Krishna Prasad Rao

MSEE (Antenna • Desense • EMC • RF) Portfolio: www.krishprasad.info/#project

OBJECTIVE ____

Experienced RF Engineer seeking to apply 7+ years of Antenna/EM/RF engineering expertise in solving next generation of hardware integration problems. Skilled in solving RF integration challenges and optimizing wireless system performance through simulations and lab experiments.

EDUCATION_

University of Texas at Dallas, USA

Master of Science in Electrical Engineering (RF & Microwave) Aug 2014 – Dec 2016 Courses: Antenna Design, Electromagnetics, RF Lab, RF Systems Engineering, RF Circuits, RFIC Design, RF Amplifier Design, Wireless Communications, Analog IC Design, Optical Communications, Digital Logic Design

Anna University, India

Bachelor of Engineering (Electrical & Electronics)

Percentage: 81% Aug 2007 – May 2011

GPA: 3.77 / 4

SKILLSET_____

Simulation EDA	:	CST Microwave Studio, Keysight ADS & Momentum, HFSS, xFDTD, AWR Microwave Cadence Virtuoso & Allegro, Orcad Schematic editor & PCB Editor, FAB 3000, PADS
Hardware	:	Spectrum Analyzer, VNA, Anritsu MT8820C, R&S CMW-500/CMX, Power Meter, Oscilloscope, Anechoic/EMC chambers, Near field EMI Scanner, Vector signal generator
Scripting/ Programming	:	Python, Javascript, PHP, MATLAB, Bash, Data Science (<u>IBM coursework</u>), HTML/CSS, Google sheets (advanced), Java

RELEVANT EXPERIENCE

Google LLC, Senior Antenna Systems Engineer, Pixel Group

- Designed matching networks for broad band antenna matching including dynamic antenna tuners for next generation electrically small antennas
- Introduced new features and worked with other engineering teams & stakeholders for implementation
- Streamlined the antenna power target release process for SAR, EIRP compliance while balancing high transmit power requirements from the carrier certification teams
- Interfaced with chipset manufacturers, validation engineers and modem software teams to propose, implement, validate, identify bugs on system transmit power targets and analyzed logs for bug fixes.
- Authored and maintained multiple tools written in javascript and python to process, validate and sanity check NV items responsible for cellular transmit power
- Performed schematic updates on Design Entry HDL, coordinated BOM release with EE, DFM and OPM teams
- Established a new laboratory for time-averaged SAR measurement sweeps

Google LLC, RF Desense Hardware Engineer, Pixel Group

- Developed Pixel Pro phones & Pixel Watch to reduce radio interference upto 75% with high impact customer use cases on carrier sensitive cellular (4G & 5G) bands to enable a pleasing customer experience
 - Identified and solved desense due to Display, Cameras and Fast charging. Collaborated with EE, PD and Module vendors for understanding and implementing desense solutions.
- Served as a DRI between EE & Desense for obtaining all layout requests from the team, merged. Organized working meetings with EE, provided layout design feedback and negotiated for obtaining the desired layout and schematic changes implemented.
 - Worked with x-functional design teams to deliver cost effective, schedule friendly solutions
- Served as an SME for Desense simulations demonstrated correlation, performed early prototype simulations, conducted Tech talks, and also established the simulation infrastructure for the Desense org

Oct 2022 – Present

Nov 2019 – Oct 2022

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> Newark, CA, USA US Visa : H1-B

- Enabled test setups, automation and mentored contractors and other engineers on usage
- Provided factory operations management and remote build support to ensure smooth transfer of newly built • hardware from the factory floor to the offline station for bulk Desense validation in the factory by working with EPS, REL, TPMs, TechOps
 - Spearheaded factory data analysis and planning / delegating actions to the rest of the team
- Represented the team's progress at cross-functional / exec meetings

Amazon Lab 126, EMC/Desense & Antenna Design Engineer

- Designed echo, firety, kindle and ring products for best EMC & Radio Interference from audio, display/touch, DDR, Camera and HDMI on Wi-Fi, BT, NFMI and LTE bands
- Designed LoRa, WiFi, BT product antennas and concept antennas to study best antenna-aggressor isolation
- Employed EM & circuit simulation tools to understand surface current patterns and coupling mechanisms to efficiently find practical and cost-effective fixes for best wireless performance
- Employed simulations for Desense and EMI problems to catch potential unintended radiators and apply fixes early in the program, saving hardware build and significant costs
- Debugged and solved EMI and Radiated second harmonic (RSE) compliance failures for multiple products
- Worked with Mechanical, Thermal, SW and Electrical engg teams in successful and timely release of products

Amazon Lab 126, Hardware Development Engineer Intern

- Performed 3D EM (CST MWS) Simulations on PCB for aggressor-antenna isolation simulations and ADS for PSD estimations to establish Desense/Noise link budget
- Delivered on: ➤ Bring up of *EM Scanner setup with near field probes* for capturing radiated near fields Correlating Measured near fields with EM Scanner to Simulated current patterns from CST
- Trained on product dev process, Bench-level Desense debug via spectrum capture, Rate vs Range tests

Apple Inc., RF/OTA Systems Engineer Intern

- Performed Active/Passive OTA tests in ETS/Satimo anechoic chambers using EM Quest and SatEnv
- Evaluated LTE & WCDMA (Signaling) performance of iPhone/iPads by Radiated(TRP/TIS) & Conducted Tests
- Obtained hands-on experience with R&S CMW 500, Spectrum Analyzer, VNA and Power Meter

RELEVANT PROJECTS

Antenna/EMC/Desense/EM Portfolio – EM Simulations of antennas and mock PCBs Hobbyist EM simulations for antennas (WiFi, BT, GPS), Wavequide filters and RFI/EMC concepts.

Antenna Design – Design & Test of a UWB (3GHz - 20GHz) Fractal Dipole Antenna

Modeled the structure in HFSS, analyzed VSWR, Current Distribution, Field Pattern. Studied the effects of varying microstrip feed geometry, fractal iteration count, port dimension sensitivity and manufacturing tolerances. Measured Return loss, Polarization and Far-field response (Co-pol and Cross-pol) with NSI scanner.

Microwave Design & Measurement Lab – Design & Measurements of passive RF circuits (Link) Designed, simulated and characterized various RF Circuits like Resonators, Couplers, Power dividers, Patch Antenna, Filters, Mixers and Amplifiers. Simulation was performed using AWR MWO and AWR AXIEM. The circuits were later milled, ports and lumped elements soldered and tested to match the performance achieved in simulation. Soldering sizes up to 0402 were done.

Wireless Communications – Physical Layer Simulation of LTE-OFDM System

MATLAB based OFDM transmitter and receiver for a channel bandwidth of 3 MHz. Performance was compared for QPSK and 16-QAM modulation schemes for AWGN channel and multipath channel as well as indoor and outdoor channel models using the performance metric BER. Empirical spectral efficiency for models were plotted for a target BER of 10⁻³ when adaptive modulation was used.

Aug 2015 – Jan 2016

(Link)

(Link)

(Link)

May 2016 – Aug 2016

Jan 2017 – Nov 2019