Mark Opfell

Exposure & Skills

RF Standards	FCC, ITU, DVB-S2
Programming Languages	Python, VBA
HW Tools	VNA, Antenna Hats, Digital Transceiver
SW Tools	Excel (Wizard), Pycharm, Git*, Bash, Vi
Scientific Python Stack	NumPy, SciPy, Matplotlib, Pandas
Significant Ascents	Mount Rainier, Mount Adams, Mount Baker

Work Experience

Job Title **Senior RF Systems Engineer**
Employer **LeoStella** Tukwilla, WA
Period **April 2019 – Present**

Architecting software defined RF communications system solutions for low-earth orbit small satellite constellations (BlackSky & Loft Orbital) managing cost, SWaP, schedule, and risk. Building an open source link budget model to simulate: throughput, coverage, power, and bandwidth.

Flowed top-level GPS RF system self-compatibility requirements to a filter design. Implemented design by researching and simulating parts, and then laid out the RF section on a mixed signal PCB. Validated and characterized calibrated RF response with a network analyzer over temperature extremes.

Job Title **RF Systems Engineer**
Employer **Kymeta** Redmond, WA
Period **February 2018 – March 2019**

Wrote phased array antenna cross-polarization optimization algorithm in Python and integrated it with production level test codebase along with documentation, theoretical and actual response data.

Took on project management duties helping guide and educate team members towards a unified view of software processes, programming languages, and development tools, across Agile and Waterfall methodologies.

Developed and executed over-the-air combined OSI application, transport, network, and physical layer level test cases for a mobile MIMO terminal Ku-band ground station with software defined phased array flat panel antennas and a DVB-S2 satellite modem

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Job Title	**RF Systems Software Engineer**	
Employer	**Space Systems/Loral**	Mountain View, CA
Period	**October 2016 – January 2018**	

Award wining role leading, developing, and managing a production Python client and services to exchange data between a PostgreSQL database storing 1 TB of antenna data and an RF downlink capacity tool.

Job Title	**Senior RF Systems Engineer**	
Employer	**Space Systems/Loral**	Mountain View, CA
Period	**March 2015 – October 2016**	

Lead successful Forward downlink payload re-design, deployment, launch, in-orbit test, and handover of geostationary communication satellite Echostar 21 operating the receive at Ka-band and transmit at S-band.

Wrote specifications, triaged vendors, reviewed test data collateral, and directed the installation, unit level and system level tests of the following passive and active RF units: diplexer, waveguide, directional coupler, band pass filter, low noise amplifier, downconverter, high power load, circulator, coaxial cable, master reference oscillator, and synthesizer.

Job Title	**RF Systems Engineer**	
Employer	**Space Systems/Loral**	Mountain View, CA
Period	**September 2013 – March 2015**	

Developed Python analysis tool to model complex amplitude and time delay of 10,000+ passive and active electronic units for a ground-based beam-forming network.

Awarded by the CEO for saving $0.25 Million and 3 weeks of production schedule with Python tool simulations.

Job Title	**Associate RF Systems Engineer**	
Employer	**Space Systems/Loral**	Mountain View, CA
Period	**June 2012 – September 2013**	

Automated calculations for the world's highest capacity satellite's gateway downlinks at 32,000 Watts of transmit power.
Developed and maintained budgets analyzing RF channel performance over 80 unique countries during 1.5 year satellite design cycle.

Education

Degree	**Bachelor of Science in Electrical Engineering**
University	**University of California, Davis**
Period	**June 2009 – June 2012**

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