

Payman Pahlavan, MSc
PhD student
University of Florida

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Summary

- PhD student in Electrical and Computer Engineering at the University of Florida
- Senior RF engineer and project manager for over six years
- Experienced in superheterodyne receiver design, implementation, test, and measurement.
- Experienced in heterogeneous integration of microwave passives and actives with hands-on experience in cleanroom facilities, circuit fabrication machines, and antenna chambers.
- Proficient in several RF and antenna design software packages such as ANSYS HFSS, CST Microwave Studio, and PathWave ADS

Education

PhD Student, Electrical and Computer Engineering (2021-present)

[University of Florida](#), Gainesville, Florida, USA

M.Sc., Electrical and Computer Engineering: Microwave and Optics (2010-2013)

[Sharif University of Technology](#), Tehran, Tehran, Iran

Thesis: Anomalous reflection and transmission in resonant magneto-optic structures

B.Sc., Electrical Engineering, Major: Telecommunications (2006-2010)

[K. N. Toosi University of Technology](#), Tehran, Tehran, Iran

Professional Experience

[Tesla, Inc.](#) Fremont, California, USA (August 2023-Present)

Electronic Design Engineer Intern

- Antenna design, implementation, test, and measurement

[University of Florida](#), Gainesville, Florida, USA (2021-Present)

Research Assistant

- Heterogeneous integration, mmWave 5G Antenna in Package solutions.
- Design of metamaterial based compact antenna arrays for mmWave applications.
- Micro/Nano fabrication of integrated passive designs.
- Design of a standing wave based VCO circuit for 6G applications.
- Design and implementation of a band selective passive dual band frequency doubler/divider circuit for nonlinear tag communication in wireless frequency band for localization and sensing applications.

[University of Illinois at Chicago](#), Chicago, Illinois, USA (2020-2021)

Research Assistant

- Design of a diplexer-based energy harvesting circuit for simultaneous and unified power and data transfer.

Senior RF engineer and project manager

- **18GHz compact battery based portable receiver with android spectrum monitoring application and remote control and Data transferring (Designed for direction finding with manual beaming method):**
Superheterodyne receiver design: Frequency planning, spurious signal optimization, gain, noise figure, and image rejection analysis and calculation, component selection, schematic design, PCB and mechanical design supervision, test, and measurement.
- **Ka-band LNB (low Noise Figure < 2dB and low Phase Noise :-100dBc/Hz @ 10KHz offset in 17-22GHz, DC controlled band selection with superheterodyne structure, L band down-conversion)**
Engaged in all steps from concept to production, environmental and field test.
- **1MHz-8.5GHz 2Ch superheterodyne frequency tuner:**
Frequency planning, component selection, PCB level design and optimization, thermal simulation, and mechanical design supervision, environmental test supervision
- **L band Tuner** (using image reject Hartley mixer architecture):
Automated test setup design using MATLAB code and GPIB connection between measurement instruments.
- **Digital GSM Receiver with I/Q output and Wi-Fi data transferring:**
RF schematic and PCB design, test and measurements.

RF Engineer and Researcher

- Design and fabrication of a 10MHz-4GHz frequency synthesizer module.
- Design and production of a matrix switch.
- Design, simulation, and implementation of an ultra-low phase noise multi loop PLL.

Software Skills

- **Engineering Software:** ANSYS HFSS, CST Studio, Genesys, ADS, COMSOL Multiphysics, Microwave office, PSPICE, Altium Designer, Cadence Virtuoso, OrCAD capture, ADSimPLL, TICS Pro,
- **Code Developing:** MATLAB
- **Hardware:** Photolithography (Laurell Litho Bay & Hot Plate/Oven, Karl Suss MA6), sputter deposition (KJL CMS-18 Multi-Source), PECVD (Unaxis 790 PECVD), thin film deposition (ALD - Cambridge Nano Fiji 200), E-beam evaporator, PVD, wafer bonder (EVG 501), scanning electron microscopy (FIB/SEM - FEI Helios G4 PFIB CXe dual beam), acid bench, plasma ashing (Tepla M4L), Reactive-Ion-Etching (Unaxis 790 RIE), PCB prototyping (LPKF ProtoLaser R4)

Patents

- Yong Kyu Yoon, Payman Pahlavan, and Suk-il Choi, "Compact Frequency Reconfigurable Array Antenna Based on Diagonally Placed Meander-Line Decouplers and PIN Diodes for Multi-Range Wireless Communication," Filed for Non-provisional Patent Application, Aug. 4, 2022 (UF #-T18807)

PUBLICATIONS

1. H. Jang, P. Pahlavan and YK. Yoon, "Miniaturized High-Efficiency Substrate Integrated Waveguide (SIW) Cavity Slot Antenna at 28 GHz Based on Through Fused-Silica Via (TFS) Technology," accepted and to be presented in 2024 IEEE 74th Electronic Components and Technology Conference.
2. P. Pahlavan, S. -I. Choi, A. Wilcher, H. -I. Kim, H. Jang and YK. Yoon, "Metamaterial Based Compact Patch Antenna Array for Antenna-in- Package Solutions in Frequency Handover Applications," 2023 IEEE 73rd Electronic Components and Technology Conference (ECTC), Orlando, FL, USA, 2023, pp. 475-480, doi: 10.1109/ECTC51909.2023.00085.
3. H. Jang, P. Pahlavan and YK. Yoon, "Highly Compact and High Gain 2 x 2 Patch Array Antenna with Slotted Meanderline Loading," 2023 IEEE 73rd Electronic Components and Technology Conference (ECTC), Orlando, FL, USA, 2023, pp. 1917-1920, doi: 10.1109/ECTC51909.2023.00329

4. H. -I. Kim, A. Wilcher, S. Jeon, P. Pahlavan, R. Hsu, B. Achkir, YK. Yoon, "Metaconductor-Based High Signal Integrity Interconnects for 112 Gbps SerDes Interface with Channel Analysis," 2023 IEEE 73rd Electronic Components and Technology Conference (ECTC), Orlando, FL, USA, 2023, pp. 1012-1016, doi: 10.1109/ECTC51909.2023.00172.2023.
5. P. Pahlavan, S Z. Aslam, and N. Ebrahimi, "A Novel Dual-band and Bidirectional Nonlinear RFID Transponder Circuitry," 2022 IEEE/MTT-S International Microwave Symposium - IMS 2022, 2022, pp. 44-47, doi: 10.1109/IMS37962.2022.9865478.
6. Pahlavan, Payman, and Najme Ebrahimi. "Dual-band Harmonic and Subharmonic Frequency Generation Circuitry for Joint Communication and Localization Applications Under Severe Multipath Environment." arXiv preprint arXiv:2110.15363 (2021).
7. S. Abbaszadeh, P. Pahlavan, and M. Jalali, "A new wiggly technique for ultra-wideband two-line directional couplers." *Microwave and Optical Technology Letters* (2022).
8. B. Smida and P. Pahlavan, "Unified Wireless Power and Information Transfer Using a Diplexed Rectifier," 2021 IEEE Global Communications Conference (GLOBECOM), 2021, pp. 01-05, doi: 10.1109/GLOBECOM46510.2021.9685263.
9. P. Pahlavan, M.S. Sorkherizi, A. Tadjalli and SR. Hosseini "Frequency Scanning in the Uniform Leaky-Wave Antenna Based on Nonradiative Dielectric (NRD) Waveguide" 19th Iranian Conference on Electrical Engineering, ICEE2011
10. SR. Hosseini, R Sarraf Shirazi, A. Kiaee, P. Pahlavan, and M.S. Sorkherizi. "UHF Propagation Prediction in Smooth Homogenous Earth Using Split-step Fourier Algorithm" *Progress in Electromagnetics Research* 685 (2012).