Atreya Bain

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Overview

Software Engineer experienced in building secure and scalable cloud-native systems. Adept at improving reliability and usability through metrics-driven system design and cross-team collaboration.

Education

University College London, M.S. Software Systems Engineering 2024 – Present

- Modules: Software Development, Requirements Engineering & Software Architecture, Computer Security
- Post Graduate Teaching Assistant: Compilers – assisted with grading and feedback on coursework.

R. V. College of Engineering, B.E. Computer Science & Engineering 2018 – 2022

- GPA: 9.07/10
- Relevant modules: Data Structures, Algorithms, Object-Oriented Programming, Big Data Analysis, Network Programming and Security, Computer Networks, Web Technologies, Compilers

Experience

Software Engineer, Cisco Systems – Bengaluru, IN Aug 2022 – Sep 2024

- Developed and enhanced full-stack application features for Cisco IoT Control Center (IoTCC) using Spring APIs and React/ExtJS UI pages, simplifying login and policy management for clients.
- Built APIs and observability integrations for a Spring Boot-based OAuth 2.1 Authorization Server microservice deployed on Kubernetes clusters, enabling secure API access for IoTCC clients.
- Led the design and implementation of a CAPTCHA solution to curb bot activity in multi-environment deployments.
- Optimised and automated the synchronisation of application secrets and SSL Certificates by leveraging Jenkins pipelines, reducing release deployment times by ∼25%.
- Collaborated across cross-functional teams to centralise 200+ application secrets used in IoTCC applications in 20+ environments into a centralised Vault instance, reducing the need for emergency patch releases by ∼25%.

Software Engineering Intern, Cisco Systems – Bengaluru, IN Feb 2022 – Jul 2022

- Developed and deployed a solution for managing and externalising SSL certificates for Cisco IoTCC by extending Spring Cloud Config Servers, reducing the creation of emergency releases by ∼30%.
- Designed git pre-commit hooks to validate and tag SSL certificates with team ownership, which improved traceability and cut verification times by ∼75%.

Software Engineering Intern, Lexis-Nexis Risk Solutions – Atlanta, US May 2021 – Aug 2021

- Extended HSQL (HPCC Structured Query Language) and its new Typescript-based compiler by adding BigQuery-style procedures and typed variables to facilitate users in reusing existing ECL-based or HSQL logic.
- Added full support for the HPCC Visualizations library in HSQL, enabling users to generate rich visualisations.
- Awarded the Community Choice Award in the HPCC Systems Poster Competition 2021.

Backend Development Intern, Revagram – Bengaluru, IN Sep 2019 – Nov 2019

- Built and tested RESTful APIs for managing Revagram's dance tutorial platform using Express.js and MongoDB.

Certifications

ISC^2, Certified in CyberSecurity (CC) July 2025

Projects

estree-visualize - github.com/chrisvrose/estree-visualize Jul 2025 - Present

- Developed a utility web application to parse JavaScript modules and interact with their ASTs graphically, aiding in JS code exploration and analysis.
- Integrated CI/CD using Github Actions and Github Pages to allow quick iterations.

IEEE RVCE Student Chapter Website - github.com/IEEE-RVCE Jul 2020 – Dec 2022

- Drove Back-end team efforts in developing the IEEE RVCE Student chapter website, which won 2 awards in the IEEE Student Branch Website Contest in 2021 - Winner at the Global Level and Runner up at R10 level.
- Collaborated in early stakeholder discussions to align on needs, creating a 6× reduction in projected operational costs.
- Designed, implemented and documented RESTful APIs for consumption for the website UI.
- Containerized and deployed backend on OCI, ensuring cloud-agnostic deployability and scalability.
- Led the web team in 2021, driving CI adoption and design reviews to reduce iteration times by 20%.
- Technologies: Express.js, PostgreSQL, Docker, React, Github Actions, Github Pages, Oracle Cloud.

Vitals Recorder - github.com/chrisvrose/bdrec Sep 2021 – Oct 2021

- Created a React Progressive Web App (PWA) that allows users to self-log their vitals such as Temperature and Blood Pressure when they are unwell.
- Integrated storage backed by IndexedDB which enables complete local offline functionality.

Couscous – Distributed filesystem - github.com/chrisvrose/couscous-next Nov 2020 – Feb 2021

- Implemented a distributed filesystem backed by MongoDB clusters, with 100% POSIX compatibility.
- Enabled fine-grained access control by implementing POSIX ACLs with native user/group support, managed centrally through the control plane.
- Co-designed JavaScript-based FUSE driver to natively mount the filesystem, backed by RESTful APIs providing robust chunked read-write capabilities.
- Technologies: Next.JS, MongoDB, fuse-native.

HSQL - HPCC Structured Query Language - github.com/hpcc-systems/hsql Jan 2020 – Jul 2020

- Designed HSQL – a SQL-like language offering an easy-to-use interface data analysts familiar with SQL to get started HPCC Systems quickly.
- Created a web-based compiler with an ANTLR-based frontend that was integrated into ECL Cloud IDE.
- Benchmarked HSQL to require ∼20% fewer statements than equivalent ECL code for common data workflows, improving developer productivity.
- Implemented a VSCode extension for supporting development in HPCC Systems clusters with HSQL, allowing in-IDE syntax highlighting and syntax checking.

Projectile Tracking using Filters Oct 2020 - Dec 2020

- Implemented and evaluated projectile tracking algorithms based on sensor inputs in Java and C++.
- Spearheaded designing interactive UIs to plot sensor input and compare projectile tracking accuracy.

Skills

Programming Languages: Java, Typescript, JavaScript, Python, C++, C
Frameworks: Spring Boot, Spring Cloud, React, Next.JS, Sencha EXT.js, HTML5
Databases: PostgreSQL, Oracle, Redis, MongoDB
Technologies: Docker, Kubernetes, Hashicorp Vault, Grafana, Prometheus, AWS, OCI, git, ANTLR, Kestrel
General: Web Development, Distributed Systems, Networks, Security, Compilers, Data Structures