William Freitag

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EDUCATION

Rutgers University | Bachelors in Computer Science and Physics. Minor in Mathematics — Expected May 2022

GPA: 3.17/4.0

EXPERIENCE

Telemetry Software Engineer — January 2020 - Present

Rutgers Rocket Propulsion Laboratory (RRPL)

- Developed a client/server system in a team of three using **Python** to transfer data from a rocket during flight to a computer on the ground. This system has delivered valuable flight performance data that is used to improve our rockets.
- Engineered an **Arduino** sensor data system **in one week** to gather and process data directly from the rocket's sensors for delivery using information I learned from reading Arduino's and the sensors' documentation. This system is a key piece in our plan to develop an autopilot system in the future.
- **Increased Data collection rate 3x** by switching to a microcontroller that is more compatible with our sensors, and rewriting the main algorithm to use the new hardware's capabilities more effectively.
- Fixed major bugs in our data visualization **Java** application which allowed us to finish a demo video **before our deadline**.
- **Demo Video:** https://youtu.be/vb3YG7-QF00 | **Flight Video:** https://youtu.be/L8kR73aYFKw

PROJECTS - more available on my github and personal website: http://WilliamFreitag.com

Version Control System - C — Academic Project

Course: Systems Programming — **Final Course Grade: A**

- Developed a Version Control System with a partner in **C** that uses a **multithreaded server** to allow all users access to their projects at the same time. Users can create a new branch, push/pull changes, or rollback to a past version.
- Taught my partner how to use Github so we could work together in an organized manner.
- Implemented an optional file compressor to compress files before sending them over the network to **reduce load times**.

DNS Resolver - Python — Academic Project

Course: Internet Technology — **Final Course Grade: B+**

- Developed a multithreaded DNS Resolver server with a partner in **Python** that takes a domain name from a client and returns the associated DNS-Records. Our resolver was implemented as outlined in the IETF standard for DNS.
- Established a meeting schedule and deadlines for smaller milestones which resulted in consistent development.

WilliamFreitag.com - Node.Js — Independent Project

Project Portfolio Website — github.com/WilliamFreitag/williamfreitag.com

- Developed a **NodeJs** application to serve my project portfolio webpage from a **Linux** machine on my home network. The machine uses $1 worth of electricity per month to run 24/7.
- Designed a **scalable Rest API** to add more projects or companion servers as I learn more and create new projects.
- Developed a Chatroom application in NodeJS to run alongside my web server that sends messages in real time via websockets and uses a local instance of **MongoDB** to store and authenticate User Data.

LANGUAGES/TECHNOLOGIES

C | Java | Python | JavaScript | NodeJs | MongoDB | Linux | HTML | CSS | Arduino