Mark Opfell

Exposure & Skills

RF Standards	FCC, ITU, DVB-S2, CCSDS, VITA49
RF Tools	VNA, GNU Radio, Cloud SDRs, Antenna Hats
General Software Tools	Python, Git*, Bash, Excel (Wizard)
Scientific Python Libraries	NumPy, SciPy, Matplotlib, Cartopy, Pandas
Significant Volcano Ascents	Mount Rainier, Mount Adams (solo)

Work Experience

Job Title	**Lead Communication Systems Engineer**	
Employer	**Albedo**	Asynchronous Remote
Period	**October 2021 – Present**	

Creating, evaluating, and documenting space-to-ground communications and the mission data chain from physical to presentation layers. Evaluation methods include GNU Radio software defined transceiver simulations, technical deep dives into open source communication standards, and cross-team collaboration on product level (satellite imagery) vision, and processing pipeline code.

Created a realistic and actionable plan to increase satellite constellation average payload data throughput by 42% yielding a 14% increase in capacity (directly correlated with revenue). Validated the plan with large scale year-in-the-life Python link budget modeling and systems engineering showing minimal schedule delay, and technical risk. Continuously building consensus with the founders: CEO, CTO, and CPO, on which space and ground communication business partnerships to pursue.

Job Title	**Senior RF Systems Engineer**	
Employer	**LeoStella**	Tukwilla, WA & Remote
Period	**April 2019 – October 2021**	

Created technology roadmaps, architecture diagrams, link budgets, test plans, and ran hands-on troubleshooting. Collaborated with suppliers and customers to design, manufacture, test, launch, and operate X, S, GPS, and UHF-band space-based software defined radios linked to ground stations enabled by the AWS Ground Station product (global ground-station-as-a-service) as well as the KSAT Lite ground station network.

Designed, simulated, purchased, laid out, and validated: parts, mixed signal PCB, connectors, cabling, and enclosure for a GPS RF system self-compatibility filter. Multiple spacecraft successful in-orbit operation.

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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.

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

Job Title	**Senior RF Systems Engineer**	
Employer	**Space Systems/Loral**	Mountain View, CA
Period	**March 2015 – January 2018**	

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.

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

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

Education

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