Lojain Syed

RESEARCH INTERESTS:
WIRELESS COMMUNICATION,
RF FRONT-END DESIGNING,
DIGITAL SIGNAL PROCESSING,
MACHINE LEARNING

Details

City :Tucson, Country :USA
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Skills

Critical thinking and problem solving

Effective Time Management

Ability to Multitask

Ability to Work in a Team

Profile

Recently working in Reconfigurable computing lab of University of Arizona as PHD student.I have seven years industrial experience in wirless communication systems.

Employment History

Senior project engineer at National Radio & Telecommunication Corporation (NRTC), Haripur

JULY 2017 — JULY2024

· Implemented LNAs having a noise figure <1.5dB

· Designed RF filters and worked on ceramic and crystal filters.

·Developed a precision rectifier showcasing 80dB dynamic range

·Implemented AGC with an extensive and impressive 100dB dynamic range

·Designed impedance matching LC circuits and Baluns

· Worked on mixers and PLL circuits

· Implemented high dynamic range receiver having high sensitivity, high linearity, and low power consumption

· Implemented Automatic Antenna Matching Unit

· Power Amplifier design modeling

· Designed a VSWR bridge with high power rating

·Tested RF front-end systems and subsystems

· Worked on microcontrollers e.g. STM, Arduino, NodeMCU

Education

MS (Embedded Systems and IOTs) , Pak-Austria Fachhochschule Institute of Applied Sciences and Technology, Haripur

(EXPECTED TO BE COMPLETED IN JAN 2024)

CGPA 3.79/4

BS (Electrical Electronics Engineering) , COMSATS Institute of Information Technology Islamabad University

JULY 2017

CGPA 3.37/4

Technical Skills

Proficient in C , C++,Verilog and MATLAB

Proficient in XILINX Toolchain (VIVADO, ISE, VIVADO HLS, Xilinx SDK)

Experienced in RF Testing Equipment like Vector Network Analyzers, Spectrum Analyzers, oscilloscopes

Experienced in designing, developing, and testing RF devices

Proficient in RF design software such as ADS, SystemVue, Multisim, LTspice

Projects

- **High Dynamic Range RF Frontend (NRTC project)**
  - Receiver for SDR having dynamic range 116dB
  - Sensitivity -116dbm and Saturation point +0dbm
- **200-Watt Power Amplifier (NRTC project)**
  - Push-pull configuration Class AB amplifier
  - Advanced monitoring for linear response

- Harmonic suppression exceeding 47dBc
- IMD greater than 32dBc

- **Automatic Antenna Matching Unit (NRTC project)**
  - Wide frequency range: 1.5MHz to 30MHz
  - Achieves VSWR of <1.8
  - tuning time 300 milliseconds
- **Neural Network-based Calibration Approaches for Wideband Multiport Junction Receivers (MS Thesis)**
  - Used Caseded MP-NN model to calibrate Multiport Receiver
  - Achieved EVM of less than 0.07 % for QAM16 signals at data rate up to 200Mbps
- **4X4-bit Multiplier using CMOS Technology (MS semester project)**
  - Design of a 4x4-bit array multiplier using CMOS technology
  - Utilizing parallel multiplication by independently computing partial product
- **Implementation of FIR Filter on FPGA for Noise cancellation (MS semester project)**
  - FIR filter on FPGA using Verilog HDL
  - Coefficient calculation and signal generation done using Matlab, with Vivado as simulator.
- **Flood Prediction System Using IoT and Artificial Neural Networks with Edge Computing (MS semester project)**
  - LSTM employed for prediction of flood water levels
  - Model outputs a forecast of the water level for the subsequent hours

Publication

- Lojain Syed, Syed Hamza Hasan, Hamza Rashid, and Wajid Gulistan. "Designing band pass filter for HF radio's front end." In *2019 International Conference on Communication Technologies (ComTech)*, pp. 60-64. IEEE, 2019.
- Lojain Syed,Saad Qayyum , Renato Negra ''Multiport Junction Receiver Calibration using Cascaded Memory Polynomial Neural Network Model'' (submitted in IMS2024)