

Wenji Zhang

Senior RF/Systems Engineer - ORBIT/FR, Inc

Wayne, PA - Email me on Indeed: [indeed.com/r/Wenji-Zhang/24d0da3f0a26464f](https://www.indeed.com/r/Wenji-Zhang/24d0da3f0a26464f)

Currently work as a Senior Antenna/RF Engineer with over ten years experience in microwave engineering, focusing on antenna design and measurement, RF test, electromagnetic simulation and modeling, radar system design, radar imaging and signal processing.

- Antenna Design & Measurement: radar antenna design (low profile, ultra-wideband), EM simulations (HFSS, FEKO, CST), millimeter wave antenna measurement, planar/cylindrical /spherical antenna measurement system, near and far field antenna measurement
- RFID Antennas: UHF RFID antenna design, validation, application test/measurement, designed several RFID antennas that have been in mass production
- Radar System Design and Test: Transmitter/Receiver front end circuit design, RF test (filter, mixer, etc), RCS characterization, array processing, system integration, performance optimization
- Radar Imaging and Signal Processing: radar detection, ground penetrating radar, through-the-wall radar imaging, full wave modeling of wave indoor propagation, array signal processing, forward and inverse electromagnetic modeling for geophysical imaging

WORK EXPERIENCE

Senior RF/Systems Engineer

ORBIT/FR, Inc - December 2015 to Present

- Lead cross-functional teams to design and develop millimeter wave spherical near field system for 5G Communication, WiGig and Automotive Radar antenna measurement (50GHz to 110GHz)
- Develop test plans, perform antenna radiation characterization, and qualify antennas based on measurement and EM simulation (50GHz to 110GHz)
- Running and maintenance of far field, spherical and planar near field systems for antenna measurements
- Write factory and on-site test procedures, perform factory and on-site tests, analyze test results and provide test reports to the customer
- Support the installation and upgrade of antenna systems at field locations
- Assist in presales discussions with customers and assist in developing proposals

Antenna Design Engineer

Checkpoint Systems, Inc - July 2014 to December 2015

UHF RFID antenna design and simulation to meet customer requirements and application performance

- Designed UHF RFID tag antennas applicable to metal and liquid materials
- Hands on experience in UHF RFID antennas prototyping and test
- Validated the performance of prototypes verses simulated results
- Wrote reports to document developments and validation results
- Provided technical leadership to foster research ideas and creation of new innovative products

Research Scientist, Dept. of Electrical and Computer Engineering

Duke University - January 2012 to May 2014

- Modeling, simulation and test of electromagnetic scattering from complex 3-D geometries covered with high magnetic contrast materials

- Developed 3-D full wave electromagnetic solvers for geophysical EM modeling
- 3-D electromagnetic scattering simulation with commercial simulations tools (CST, HFSS)
- Developed real-time signal processing algorithms for 3-D ground penetrating radar imaging

Antenna Engineer

Antenna Research Laboratory - September 2009 to December 2011

Low profile, UWB antenna design, fabrication and measurement for through-wall radar system, performance optimization, sparse non-uniform array synthesis, microstrip antennas test and simulation (HFSS, CST, FEKO)

- Designed UWB high gain microstrip antennas with stable radiation pattern on vehicle mounted platforms
- Performed numerical modeling (FDTD, MOM, GO, UTD) of scattered fields in layered composite dielectric materials to reconstruct the building interior structure as well as detection and classification of human's activities behind the building wall
- Developed millimeter wave radar system for scaled-down building imaging, system design, performance optimization
- Electromagnetic modeling of wave propagation in urban sensing with airborne radar system (multipath, polarization, etc)
- Sparse signal processing for high resolution radar imaging, sparseness constrained optimization algorithms development

Research Assistant

Key Lab of Microwave Radiation and Sensing Technique - September 2004 to July 2009

Designed and measured VHF band Vee-resisted and Bow-tie antennas for Ground Penetrating Radar system

- Designed and measured the transmitter and receiver RF front end circuit for VHF band UWB Ground Penetrating Radar
- Phase array radar antenna design and measurement
- Designed transmitter and receiver RF circuits for airborne radar system
- Developed MOM and FDTD code for electromagnetic modeling and radar RCS prediction
- Modeling and measurement of radio indoor and outdoor propagation

Research Assistant

Telecommunication Lab - August 2003 to May 2004

Designed and measured microwave data link RF circuit for indoor wireless communication

EDUCATION

CAS in Microwave Eng

Chinese Academy of Sciences
2009

BS in Electronics and Information

Huazhong University of Science and Technology
2004

ADDITIONAL INFORMATION

SKILLS

- Instrument: Vector Network Analyzer, Spectrum Analyzer, Signal Generator, Oscilloscope

- Measurement: Antennas, RF Device & Circuit, RCS, near and far field antenna measurement, Spherical/cylindrical/planar antenna measurement system
- Programming: MATLAB, FORTRAN, Python
- Software: CST, HFSS, FEKO, Ansoft Designer, XFDTD, ADS, NEC-BSC

HORNARS AND AWARDS

- Outstanding Graduate Award in HUST 2004
- First prize in the 2010 FEKO international student competition (Advisor Award) 2010
- Excellent Graduate Student Award, Graduate School of Chinese Academy of Sciences 2007, 2009
- USNC-URSI Student & Young Scientist Travel Award 2011

PROFESSIONAL SERVICES

- Journal Reviewer: IEEE Transaction on Microwave Theory and Technology, IEEE Transaction on Antennas and Propagation, IEEE Antennas and Wireless Propagation Letter, IEEE Transaction on Signal Processing, IET Antennas and Wave Propagation, IEEE Transaction on Instrumentation and Measurement, IEEE Transaction on Geoscience and Remote Sensing, IEEE Geoscience and Remote Sensing Letter, IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, , Progress in Electromagnetic Research, Journal of Electromagnetic Waves and Applications, Philosophical Transactions of the Royal Society, Journal of Electronic Imaging, Signal Processing, EURASIP Journal on Wireless Communications and Networking, IEEE Wireless Communications Letter