Andrew Dai   Software Engineer

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SKILLS: JavaScript, TypeScript, React, Redux, Node, Express, SQL, NoSQL, Next.js, AWS (Cloud Practitioner Certified), GraphQL, Redis, Jest, Docker, WebPack, Vite, MUI, Render, Continuous Improvement, Root Cause Analysis (5 Whys)

EXPERIENCE

Quell (Open Source)   **Apr. 2023 - Present**
Software Engineer   *Remote*
- Researched and incorporated a client-side in-memory database replacement essential to Quell's caching functionality, swapping a third-party deprecated dependency for JavaScript's native Map data structure while maintaining application features, reducing latency, and improving overall performance to ensure long-term support, security, and stability.
- Utilized Redis for fast in-memory server-side caching and modularized 500 lines of the application's Redis functionality logic into separated, organized modules to enable more streamlined integration, management, and testing than before.
- Capitalized on the robust routing and middleware features of Node and Express to direct sample queries to a specified GraphQL server endpoint, applying Quell's custom middleware to enforce database protection measures.
- Implemented MongoDB for its flexible document-based model, leveraging its hierarchical and nested nature to seamlessly handle similarly structured GraphQL queries for the application's demo repository website, enabling users and developers to experiment with Quell and experience its database query, modification, and caching abilities.
- Increased TypeScript coverage by 10%, harnessing TypeScript's static type checking to allow for easier bug identification at compile time, type troubleshooting, and more consistent, structured data flow throughout the application.
- Reworked and repaired Jest tests to be compatible with previously converted TypeScript code while adding an additional 10% testing coverage, resulting in a more reliable testing suite that can better ensure the quality of the code.
- Product developed under tech accelerator Open Source Labs (opensourcelabs.io) as a tool for the developer community.

Ingersoll Rand/Tuthill Pump Group   **Jan. 2020 – Mar. 2023**
Applications Engineer   *Alsip, IL*
- Managed a $1.5M engineered-to-order application project, collaborating with one of the largest EPC firms in the world by generating 80+ pieces of technical documentation, including manufacturing data books and project progress reports.
- Generated complete engineered-to-order project bids ranging in value from $10K-$200K, from analyzing the customer system application, selecting the optimal product size and materials, and developing the technical offer documentation.

Tuthill Pump Group   **Sep. 2014 – Jan. 2020**
Design Engineer   *Alsip, IL*
- Executed over 100 engineering change requests to improve machinability and ease of assembly, including consolidating and simplifying features and revising drawings and 3D models in a document revision control state management database.
- Partnered with senior engineers on R&D projects in emerging markets, brainstorming engineering solutions and performing life cycle testing and iterative design improvements on rapidly prototyped product samples.

PROJECTS

Software Engineer | playtabase - A games and activities database web application that allows users to add, edit, rate, and search for an activity for their in-person or virtual events using relevant target audience and group size filters.
- Utilized React to generate reusable game detail card components as the primary application building block to simplify the application interface and provide an intuitive and enjoyable user experience.
- Established a MongoDB non-relational database to store game and activity details, capitalizing on its flexible schemas, ease of set-up, and real-time data for scalability and quick access.
- Implemented Node and Express leveraging their versatile endpoint functionality for querying specific data to have easily maintainable, but extensive, search capabilities when filtering database documents per user input.

EDUCATION

University of Illinois at Urbana Champaign   *Bachelor of Science in General Engineering*

INTERESTS

Traveling, Tech, Gaming, Photography, Videography, Puzzle-Solving, Playing Piano & Guitar, Basketball, Ultimate Frisbee