

Harris Alexander Ransom

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Education

Rutgers University | New Brunswick, NJ

September 2022 – Present

Bachelor of Science in Electrical and Computer Engineering, GPA 3.95/4.00, Dean's List

Expected Graduation May 2025

Skills

Programming: Java, Python, C, C++, MATLAB, Kotlin, Assembly, Verilog, SQL

Platforms: Linux (Ubuntu, Debian, Arch, RHEL), Arduino, Raspberry Pi, STM32, Xilinx SoCs

Software: Android Studio, Visual Studio, Git/GitHub, Autodesk, Altium Designer, LTSpice, Vivado Design Suite, Ansys, MongoDB

Hardware: Antenna Design, Oscilloscope, Logic Analyzer, VNA, Soldering

Systems: PCB Design, Embedded Systems, FPGAs, RF Design, Space Systems, Cybersecurity, IT Operations, Ham Radio

Relevant Experience

NJSGC Space Technology Association at Rutgers (STAR) | New Brunswick, NJ

June 2023 – Present

Electrical Engineering Intern

- Currently researching the design, development, and integration of software-defined radio (SDR) communication systems for a 6U cube satellite for the University Nanosatellite Program (UNP)
- Utilized Matlab/Simulink and Ansys STK to create orbital electrical power consumption and communications simulations
- Collaborated with other STAR subteams to test, integrate, and document the satellite's systems to ensure mission success
- Developed custom temperature sensing and control PCBs to interface with the thermal control system onboard the satellite

Rutgers HWSEL Lab | New Brunswick, NJ

April 2023 – December 2023

Undergraduate Researcher

- Worked under Professor Sheng Wei to research and develop methods of securing disaggregated memory resources for heterogeneous embedded systems
- Utilized knowledge of FPGAs, Hardware Description Languages (HDLs), High-Level Synthesis (HLS), and C/C++ to implement, troubleshoot, and deploy an experimental memory disaggregation system

Leadership and Activities

AIAA Rutgers Rocket Propulsion Lab | New Brunswick, NJ

September 2022 – Present

Telemetry Engineer

- Collaboratively research and develop a custom 440MHz VHF RF transmitter system for use on a multi-stage high-power rocket
- Design PCB layouts using Altium Designer for interfacing telemetry sensors and custom flight computer hardware

RU Security Club | New Brunswick, NJ

September 2022–Present

Instructor & Cybersecurity Analyst

- Compete in CTFs and the Mid-Atlantic Collegiate Cyber Defense Competition (MACCDC) on the top-ranked team in the region to demonstrate blue team cybersecurity skills in a competitive environment against 29 other universities
- Create and present workshops on cybersecurity topics ranging from hardware security to cryptography in order to educate and engage club members

Projects

6502 Microcomputer

March 2020 – Present

Personal Project

- Prototype, test, and construct a basic 8-bit computer using the W65C02 microprocessor to learn more about processor architecture, digital electronics, bus design and timing, and assembly language programming

Capstone Project

September 2021 – June 2022

Electronics/Software Engineer, PLTW Engineering Design & Development

- Collaboratively developed an automated outdoor tumbler composter as a capstone project for the Project Lead the Way (PLTW) four-year engineering program to reduce the time and effort requirements of composting
- Integrated an Arduino microcontroller platform with three sensors and a motor to automate the composting process through continuous real-time monitoring and logging of temperature, humidity, and gas sensor data

Honors and Awards

4th Place, Mid-Atlantic Collegiate Cyber Defense Competition

March 2024

Eagle Scout

August 2022