Eric Funk, Ph. D.

Partner/Co-Founder - Red Mountain Radio LLC
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Citizenship: United States of America

Summary

Eric Funk is a partner and co-founder of Red Mountain Radio LLC (Electronics Industry/ RF Design Consultancy) and of Brown Mountain Broadcasting LLC (Radio Broadcasting & Engineering)

Dr. Funk has over 30 years of experience as an electrical engineer. His proprietary designs for clients appear in a wide variety of industrial, research, and consumer electronics products. He has a Ph. D. in Electrical Engineering with a specialty in Microwave Photonics. Before transitioning from research to proprietary design work in consultancy, he published extensively on microwave photonics, ultra-wideband communications, and radar.

Experience

Partner / RF Design Engineer
Red Mountain Radio LLC (Ouray, CO)
June 2003 – Present (15+ Years)

Dr. Funk is a partner, co-founder, and RF Design Engineer at Red Mountain Radio LLC (RMR).

RF Engineering Project Management: Eric manages a variety of radio frequency design projects from idea to production-ready for clients, including developing specifications, budgets, and timelines, performing system and board level hardware design, prototyping, testing, firmware coding, documentation, and assisting with transition to production.

Dr. Funk has recently performed management and design work on the following types of products and applications: Machine-to-machine (M2M), wearables, radar, automotive OBD, aircraft comms, antenna matching, radio-over-fiber, optical wireless, high temp. oil well down-hole sensor, set top box, pager, RFID, RF test equipment/instrumentation.

RF Board Level Design: Eric applies best practice RF engineering principles to board-level design including the design of PLLs, VCOs, microwave filters, low noise and power amplifiers, T/R switches, front-end limiters, ADCs and DACs. This includes RF layout on multi-layer and microwave laminate boards. He routinely works with vector network analyzers, spectrum analyzers, vector signal generators, oscilloscopes, function generators, and thermal test ovens. He is proficient at soldering and solder rework.

Optical Design: Eric applies best practice optical and RF design engineering principles to develop radio-over-fiber systems. He works proficiently with DFB lasers, laser controllers, MZMs, SMF28 and specialty single mode fibers, and optical test equipment.

Problem Solving & Analysis: Eric routinely performs system level and software development including link budgets, noise figure analysis, Lab View coding, MatLab signal processing design, firmware coding in C (typical). Many of his ideas have led to patents for his customers.

Partner/Broadcast Engineer
Brown Mountain Broadcasting LLC (Ouray, CO)
September 2011 – Present (7+ Years)

Dr. Funk is a Co-founder, Partner, Program Director, and Broadcast Engineer at Brown Mountain Broadcasting LLC (BMB) [dba Mountain Chill®]. BMB is a broadcast radio innovation test-bed. BMB owns and operates the Class-A commercial radio station KRKQ in the Telluride, CO resort market.

BMB is known for the development of its AudioRack Suite of software, proving automation, live assist, traffic management, Internet-STL, and webcasting in a single package. BMB engineering innovations include an exceptionally reliable Internet IP-based studio-transmitter link solution with forward error correction (FEC), Interleaving, and multiple in, multiple out (MIMO).

Research Electrical Engineer
Naval Research Lab (Washington, DC)
June 2000 – May 2003 (2 years 11 months)

Designed and demonstrated long-haul (110 km) radio over fiber link/delay line capable of supporting 256- QAM modulated microwave radio above 10 GHz. Demonstrated LAN bridge over hybrid 26 GHz optical/ wireless channel. [Project Leader.]

Laser Radar Developed direct sequence coded eye-safe CW laser radar for near-horizon target identification. Designed/ developed hybrid optical/RF heterodyne receiver. [Project Leader.]

Senior RF Design Engineer
L-3 Communications (Chantilly, VA)
March 1999 – May 2000 (1 year 2 months)

Designed and developed subscriber units for Local Multipoint Distribution Service (LMDS), 28 GHz wireless product. Design work includes microwave and baseband circuit design, specification development, and communications channel modeling. [System Design Leader]

Research Associate/ Principal Investigator
University of Maryland (College Park, MD)
March 1997 – February 1999 (1 year 11 months)

Developed and patented ultra-wideband (UWB) radio transceiver utilizing photoconductive correlation for exceptional dynamic range and throughput. Performed theoretical analysis, developed and tested hardware, and performed propagation measurements.

Graduate Research & Teaching Assistant
University of Maryland (**College Park, MD)**
September 1988 – March 1997 (8 years 6 months)

Developed novel photonic UWB true-time-delay steerable radar transmitter. Developed photoconductively switched, low-jitter pulsed-power systems. Performed microwave photonics research in the ultra-fast photonics lab of Prof. Chi H. Lee and taught analog Electrical Engineering classes and labs as a Teaching Assistant.

Education

Ph. D., Electrical Engineering (1995)
University of Maryland
College Park, MD
1988 – 1995

B.S., Physics (1988)
Rensselaer Polytechnic Institute
Troy, NY
1984 – 1988

Activities and Societies

• IEEE MTT-S Washington DC Chapter Chair (Previous)
• Guest editor of the Microwave Photonics Special Issue of the *IEEE Journal on Lightwave Technology (2003).*
• Chair of the City of Ouray's Economic Development Committee. (Previous)
• Organizing Committee of the *IEEE/MTT-S International Microwave Symposium (IMS 1996)*