Mark Opfell

Exposure & Skills

RF Standards	FCC, ITU, DVB-S2, CCSDS, VITA49
RF Tools	VNA, GNU Radio, Antenna Hats, Cloud SDRs
Groundstation Network	KSAT Lite
General Software Tools	Python, Git*, Bash, Excel (Wizard)
Scientific Python Libraries	NumPy, SciPy, Matplotlib, Cartopy, Pandas
High Altitude Volcano Summits	Mount Rainier, Mount Adams (solo in a day)

Work Experience

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

Creating, documenting, and evaluating both space-to-ground communication interfaces and the mission data chain: physical, frame, and packet layers. Evaluation methods include GNU Radio software defined transceiver simulations, technical deep dives into open source communication standards, and cross-team discussion of product level requirements.

Created a realistic 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 both showing minimal: recurring cost, schedule delay, and technical risk. Built 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.

+1-530-848-8212
markopfell@gmail.com
github.com/markopfell
linkedin.com/markopfell

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**

+1-530-848-8212
markopfell@gmail.com
github.com/markopfell
linkedin.com/markopfell