# RACHEL E JOHNSON

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## EDUCATION

**University of Notre Dame** *Aug 2020 - May 2024*
*BS in Physics and Mathematics, Glynn Family Honors Program* *Notre Dame, IN*

GPA: 3.84

Selected Coursework: Linear Algebra, Real Analysis, Multivariable Calc, Mechanics, Physics - E & M, Circuitry

## SKILLS

**Experienced:** LaTeX, Linux (Ubuntu, RHEL, CentOS, Kali), Python, HTML, CSS, Java
**Familiar:** SQL, Pytorch, Qiskit, C++, C#, React, WordPress, Agile, Jenkins, Git, SVN, AWS, Azure, SSMS, Bash

## EXPERIENCE

**Machine Learning Particle Physics Event Reconstruction Research** *Sept 2021 - Present*
*Research Collaborator* *Notre Dame, IN*

Collaborated across departments to apply a transformer neural network architecture to particle physics data from CERN's Compact Muon Solenoid (CMS) experiment to better classify top quark collisions.

**The Observer (ND-SMC)** *May 2021 - Present*
*System Administrator* *Notre Dame, IN*

Maintain WordPress website (over 2500 views per day) and troubleshoot computer issues for student-run newspaper.

**Lockheed Martin Space** *June 2021 - Aug 2021*
*Linux Systems Intern* *Littleton, CO*

Supported the Geostationary Operational Environmental Satellite (GOES) IT team with various hardware and software needs such as independently creating an internal website for live streaming 4 camera feeds, setting up servers in the clean room, kickstarting RHEL machines, and mitigating critical vulnerabilities.

**Lockheed Martin Aeronautics** *June 2020 - July 2020*
*Software Engineer Intern* *Fort Worth, TX (Remote)*

Developed a Business Asset Management tool using C# to expedite and organize hundreds of change requests for the F-35 aircraft and communicated my progress in an Agile team environment.

## PROJECTS

**Campfire** *Hesburgh Hackathon | Apr 2021 - May 2021*
*Lead Web Developer* *University of Notre Dame, IN*

Used React JS, HTML, and CSS to develop a web app that builds community and eliminates food waste. Through the app, users can view a system of food cameras installed in their community (i.e. dorm kitchens or lounges) that allow people to share leftovers. **3rd Place Team**

**Calculating e Using Monte Carlo Methods and Quantum Amplitude Estimation** *iQuHACK | Jan 2021*
*Team Airier-Lei* *MIT, MA (Remote)*

Implemented a Monte Carlo simulation using Qiskit to estimate the mathematical constant, $e$ and applied a quantum speedup algorithm to increase efficiency.

## AWARDS & MEMBERSHIP

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| Cyber Fasttrack Scholarship Recipient | *2021* |
| Society of Physics Students (Officer) | *2020-Present* |
| Women in Physics | *2020-Present* |
| Lockheed Martin STEM Scholarship Recipient | *2020-Present* |
| NCWIT Aspirations in Computing Member | *2020-Present* |
| Society of Women Engineers (SWE) Scholarship Recipient | *2020* |
| National Merit Finalist | *2020* |
| Girls Go Cyberstart CTF Finalist, Scholarship Recipient | *2019, 2020* |
| MathWorks Math Modeling Challenge Honorable Mention Team | *2019* |