Jason Cao

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EDUCATION

BACHELOR OF SCIENCE (B.S.) - SPECIALIZATION IN COMPUTER SCIENCE   Dec 2022

University Of Western Ontario, London, ON

EXPERIENCE

Full Stack Lead Engineer (Typescript)   **Nashville, TN**

Atmos.ai   *September 2022 – February 2023*

Backend:

- Created an enterprise-level Node.js and Express.js backend from scratch. Integrated backend with Prisma.js ORM to manage PostgreSQL and MongoDB databases. Wrote regression and machine learning algorithms to be used as API endpoints to coalesce and represent large amounts of data from clients. RESTful API and Typescript conventions were followed and resulted in scalable, efficient, and easy-to-maintain codebases.
- Strict ESlint and Prettier parameters and extensive code review criteria were used to ensure good programming practices. Resulted in easily-readable and future proof backend code that was ready for an enterprise platform.
- A Test-Driven Development process through Vitest (Jest) was enforced for all non-trivial functionalities of the backend application. This not only propagated best practices, but also improved code stability for the future.

Dev-ops:

- Deployed application originally on Digital Ocean's Droplets platform, then migrated to AWS's EC2 platform for improved security and customizability options via AWS's VPCs. RDS was used as the new database host and ECS was used for containerization and cluster management. Elastic Kubernetes (EK2) was considered but decided to be unnecessary until the platform users exceeded 100,000. Current deployment allowed for user counts up to 100,000 before performance drops are perceived. All of the deployments were automated via Github Actions and Terraform.
- Stored content and images on an S3 Bucket and retrieved them via CDN endpoints for use on the platform.
- Wrote comprehensive PDF Report Generation code and deployed to an isolated Lambda Function on AWS (due to a PDF's time- and resource- heavy nature). This freed up computational time and costs for the app server instance.

Frontend:

- Wrote in Typescript React and implemented advanced visual libraries such as AmCharts to present data in a cohesive way to the user. Powerful but simple data representation allowed it to be easily comprehensible and comprehensive.
- Avoided component libraries in favor of writing a custom company-specific component library from the ground up via only Tailwind and Tailwind Extensions for styling and Headless-UI as sample code.
- Wrote regression and unit tests to ensure proper functionality of the app while improvements and additional features were added during bi-weekly sprints.

Altogether, Atmos.ai raised over $1.5 million in funding and amassed over 100 enterprise-level clients during Q4 of 2022.

Full Stack Application Developer (JavaScript + Ruby on Rails)   **Toronto, ON**

Mitre Media   *April 2018 – September 2018*

Propelor Project:

- Worked on React frontend components and Rails backend services. Components libraries emphasized during development were React-Bootstrap for the UI and React Motion for animated components. We also experimented with the popular Material UI. Components were customized and modified to suit product design needs.
- Worked with document-based database systems via MongoDB, and MySQL. During the internship, attempts were being made to fully replace parts of the system that were on MySQL with MongoDB, to improve how the company work with data in the future. By the end of the internship, much of the MySQL data have already been migrated.
- Worker in a Docker-based development environment. This allowed for a much simpler work flow via the container-based application system. Deployment and management saw improvements after the transition phase.

Media Project:

- Developed a full stack web application with Rails, JS, HTML/CSS, and MySQL. Application was focused on ETFs and providing smart financial data for investors. Algorithms were developed to automate steps for the end user to help them have more information when investing. The main project during the summer tackled developing an integer rating of an ETF based on compiled historical and predicted data as a starting point for investors.
- Performed ESG-related data analysis as one of the major factors for the ETF rating. This was aimed to appeal to people who were more interested in responsible and sustainable ETFs.
- Worked in a Scrum/Agile structure to develop features in a fast-paced environment. This management system resulted in greater efficiency and a collaborative working environment.

Web and Mobile Application Developer   **London, ON**
Freelance Mobile/Website   *September 2018 – August 2022*

- Worked with fellow entrepreneurs and accelerators to develop mobile applications and full-stack websites for startups. This enabled many Western students and entrepreneurs to be able to bring their companies to the web and mobile platforms.
- Experimented with multiple types of languages for development including: .NET, Ruby, and Typescript. Cross-referenced strengths and weaknesses from the different languages served to create a holistic understanding of developing for enterprise level applications. These projects were deployed on Digital Ocean, Heroku, and Azure.

EXTERNAL ACTIVITIES & INTERESTS

- Game development in C++, and C# using Unreal Engine and Unity
- Written personal blockchain projects in Rust
- Co-owns 800,000 Subscriber+ YouTube Gaming Channel - SuperJomBombo (SJB)
- Owns YouTube channel for tutoring students and aspiring learners how to program

Interests: Programming competitions, Animated Films, Tennis, Basketball, Graphical Engines, Hardware Research

Programming Skills: PostgreSQL/Express/React/Node, Typescript/Javascript, AWS, MongoDB, MySQL, Python, Rust, C++, C#