

# NICHOLAS HARRAS

201-317-2212 • nickharras1@gmail.com • linkedin.com/in/nicholas-harras/

## SKILLS

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- **Programming and Scripting:** Python, C, Java, Perl, JavaScript, PHP, bash, tcsh
- **Databases and Web Dev:** SQLite, MySQL, InfluxDB, Grafana, WordPress, AWS (RDS and EC2)
- **IT and Workflow Tools:** Service Desk, OTRS, Slurm, git, GitLab, vim, cron
- **Network and Security:** Nmap, Nessus, WireShark, Burp Suite, VirtualBox, OpenVPN, ssh, X2Go
- **Operating Systems:** Ubuntu 18.04, RHEL 7, OpenSUSE, Windows 10
- **Clearance:** Public Trust

## EXPERIENCE

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### National Oceanic and Atmospheric Administration

Princeton, NJ

Computer Operator

June 2019 - February 2020

- Utilized **Slurm** and other command line tools to maintain various Federal **OpenSUSE Linux** HPC systems that scientists at NOAA's Geophysical Fluid Dynamics Lab rely on for their weather modeling
- Responded to or properly handed off around 10 tickets a day within **OTRS**, in a workplace of a around 200 users.
- Answered phones and assisted climatologists and engineers with technical issues, often with **SSH** and **X2Go** connections, **Slurm** errors, and compiler issues
- Developed **Python** and **tcsh** scripts to automate various maintenance tasks

### SEMGeeks

Belmar, NJ

Web Development Intern

September - December 2017

- Worked closely with web developers and designers to help create websites for small businesses
- Utilized **WordPress** and its various tools for content management across about 12 projects

## PROJECTS

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### Operators' Log Migration

Long term project with the goal of moving 30 years of Operators' log from text files to a relational database, utilizing **Python**, **SQLite** for testing, and to ultimately write to a **MySQL** database

- Tested a wide variety of methods to iterate through and parse 200,000 text files, resulting in a final algorithm with a runtime 40% faster than the original implementation
- Sanitized data and implemented quality controls to ensure no data loss
- Carefully tested only portions of the logs before determining that we were ready to migrate the logs in it's entirety

### HPC Charge Code Calculator

**Python** command line tool written to expedite the process of issuing charge codes to HPC systems according to downtime.

- Algorithmically designed to handle any and all possible charge code combinations
- Addressed a real workflow bottleneck, reduced time spent calculating charge codes to near-instantaneous
- Began as a personal project, but was adopted by the other operators, and became part of our **GitLab** as an ongoing, official project

### HPC Monitoring Dashboard

**Grafana** metrics dashboard for various statistics pertinent to monitoring GFDL/NOAA HPCs, utilizing an **InfluxDB** database and **Python**

- Developed **Python** wrappers of **Slurm** and system functions to constantly update an **InfluxDB** database
- Worked with operators to ensure the user experience of the **Grafana** displays were helpful to their workflow
- Provided reliable uptime logs over time, which proved incredibly helpful for HPC monitoring and troubleshooting, for instance in the event of an outage.

## EDUCATION

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### Rutgers University

New Brunswick, NJ

B.S. in Computer Science

September 2014 - August 2018

- **Related Coursework:** Databases, Internet Technology, Systems Programming, Algorithms, Principles of Programming Languages, Computer Security, Intro to A.I., Computer Architecture, Linear Optimization, Linear Algebra, Discrete Structures I/II, Calculus I/II, Data Structures