

# Atreya Bain

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## Overview

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Software Engineer with 2+ years' experience building scalable systems in distributed, cloud-native environments. Proven impact on reliability and usability through system design and cross-team collaborations.

## Education

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**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

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

- Developed and enhanced full-stack application features for Cisco IoT Control Center (IoTCC), including Single Sign-On using SAML and security policy management, 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%.
- Spearheaded the migration of application secrets used in IoTCC applications in 20+ lab and production environments into a centralised Vault instance, reducing emergency dot releases by ~25%.

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

- Developed 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%.

**Spring Intern**, Lexis-Nexis Risk Solutions – Atlanta, US (Remote) May 2021 – Aug 2021

- Extended the HSQL (HPCC Structured query language) web compiler and extension by adding APIs to report autocomplete data, allowing for user auto-completion while writing HSQL in VSCode.
- Introduced strongly-typed variables and BigQuery-style procedures to facilitate users in reusing existing ECL-based or HSQL logic.
- Added full support for the ECL Visualizations library in HSQL, enabling users to create 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.

## Projects

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**Estree Visualize** - [github.com/chrisvrose/estree-visualize](https://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.

**Vitals Recorder** - [github.com/chrisvrose/bdrec](https://github.com/chrisvrose/bdrec) Jun 2025

- 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.

**IEEE RVCE Student Chapter Website** - [github.com/IEEE-RVCE](https://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.

**HSQL - HPCC Structured Query Language** - [github.com/hpcc-systems/hsql](https://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, emitting ECL code.
- 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.

**Couscous – MongoDB based FUSE filesystem** 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.

## Skills

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**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