Jacob C. Ruff

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Education

Texas A&M University, *College Station, TX* GPA 4.0/4.0
Graduated: May 2022
Bachelor of Science - Electrical Engineering
Minor in Computer Science

Texas A&M University, *College Station, TX* GPA 4.0/4.0
Graduating: May 2024
In Progress: Master of Science - Electrical Engineering

Activities

Magnetic Resonance Systems Lab, *Texas A&M University* August 2022 - Present
Graduate Research Assistant
Ran tests on and modified a set up for a system that produced high voltage and high power impedance measurements
Put together transmit coil boards for testing detuning using an RF Trap

Introduction to Magnetic Resonance TA, *Texas A&M University* January 2023 - Present
Teaching Assistant
Instructed Senior Undergraduate Engineers on the physics of MRI and running an MRI scanner
Setup, ran, and processed data from experiments on a 4.7 T magnet that used an EVO spectrometer

Ultrasound Research, *Texas A&M University* May 2021 - May 2022
Undergraduate Researcher
Investigated feasibility of speckle decorrelation curves for 3D reconstructions from freehand probe
Created gelatin agar Ultrasound phantom containing a suspended fishing line
Simulated speckle and phantoms using Field II in Matlab
Modeling decorrelation curves for simulations and experimental data sets in Matlab

Grader for ECEN 303 and ECEN 412, *College Station TX* August 2021 - May 2022
ECEN Tutor
Covered statistics topics and problems for students in ECEN 303 Random Signals and Systems
Graded and offered explanations over ECEN 412 Ultrasound homeworks

Employment

Johns Hopkins Applied Physics Lab, *Laurel Maryland* May 2020 - Dec 2020, May 2022 - August 2022
Digital Signal Processing Intern
Adapted model of received vs transmitted radio symbol rate to linear splines for real time conversion
Improved Simulink model of a radio's carrier and code loops making it HDL synthesizable
Produced a tutorial for installing and compiling radio software
Radar Intern
Verified that a small number of complex exponentials can be used to accurately model the matched filter response from a linearly frequency modulated signal
Analysed interference and resolving pattern for two radar cross section scatters at a variety of wavelengths and distances

Paragon Innovations, *Richardson Texas* Sept 2017 - Dec 2017, Dec 2018
Engineering Intern
Verified circuit boards functionality and assured there was no electric shorting.
Purchased inventory based on project and individual engineers' needs
Assembled various prototype boards and products

University of Texas at Dallas, *Richardson, TX* June 2017 - August 2017

Intern with the Science, Engineering and Education Center

Led creation of instructional manuals for teaching kids how to program

Assisted in instructing beginner's Python class.

Graduate Coursework

ECEN 646 Probability for Information Science **ECEN 636** Phased Arrays

ECEN 601 Mathematical Methods for Signal Processing

ECEN 637 Numerical Methods in Electromagnetics

Undergraduate Coursework

ECEN 412 Ultrasound Imaging **ECEN 455** Digital Communications

ECEN 455 Applications of Electromagnetic Theory

ECEN 447 Digital Image Processing

Skills

Proficient with Matlab, Python, C, C++ , Latex, Linux