MAJID AHMED
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https://majid-0.github.io/

OBJECTIVE

An electrical engineer eager to leverage academic expertise and hands-on experience in roles that foster innovation and problem-solving. Committed to contributing to cutting-edge projects and advancing technology in a collaborative team environment.

EDUCATION

2022 – Present **American University of Sharjah**, Sharjah, UAE (3.81/4.00)
Master of Science in Electrical Engineering
Expected graduation date: December 2024

2018 – 2022 **American University of Sharjah**, Sharjah, UAE (3.57/4.00)
Bachelor of Science in Electrical Engineering (**cum laude**)
graduation date: June 2022

Work

2022 – 2024 **American University of Sharjah**, Sharjah, UAE
Graduate Research Assistant:

- Led the development of an amateur portable satellite ground station

AWARDS, HONORS, & Memberships

2019- 2022 Placed on the Dean's List 4 times and on the Chancellor's List twice.

2023 IEEE Eta Kappa Nu (HKN) Member

2024 Tau Beta Pi (TBP) Engineering Honor Society Member

COMPUTER SKILLS

- Python Programming
- MATLAB programming
- Siemens TIA Portal for PLC programming
- Keysight's Advanced Design System (ADS)
- ANSYS Electronics (HFSS)
- NI LABVIEW
- ORCAD PSPICE circuit simulations
- NI MULTISIM & ULTIBOARD
- Dspace

RESEARCH PROJECTS

- **Digital Predistortion Using Machine Learning:** Explored using different machine learning architectures to perform Digital Predistortion. Investigated sample selection methodologies, Neural Architecture Search for optimal model selection, and feature extraction/pruning. Mainly worked with TensorFlow and PyTorch, defining custom layers for FFT operations and creating custom loss functions.

- **Digital Predistortion Basis Function Selection:** Devised an algorithmic basis function reduction methodology for multiband Digital Predistortion models. Investigated feature selection/elimination using algorithms such as PSO, Genetic Algorithms, Simulated Annealing, Forward and Recursive Feature Elimination, Principal Component Analysis, Independent Component Analysis, and Matching Pursuit algorithms.

- **Portable Amateur Satellite Ground-station:** Developed a software program that calculates satellite orbits, controls antenna rotator positioning, and interfaces with a software-defined radio (SDR) to receive satellite transmissions. Programmed varying digital communication modulators/demodulators to process data sampled by SDRs. Built a functioning portable satellite ground station.

- **Microwave Non-destructive Testing for food:** Studied how the dielectric properties of cold cuts change as spoilage occurs and designed a simplified proof of concept measurement setup to detect spoilage.

- **Design of a 4x4 Butler Matrix:** Designed a 4x4 Butler matrix for analog beamforming applications through electromagnetic simulations and hybrid optimization.

- **Automatic Modulation Classification:** Investigated using machine learning for automatic modulation classification for varying signal-to-noise ratios.

- **2D Brain Tumor Segmentation:** Investigated machine learning to segment brain tumor regions using 2D slices from multimodal MRI scans.

- **2D FDTD Horn Antenna Simulation:** Developed a simplified electromagnetic simulation of a horn antenna.

- **Class AB PA Design:** Performed Load Pull simulations using Keysight ADS to design a class AB power amplifier.

- **LNA Amplifier Design:** Performed Keysight ADS simulations to design a Low Noise Amplifier.

- **3D Printed Antenna Fabrication**: Designed, simulated, and fabricated Helical and Horn Antennas using FDM additive manufacturing.

PUBLICATIONS

1. Ahmed, M. and Hammi, O. (2024) 'Hybrid digital/analog predistorter architecture with enhanced robustness to hardware impairments', IEEE Access, 12, pp. 113928–113943. doi:10.1109/access.2024.3443538.
2. S. Ahmed, M. Ahmed, S. Bensmida, and O. Hammi, "Power amplifier predistortion using reduced sampling rates in the forward and feedback paths," MDPI, https://www.mdpi.com/1424-8220/24/11/3439.
3. M. Ahmed, A. S. Zakaria, and O. Hammi, "A low-cost portable and agile amateur satellites ground-station," 2023 IEEE 9th International Conference on Smart Instrumentation, Measurement and Applications (ICSIMA), Oct. 2023. doi:10.1109/icsima59853.2023.10373492
4. M. Ahmed, A. Dalbah, O. Hammi, and F. M. Ghannouchi, "Neural Networks based behavioral modeling of dual-band RF power amplifiers using augmented bilstm structures," *2024 International Conference on Artificial Intelligence in Information and Communication (ICAIIC)*, Feb. 2024. doi:10.1109/icaiic60209.2024.10463289
5. A. Ali, M. Ahmed, and O. Hammi, "BiLSTM neural network DPD with reduced feedback sampling rate," 2023 IEEE Symposium on Wireless Technology and Applications (ISWTA), Kuala Lumpur, Malaysia.

ADDITIONAL SKILLS

- Pays attention to details
- Meets deadlines
- Teamwork
- Familiar with poster presenting
- Willing to accept feedback

Languages

- Arabic, English Fluent