RICHARD TO

📞 289-828-7889   ✉ richardto180@gmail.com   in linkedin.com/in/richardto24/   ⭘ github.com/rto24

Experience

Alki | Software Engineer   Jul 2024 – **Present**

React, TypeScript, Node.js, Express, MongoDB, Tailwind

- Designed user-friendly interfaces for Alki's spaced-repetition platform using React, TypeScript, and Tailwind, enabling software engineers to track and revisit algorithmic problems more efficiently.
- Integrated pagination for problem sets on the frontend, reducing initial load times by 35% and improving user experience by allowing seamless navigation through large datasets.
- Deployed a high-converting pre-launch landing page that achieved a 60% visitor-to-signup conversion rate, building an email list of over 2,000+ users within the first two weeks.
- Leveraged and implemented scalable MongoDB schemas for efficient storage and retrieval of user profiles, problem sets, and repetition schedules.

OSLabs | Software Engineer   Dec 2023 – **Jan 2025**

React, TypeScript, Node.js, Express, PostgreSQL, Kubernetes, Prometheus, Grafana, Jest, Cypress

- Engineered K8 Mate, an open source developer tool that monitors Kubernetes cluster metrics and component architecture visualization.
- Spearheaded a 94% conversion of the product from JavaScript to TypeScript, enhancing type safety and code reliability, preventing runtime errors, and improving code maintainability.
- Developed unit, integration, and E2E tests using Jest, SuperTest, and Cypress, composing test suites for both frontend and backend components, achieving 87% code coverage.
- Utilized React and React Flow to visualize Kubernetes cluster architecture, integrating control plane, nodes, pods, services, and containers in an interactive sandbox, optimized load times by 22% through virtual DOM reconciliation and efficient state management.
- Integrated PostgreSQL to manage relational databases for Kubernetes components, ensuring data consistency and reliability with ACID compliance, while executing advanced queries to efficiently handle complex, interconnected data.
- Constructed real-time monitoring and alert systems with Prometheus and PromQL, automating Kubernetes component discovery and generating custom logs via advanced queries, delivering 8 unique alerts on cluster activity.
- Achieved a 30% reduction in data retrieval times by constructing RESTful APIs with Express and Node.js, enabling efficient and flexible endpoint creation for various cluster operations.

Projects

Cardly – Card Collector Social App | *React Native, TypeScript, PostgreSQL, Node.js, Expo*   **2024 – Present**

- Engineered a mobile-first social platform where users can create servers, share posts, and interact in friend groups, utilizing React Native and Expo.
- Designed a robust backend with Node.js and PostgreSQL to support real-time updates for posts and servers, maintaining reliable performance and enabling dynamic user interactions within servers.

Discordia – Discord Game | *Next.js, React, TypeScript, Node.js, PostgreSQL, WebSocket, OAuth2, JWT*   **2024**

- Developed a Discord bot to track user activity (messages, call duration) and implemented WebSockets for real-time currency updates, achieving sub-100ms latency and driving 52% higher engagement through activity-based rewards.
- Leveraged Next.js file-based routing to streamline navigation across the app and optimized performance with server-side rendering (SSR), decreasing page load times by 28%.
- Architected secure, scalable session management with OAuth 2.0 and JWT, implementing stateless authentication with access/refresh tokens, token rotation, and revocation to prevent unauthorized access.

STREAMLINE – Music Recommendations | *Python, FastAPI, LLM, AI/ML, TypeScript, Next.js, React*   **2024**

- Fine-tuned an existing LLM improving recommendation accuracy by 25% while analyzing user listening habits by integrating Spotify's API for data retrieval and enabling direct playback and playlist creation.
- Built a scalable recommendation engine using Python and FastAPI, leveraging FastAPI's asynchronous capabilities to handle high-concurrency requests and process large volumes of user data efficiently.

Technical Skills

Languages: JavaScript, TypeScript, Python, HTML/CSS
Technologies/Frameworks: React/React Native, Redux, Next.js, Node.js, Express, MongoDB, PostgreSQL, OAuth, Tailwind, Cypress, Jest, Docker, Kubernetes, RESTful APIs, AWS, GitHub Actions, WebSockets, Prometheus, Grafana, JWT, Webpack, Vite

Education

University of Western Ontario

Bachelor of Arts in Economics