Ronald Roy

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EXPERIENCE

NORTHROP GRUMMAN | Electrical Engineering Intern

May 2020 – Aug 2020 | Rolling Meadows, IL

- Created models for advanced multispectral platforms using C++ and AFSIM scripting
- Conducted research using the JANES database in order to model radar signatures, IR signatures, and anti-aircraft platforms
- Produced behavior for chasing targets, switching between sensors modes, and independent engagement for multispectral platforms
- Collected data on an AFSIM model using Monte Carlo runs and created documentation according to internal documentation

INVENTUS POWER | Electrical Engineering Intern

June 2019 – Aug 2019 | Woodridge, IL

- Performed voltage, current, and impedance testing on PCBs and board to board connectors for battery management systems
- Tested PCBAs to capture waveforms for critical safety mechanisms in order to troubleshoot design and manufacturing errors
- Created a schematic, PCB, and a BOM for a high voltage transient suppression board capable of handling 150V transients while charging battery packs at 10A and have a discharge rate of .36C
- Created documentation for data fields and user-defined fields in QAD allowing for more detailed reporting using Cyberquery

KEATS MANUFACTURING CO. | Quality Control Intern

June 2016 – Sep 2016 | Wheeling, IL

- Produced models of manufactured parts using AutoCAD and Keyence to reference parts of older models and find disparities
- Collaborated in teams to run tests on quality of plating, formation of parts and gauged different parameters of parts
- Coordinated with the shipping department to determine quality issues that arise from shipping parts to customers and found solutions

PROJECTS

AUTOMATED GEOFENCED DRONE

April 2019 – May 2021 | Urbana-Champaign, IL

- Created schematics, PCBs and a BOM for an autonomous drone capable of following a preset flight path and feeding back GPS location and a FPV

WIRELESS CHARGING BIKE RACKS FOR E-BIKES

August 2020 - December 2020 | Urbana-Champaign, IL

- For senior design, our team developed a wireless charging system for 13.6V, 6000mAh E-Bikes
- The system is scalable to many bikes and compared to wired charging our system is 70 percent efficient

OPTIMIZED FORWARD-PASS CONVOLUTION LAYERS

November 2020 - December 2020 | Urbana-Champaign, IL

- Implemented optimizations such as shared memory matrix multiply, restricts and loop unrolling, and input channel reduction using a tree on forward-pass convolution layers using CUDA
- The total operation time for 2 different sized layers was 41 ms

EDUCATION

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Masters of Engineering in Electrical and Computer Engineering
May 2025 | Urbana-Champaign, IL
GPA: 4.00/ 4.00

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Bachelor of Science in Electrical Engineering
Minor in Computer Science
May 2021 | Urbana-Champaign, IL
GPA: 3.29 / 4.00

COURSEWORK

UNDERGRADUATE

Analog and Digital Signal Processing
Control Systems
Digital Systems Design
Embedded DSP
Solid State Electronics
Electronic Circuits
Fields and Waves
Senior Design
Green Electric Energy
Computer Systems
Data Structures
Artificial Intelligence
Applied Parallel Programming
Applied Machine Learning

SKILLS

TECHNOLOGY

Altium Designer • Quartus Prime • MATLAB Simulink • AFSIM • LTSpice• PyTorch

PROGRAMMING

C/C++ • Python • SystemVerilog • CUDA SQL • Java • LC3 Assembly • AFSIM Scripting

SOCIETIES

Illini Unmanned Aerial Vehicles
(Former Director of Hardware)
Beekeeping Club at UIUC
(Former Vice President and Cofounder)

LINKS

LinkedIn:// **ronaldroy13**