

# Sachin Iyer

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<https://sachiniyer.com>  
<https://github.com/sachiniyer>

## Education

### New York University

*Bachelors of Science in Computer Science*

Sep 2020 - May 2023

*Brooklyn, NY*

### Basis Independent Silicon Valley

*High School Diploma*

Sept 2017 - May 2020

*San Jose, CA*

## Experience

### Amazon

*Incoming*

Software Development Engineer

*Seattle, WA*

### Amazon

*May 2022 - August 2022*

Software Development Engineering Intern

*Seattle, WA*

**Data Aggregation Service:** Created a full stack service to visualize last mile delivery data. Created a Typescript React frontend with Polaris styling that calls an AWS backend implemented with Java Lambda Functions, API Gateway, S3, and Internal Amazon Services. Used S3 Select and Spark to filter through about 1TB per query.

**Deployment/Observability Pipeline:** The service is built with the AWS Typescript CDK. It is validated with unit and integration testing before being deployed through CodeDeploy and monitored with CloudWatch alarms and SNS.

### NYU High Speed Research Network (HSRN)

*February 2021 - May 2023*

Academic Researcher

*Brooklyn, NY*

**Parallel File System:** Deployed an NSF funded 6PB storage PFS (SeaweedFS) for usage internally and externally to the HSRN. Automated Deployment with Ansible Playbooks and Rust CLI. Benchmarked with Bonie++ and IOR.

**Clients:** Implemented API of internal broker service for Bash, and did core development on Python, C++, and JS

**Audio Conferencing:** Created an audio service (Portaudio) in C++ that interfaces with internal broker service.

**CI/CD:** Developed documentation, linting, testing, deployment (DinD with Kaniko) pipelines for the project in Gitlab

**Mentorship:** Leader of the student research arm. Managed and onboarded over 110 students over 4 semesters.

### Hewlett Packard Enterprise (Aruba Networks)

*June 2019 - August 2019*

Cloud Intern

*Santa Clara, CA*

**Estimating Bandwidth:** Estimated bandwidth using Auto ARIMA/Prophet and other time series algorithms.

### Sparkup

*September 2022 - December 2022*

Software Development Engineering Intern

*Brooklyn, NY*

**UX Development:** Implemented a new feature in React Native App to link names and phone numbers in transactions

### Dark Forest

*December 2021 - February 2022*

Graphics Intern

*San Jose, CA*

**Shader Development:** Created a typescript plugin that allows for custom WebGL shaders in the Dark Forest game.

## Projects

**Ansible Batch Runner:** Used Rust and Clap to create a cli for batch running and managing Ansible Playbooks

**Personal Blog:** Put up a custom themed hugo blog git synced from through custom docker container builds/deploy site

**Book Recommendation Engine:** Wrote a recommendation engine to group books based on wikipedia page similarity.

**Circular Buffer:** Wrote a header only circular buffer library in an STL style (e.g. templating, custom iterators).

**K3S Cluster:** Created a portable resilient fault-tolerant k3s cluster that networks through a wireguard mesh (headscale)

**College Rank:** Extensible meta-ranking from conference proceedings/best papers, placement rank, paper age, interests.

**Control Display:** Created a mass controllable (over 50 simultaneous people) LED matrix. Host built with arduino metro and platformio, USB Serial Buses for communication, and React, Docker, and Material UI for site

**Corelink Audio Conferencing:** Created an audio service (Portaudio) in C++ that interfaces with Corelink.

**CTF:** Built CTF with Docker Compose, Dnsmasq, Postgres, Node MQTT server, Rust/Tide HTTP server and XtermJS

**Dark Forest Shader Development:** Created a typescript plugin that allows for custom WebGL shaders in the Dark Forest game.

**Delivery Service:** Created a web crawling service to notify available grocery delivery slots for Whole Foods, Costco, or Safeway. Used AWS SNS, ECS, and Lambda functions. Created headless Chrome docker containers running Selenium.

**Diff Challenge:** Became the 3rd finisher of the diff challenge by ggerganov (ggml, llama.cpp, whisper.cpp, kbd-audio)

**Electronic Trombone:** Made a trombone midi controller using Arduino with capacitive sensing and pid controllers.

**Foot Pedal:** Built a portable guitar pedal using LiPo batteries, teensy 4.0 (and audio shield), LCD, and custom effects

**Git-sync Webhooks:** Fork of git-sync with webhooks instead of polling. Supports IP whitelists, signatures, and secrets

**IGJ Title Analysis:** Analyzed the titles of the Indian Geographical Journal for importance using the tf-idf algorithm.

**IP Monitor:** Used the QT Framework and built a KDE widget to monitor your public and private IP Addresses.

**Link Checker:** Created a Rust CLI tool with Clap to automate link verification from args, stdin, or files.

**Parallel File System:** Deployed an NSF funded 6PB storage PFS (SeaweedFS) for usage internally and externally to the NYU HSRN. Benchmarked with Bonie++ and IOR.

**Mastodon Status:** Created a Rust Lambda function with a custom Megalodon-rs to push outage status to Mastodon

**Git OpenResty:** Created a container that utilized Lua JIT with OpenResty to sync git repos as a git-sync alternative

**Reactive Sign:** Used AWS IOT, Lambda, and API Gateway to build a interactive LED sign through serverless infra

**Resow:** Created a better Craigslist free section with ReactJS, MUI, Open Layers, Express, MongoDB, S3, Mocha, Jest

**Apps Status:** Built an API with Rust, Tokio Async, Axum, and Request that proxies status for my self-hosted apps

**Synesthesia Visualizer:** Create a visualizer that mimics the experience of Auditory Visual Synthesis with librosa and yin. Utilizes AWS infrastructure (autoscaling ec2s in a k8s cluster) for compute and WebVR for visuals

**Tweet Toxicity:** Used DistilBERT, Pytorch, HuggingFace Transformers, Streamlit and AdamW to classify toxicity type

**Personal Website:** Self-deployed a BabylonJS website with kubernetes k3s and full CI/CD using Git OpenResty

**Wikipedia Editor Analysis:** Used Spark, LDA, Cohere to find how much Wikipedia editors stray from their domain/topic expertise from Wikipedia dumps. Analyzed 6TB of data using NYU HPC/ SLURM and presented findings

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## Programming Skills

**Langs:** Typescript, Javascript, Node, C++, C, Rust, Java, Python, (e)Lisp, Bash/Zsh, MDown, JSON, YAML, L<sup>A</sup>T<sub>E</sub>X

**Tech:** AWS, Linux, Emacs, QT, Docker, k8s/k3s Rancher, Nginx, Traefik, ReactJS, Tailscale, MongoDB, Postgres, ...

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## Certifications

AWS Solutions Architect	<i>September 2021</i>
AWS Cloud Practitioner	<i>August 2021</i>
Stanford Machine Learning by Andrew Ng	<i>July 2020</i>
AWS Fundamentals Specialization	<i>June 2020</i>