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Work History

- **Mfreq / Mfreq Software** McKinney, TX
Owner, Lead Engineer July 2013 - present
 - Provided state-of-the-art RF power engineering services for use in wireless communications applications, broadcast systems, pulsed radar, satellite, and avionics systems
 - Provided custom software solutions to solve complex engineering problems
 - Developed broad-band and narrow-band GaN RF amplifier modules from DC to 6 GHz for various customers in the RF Power industries
 - Designed high-power multi-stage asymmetric Doherty amplifier modules for the cellular communications industry from 0.6 to 2.7 GHz
 - Developed custom TRL calibration fixtures for discrete device load-pull and device characterization
 - Developed custom GPIB instrument control and automation interface using the Arm-based Raspberry Pi and Python
- **TriQuint Semiconductor / Peak Devices / dBm Engineering** Richardson, TX / Boulder, CO
 - RF Design Engineer IV* March 2010 - July 2013
 - RF Design Engineer III* January 2009 - March 2010
 - RF Product Engineer III* April 2008 - January 2009
 - RF Product Engineer II* September 2007 - April 2008
 - RF Product Engineer* May 2006 - September 2007
 - RF Engineer* October 2001 - May 2006
 - Developed high-power GaN on SiC HEMT, GaAs HBT, GaAs pHEMT, Si Bi Polar, and Si LDMOS discrete packaged RF transistors and modules (from concept to Design Verification Testing, product qualification and release) up to 6 GHz and 300 Watts as new and replacement products for the aerospace, defense and civilian industries
 - Designed GaN on SiC HEMT ICs and MMICs for discrete air-cavity, plastic, and surface-mount packaged RF transistors
 - Designed high-power GaN on SiC HEMT, GaAs pHEMT, and Si LDMOS broad-band RF amplifier modules from 500 MHz to 6 GHz and up to 30 Watts
 - Developed custom RF circuit simulation software to design and optimize new products and methods
 - Developed custom load-pull analysis software, including TRL and harmonic calibration techniques, to improve test capabilities and measurement throughput
 - Developed ISO 9000 compliant high-speed, high-power (200 Watts) RF production test sets (ATE) and software to test packaged RF transistors from 200 MHz to 6 GHz
 - Managed a group of product development engineers focusing on RF transistor design
 - Developed ISO 9000 compliant test systems, automation, specifications and document control for production test of RF transistors
 - Load-pull analysis and fixture design for RF transistors from 88 MHz to 6 GHz and up to 2000 Watts
 - Transistor assembly including die-attach and auto-bond programming
 - Developed and maintained lab resources, such as auto-bonders, die-attach, instrument control, network analyzers, spectrum analyzers, signal generators, power meters, load-pull tuners, power amplifiers, modulated testing measurements
 - dBm Engineering acquired by Peak Devices in January 2006
 - Peak Devices acquired by TriQuint Semiconductor in September 2007
 - Transferred to Richardson, TX in July 2010
- **Prof. Zoya Popovic, University of Colorado at Boulder** Boulder, CO
Research Assistant September 2000 - May 2002
 - Researched and developed high efficiency class-E power amplifiers from 5 GHz to 8 GHz
 - Managed IT resources for the lab, including circuit design software, file-serving, email, clients and servers

Work History (Cont.)

- **Radio 1190, KVCU** Boulder, CO
Chief Engineer September 1997 - May 2002
 - Chief Engineer for a college radio station, successfully launched in 1998
 - Developed broadcast and recording facilities
 - Developed real-time encoding capability for web broadcasting using mpeg and Ogg-Vorbis

Education

- **University of Colorado at Boulder** Boulder, CO
M.S., Electrical Engineering May 2004
 - Specialized in Electromagnetics
- **University of Colorado at Boulder** Boulder, CO
B.S., Electrical Engineering December 1999

Publications

- **Designed Products (Public)**
 - **T1G2028536-FL/FS - TriQuint Semiconductor** DC - 2 GHz, 285 Watt GaN Air-Cavity Discrete RF Power Transistor and Evaluation/Test Module
 - **T1G6001032-SM - TriQuint Semiconductor** DC - 6 GHz, 10 Watt GaN Surface Mount Discrete RF Power Transistor and Evaluation/Test Module
 - **T1G6000528-Q3 (T2G6000526-Q3) - TriQuint Semiconductor** DC - 6 GHz, 7 Watt GaN Air-Cavity Discrete RF Power Transistor and Evaluation/Test Module
- **Papers / Conferences**
 - B. Kim, M. Greene, M. Osmus, "Broadband High Efficiency GaN Discrete and MMIC Power Amplifiers over 30 - 2700 MHz Range," IEEE International Microwave Symposium Technical Program, Tampa Bay, FL, 2014, pp. 1330-1510

Skills

Skills: RF and microwave circuit design, RF fixture design, load-pull analysis, TRL, computational electromagnetics (FDTD, MoM, FEM), S-parameter extraction and manipulation, broad-band low-impedance microstrip taper design, low-impedance baluns, high-efficiency Doherty amplifiers, high-efficiency class-E amplifiers, multi-path TRL, multi-stage amplifier impedance matching, harmonic termination, T/R module design for phased-arrays

Equipment: Focus Microwaves load-pull tuners, K&S auto-bonders, Anritsu PATS test system, Agilent and R&S spectrum analyzers, network analyzers, power meters, GPIB instrument control, LXI instrument control, serial instrument control

Software: Agilent ADS, Ansoft HFSS, Python, Matlab, Microwave Office, Autocad, Spice, Unix system administration, C, C++, BASH shell scripting, HTML, Perl, PHP, Java, Apache, MySQL, PostgreSQL, Oracle, Icecast, Ogg-Vorbis, L^AT_EX, Linux, Solaris, MacOS X, RHCE and RHCSA certified

Miscellaneous: IEEE member, strong verbal and written communication skills, excellent troubleshooting skills, excellent computing skills