Asif Al Noor

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Summary

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

- In-depth knowledge of RF solution specifications, design and verification processes.
- Experience in antenna design, simulation, fabrication and testing.
- 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.
- Strong understanding of electromagnetic wave theory and fair undestanding of device modelling.

Education

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

Islamic University of Technology — Dhaka, Bangladesh
BSc in Electrical and Electronic Engineering. Authored five publications. — *Jan. 2010 – Oct. 2013*

Professional Experience

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

- Designing new products/solutions, and enhancing existing data-loggers and sensors providing wireless data about structural monitoring technology.
- 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.
- Carried out numerical analysis, software simulation and field experiments to characterize electrical properties and RF propagation through various roof assemblies.
- Performed QC tests on sensors and wireless data-loggers, and investigated circuit hardware failures, including radio components.
- Installed building science sensors in active construction sites and provided direct technical support to field technicians during installation.
- Drafted and edited testing procedures, reports, papers and other documents.
- Inventor in one patent application (pending).

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

- Developed RF solutions for clients based on uninterrupted power sources technology.
- Developed RF architecture and EPS of cubesats powered by isotopic power technology.
- Developed preliminary cubesat payload concepts for clients, including antenna deployment, antenna performance, payload block diagram, link budgets, power budgets, mass budgets.
- Researched solutions and recommended equipment based on client RF technology.
- Wrote multiple proposals for the US Army contract bids within strict deadlines. Proposals include replacing traditional lithium battery power in CubeSats with reliable, long-lasting isotopic batteries — all while freeing up space for ISR payloads and reducing mass allocation. Proposed a standard 6U CubeSat platform to obtain a high resolution (5 m colour and 3m monochromatic) image and high-definition (HD) movie for 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*

- Spearheaded the RF system design towards developing contemporary wireless communication between nano-satellite constellation and ground segment in a startup environment.
- Responsible for new product development, including defining product requirement documents (PRD), developing product roadmap, and producing the conceptual design.
- Designed CubeSat C-, X- and S-Band antennas for CubeSat data and TTAC communication. In addition, worked with a 3 ft S-band reflector antenna in the ground station.
- Conducted system analysis and carried out calculations, including designing switch/hybrid and filter assemblies, link-budget, power budget, power flux density, mass budget analysis, etc.
- Conceptualized and modelled an RF access point/gateway unit to connect to IOT tags.
- Carried out basic simulations of orbit to ground CubeSat communications via STK.
- Interfaced with suppliers/subcontractors to determine product requirements, negotiate prices and T&Cs of large volume buying and deliver products' timely delivery.
- Collaborated with vendors to troubleshoot antenna production as well as to purchase equipments, including Power Amplifiers, LNAs, Filters, etc., for RF subsystem.

Academic Experience

Markley Electromagnetics Research Group, UBC Sept. 2014 - Dec. 2016
Research Assistant *Kelowna, BC*

- Conducted research and development in electromagnetism, RF propagation, RF integrated circuits, antenna design and metamaterials.
- Developed a planar broadband leaky-wave antenna for planar broadband applications.

Teaching Assistant

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

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.

Simple Paintball | *Spigot API, Java, Maven, TravisCI, Git* May 2018 – May 2020

- Developed a Minecraft server plugin to entertain kids during free time for a previous job
- Published plugin to websites gaining 2K+ downloads and an average 4.5/5-star review
- Implemented continuous delivery using TravisCI to build the plugin upon new a release
- Collaborated with Minecraft server administrators to suggest features and get feedback about the plugin

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
Frameworks: React, Node.js, Flask, JUnit, WordPress, Material-UI, FastAPI
Developer Tools: Git
Libraries: NumPy, Matplotlib

Professional Affiliatinos

Engineers and Geoscientists BC | *Engineer-in-Training (EIT)* 2016 – Present
IEEE Internet of Things Society | *Member* 2018 – Present