Mark Opfell

Exposure & Skills

Programming Languages	Python, VBA
RF Standards	FCC, ITU, DVB-S2
HW Tools	Digital Transceiver, Vector Network Analyzer, Antenna Hats
SW Tools	Excel (Wizard), Git, GitHub, Vi, Bash, Pycharm
Scientific Python Stack	NumPy, SciPy, Matplotlib, Json, Requests
Life	Ski Mountaineering

Work Experience

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

Architecting digital software defined radio RF communications system solutions for low-earth orbit small satellite constellations. Performing multivariate optimizations for: cost, size, weight, power, bit error rate, occupied bandwidth, and spectral efficiency.

Sourced, assembled, and validated a digital transceiver ground station using a vector network analyzer and spacecraft hardware-in-the-loop.

Constellations currently include an imaging platform for BlackSky with 4 on-orbit and a total of 60 planned, as well as proposal work for Spacebelt (a space-based secure cloud storage)

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

Developed and executed over-the-air combined OSI application, transport, network, and physical layer level test cases for a MIMO terminal Ku-band ground station with software defined electronically scanned antennas and a DVBS-2 satellite modem

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.

Wrote electronically scanned antenna cross-polarization optimization algorithm and integrated it with production level test codebase along with documentation, theoretical and actual response data.

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

Award wining role of 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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