Jakob Johnson

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Education

Georgia Institute of Technology
   B.S. Computer Science - Systems and Networking   August 2017 – May 2021
     GPA: 4.0
   M.S. Computer Science   August 2021 – May 2022

Experience

Software Engineer Intern - **Bloomberg LP**   May 2020 – July 2020
- Built a system that eliminates the need for engineers to manually conduct frequent maintenance on Bloomberg Cloud Storage servers
- Automated the process of removing a production host from a distributed storage (Ceph) cluster using systemd, Salt, Ansible and Airflow
- Integrated two independent local testing environments into a single environment to allow for a more efficient development process by enabling integration testing in a local environment

Software Engineer Intern - **American Express**   June 2019 – August 2019
- Created data-driven dashboards for business leaders using React, React-Redux and CSS Grid
- Developed API endpoints with Spring Data REST to serve data from a NoSQL (Apache Cassandra) database
- Deployed application into Constant Integration/Constant Delivery Pipeline using Jenkins and XL Release

Head Undergraduate Teaching Assistant – **Georgia Tech College of Computing**   January 2018 - Present
- Manage 25+ Teaching Assistants and work closely with the professor to develop and deliver engaging curriculum to students
- Organize and engage in all aspects of the course: lecture, recitation, office hours, grading and Teaching Assistant meetings
- Led weekly recitations of 30+ students to teach fundamental Computer Science concepts

Software Engineer Intern – **Principal Financial Group**   May 2018 – September 2018
- Self-identified an opportunity to develop a Python script that automates the formatting of large quantities of CSV data, resulting in file generation taking ~6 seconds (previously ~45 minutes)
- Queried databases in SQL Server and WinSQL to retrieve data, deliver digestible reports, and independently lead educational discussions empowering business leaders to make operational and strategic metric-driven decisions

Projects

PerpSFTP   July 2020 - Present
Developing a tool in Rust that monitors the content of a directory and automatically syncs its contents across multiple hosts
- Implementing logic to transfer files between hosts via SFTP when a file is added, modified or deleted
- Designed a tree traversal algorithm that leverages the 'last modified' timestamp of a file to eliminate unnecessary transfers

PiDock   May 2020 – Present
Building a distributed system that allows users to view the water temperature at their dock from the comfort of their home
- Constructed a circuit for the DS18B20 waterproof temperature sensor to deliver data to the Raspberry Pi
- Developed a backend system using Rocket, a web framework for Rust, to deliver temperature data to the client
- Utilizing LoRa to transmit temperature data from remote areas without WiFi or strong cellular network

RustOS   January 2020 – May 2020
Built an Operating System in Rust that targets AArch64 (ARM) architecture and runs on a Raspberry Pi 3
- Developed drivers for the Raspberry Pi's built-in-timer, GPIO, and UART and used these drivers to develop a bootloader
- Implemented a FAT32 filesystem and a Unix-like shell to interact with the filesystem
- Wrote privilege-level switching code, context-switching code, a round-robin scheduler, system call handlers, and a virtual memory subsystem to implement processes and enable user-level applications

FyeFO   July 2019 – August 2019
Built a queue tool for the CS1301 help desk to manage large numbers of students seeking help at office hours
- Implemented a Cloud Firestore layer to allow for real-time updating across all users of the queue
- Automated semesterly updates to the data stored in the Cloud Firestore database

Skills

Programming: Python, Rust, C, ARM Assembly, Java
Technologies/Frameworks: Ansible, Salt, Airflow, Ceph, Linux, React, Node.js, Flask, Cassandra, MongoDB, MySQL

Extracurricular

- Student Government Association IT Board – Course Critique Team
- Hack4Impact – Bits of Good