

# Jonathan Oppenheimer

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## Education

**Purdue University**, *BS in Computer Science, Minor in Political Science*

**Aug 2021 – May 2025**

- Cumulative GPA: 3.88/4.00, Dean's List and Semester Honors
- Relevant Coursework: Data Structures and Algorithms, Compilers, Operating Systems\*, Analysis of Algorithms, Cryptography, Intro to AI\*, Computer Security, Computer Architecture, Discrete Math, Statistical Methods (Graduate)
- Activities and Societies: Hack the Future, CERIAS, Purdue Outing Club

## Experience

**Cisco Systems, Inc.**, *Distributed Systems Engineering Intern*

**May 2024 – Aug 2024**

- Developed a Webex bot to streamline the initiation, monitoring, testing, and analysis of operating system builds for various network switches, merging multiple API endpoints into a unified tool
- Implemented a Retrieval-Augmented Generation (RAG) system using a local vector database and Llama 3.1, integrating it with the bot to automate error resolution for failed, large token, test logs, significantly saving engineer time
- Consolidated bug tracking and operating system test-suite data in Elasticsearch, creating dashboards to monitor and visualize key metrics

**NASA Jet Propulsion Laboratory**, *Software Engineer Intern (Caltech JPL-YIP)*

**Jun 2023 – May 2024**

- Prototyped new, cloud-based, extract transform load (ETL) pipeline for the Deep Space Network (DSN) Service Quality Assessment subsystem, supporting DSN usage analysis for NASA missions like Mars 2020, and Voyager
- Shifted on-premises scripts, triggers, logging, storage, and more to Amazon Web Services, notably achieving end-to-end performance for an ETL pipeline providing detail on the automatic provision of DSN equipment
- Processed large quantities of data, enhancing error management, transparency, and throughput
- Presented architecture to senior JPL engineers, was retained to upgrade multiple ETL pipelines during the academic year

**Space Ground System Solutions**, *Software Engineer Intern*

**Jun 2022 – Aug 2022**

- Engineered synchronous client/server software packages for a remote ground antenna supporting ADS-B aircraft data
- Implemented all client-server communications and complete command and control of antenna with NASA's GMSEC message architecture; achieved sub 100ms response times for 1500+ mile high-frequency message exchanges
- Developed custom driver for serial communications to an antenna rotator for user control, and real-time satellite tracks

## Projects

**Hack the Future**, *Technical Director ('23 – '24)*

↳ **Latino Center for Wellness and Education**, *Developer*

**Oct 2022 – Apr 2023**

- Revamped the Latino Center of Wellness and Education's website in React with a small team, enhancing information accessibility and community outreach

↳ **Leadership Lafayette**, *Developer*

**Oct 2021 – Apr 2022**

- Co-developed an all-in-one testimonial submission tool for a local nonprofit in an Agile environment
- Converted design documents into a client-facing page and administrator dashboard, launching site in April 2022

**jsh**, *Developer*

**Mar 2023 – Apr 2023**

- Developed a robust Unix shell as a bash replacement, employing Lex and Yacc for grammar and parsing, and C/C++ for everything from file redirection and signal handling, to piping and an interactive edit mode
- Implemented multiple advanced features like algorithmic, multi-level wildcarding for tab completion, zombie process elimination, automatic configuration sourcing, tilde expansion, multiline input, and environment variables

**Mustang Mug**, *Lead Developer*

**Apr 2021 – Aug 2021**

- Co-led a team in the conception, development, and successful deployment of an online ordering web application for our high school's café, replacing a labor-intensive and inefficient Google form ordering system, streamlining operations
- Integrated MySchoolBucks' API and Firebase for payments and sales reporting; included a user-facing store that wraps point-of-sale system and an administrator configuration dashboard
- Produced user documentation for students and school staff, as well as technical guides for future student maintainers

## Skills

**Programming Languages:** Python, C/C++, TypeScript/JavaScript, Java, PL/SQL, bash, Vega

**Tools/Technologies:** AWS (Glue, Step, Lambda, S3, etc.), React, Svelte, Node.js, Flask, Docker, Oracle Database, Elasticsearch, Firebase, Kibana, Git, GitHub Actions CI/CD, Unix

## Awards

- Purdue Computer Science Department *Kunze* ('22) and Boeing scholarships ('23), Eagle Scout