oct 2018

- Developed a MATLAB script to produce spatially varying permittivity by drilling holes on Rogers RT/duroid 5880,TMM 3,TMM 4 and TMM 6 high frequency laminates.

Selected Publications

- A Geometrically Phase-Compensated Transformation Optics Superstrate for Fixed-Beam Broadband Leaky-Wave Radiation, IEEE Explore, 2019 - *publication URL*
- Achieving Linear Phase Through Geometrically-Compensated Transformation Domains for Leaky-Wave Antenna Radiation, IEEE Explore, 2016 - *publication URL*

Technical Skills

Softwares: ADS, HFSS, CST, KiCAD, STK
Languages: MATLAB, GNU Octave, Python, C/C++, Simulink, R
Equipment: VNA, Signal generator, Spectrum analyzer, Oscilloscope

Professional Affiliatinos

Engineers and Geoscientists BC | *Engineer-in-Training (EIT)* 2016 – Present

IEEE Internet of Things Society | *Member* 2018 – Present

Extracurricular Experience

Zen Maker Lab Oct. 2019 - March. 2020

STEM Educator *Vancouver, BC*

- Designed aerospace and electronics STEM curriculum to provide kids hands-on experience real electronic components.
- Fabricated various hobby electric circuits to make 3D printed electronic toys for enthusiastic children.