

Siphamandla Bili

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Summary

Dynamic Software Engineer with robust experience in designing and implementing secure, scalable server-side solutions using Node.js, Microservices architecture, and advanced API design. Complementing my backend expertise is a strong foundation in front-end development with React.js, Next.js, and Tailwind CSS, allowing me to create intuitive and responsive user interfaces. Skilled in cloud computing with AWS and containerization with Docker, I integrate cutting-edge technologies such as AI-powered systems and secure payment gateways to build holistic, high-performance applications. Known for delivering high-quality code and collaborating effectively with cross-functional teams, I continuously seek to enhance my technical expertise across the full development stack.

Technical Skills

Front-End Development:

- **React.js:** Component-based architecture, state management (hooks, Context API, Redux), performance optimization (lazy loading, code splitting, memoization).
- **Next.js:** Server-side rendering (SSR), static site generation (SSG), API routes, advanced routing.
- **Tailwind CSS:** Utility-first CSS framework, responsive design, custom themes, familiarity with CSS-in-JS.

Back-End Development:

- **Node.js:** MVC Architecture, Express.js Framework (RESTful APIs, routing, middleware), Asynchronous Programming (callbacks, promises, async/await), API Security (OAuth, JWT).
- **Microservices Architecture:** Service-Oriented Design (Node.js, Express, MongoDB), Event-Driven Architecture (RabbitMQ), Data Management (MongoDB, PostgreSQL, Redis).
- **Containerization & Orchestration:** Docker, Kubernetes (deploying, managing clusters, scalable applications, rolling updates, services, networking), Helm charts.
- **Testing & CI/CD:** Advanced automated headless browser testing (Puppeteer, Jest, session management, OAuth flow assertions, proxies, test helpers), CI pipelines (Travis CI, YAML, automated build/test setups), Scalable File Uploads (AWS S3, presigned URL security, CORS error handling).
- **Data Caching:** Redis (MongoDB query performance optimization, cache keys,

automated cache clearing, model hydration, query caching layers, hash operations, middleware, cache expiration management).

- **Database Management:** SQL Databases (PostgreSQL, complex queries, join optimization, normalized schemas), NoSQL Databases (MongoDB, unstructured data, flexible schemas).

API Development & Integration:

- **RESTful APIs:** Designing and developing scalable, secure, and performant APIs.
- **GraphQL:** Defining queries, mutations, resolvers.
- **Payment Gateways:** Stripe integration.

DevOps & Infrastructure:

- **Containerization:** Docker, Kubernetes.
- **Cloud Services:** AWS (S3, EC2, Lambda, DynamoDB).

Professional Experience

Software Engineer, Aflu Med Health Care

February 2025 – Present

- Leading multiple projects from planning to production, ensuring timely delivery and alignment with business objectives.
- Mentoring junior developers and collaborating cross-functionally with DevOps and QA teams to maintain high delivery standards.
- Spearheading end-to-end deployments on AWS ecosystem (EC2, Lambda, S3) for scalable cloud solutions.
- Containerizing applications using Docker and orchestrating deployments with Kubernetes for automated scaling and high availability.
- Managing robust CI/CD pipelines for seamless integration and deployment cycles.
- Building and maintaining both backend and frontend systems using Node.js, TypeScript, Express.js, and modern front-end frameworks.
- Architecting scalable, modular APIs and integrating with microservices architectures for enterprise-grade solutions.
- Implementing advanced error handling, logging, and monitoring strategies for production-ready applications.
- Conducting rigorous performance tuning across applications, including code profiling and database query optimizations.
- Ensuring robust application security through advanced JWT handling, HTTPS enforcement, and AWS IAM policies for fine-grained access control.

Junior Web Developer, Speccon Solutions

March 2024 – February 2025

- Developed scalable, high-performance web applications using React.js and Next.js, emphasizing server-side rendering for improved load times and SEO.
- Engineered reusable, responsive UI components with Tailwind CSS, adhering to modern design principles.
- Implemented advanced state management with Redux Toolkit to streamline data flow in dynamic applications.
- Architected secure and efficient RESTful APIs and GraphQL endpoints, leveraging OAuth2 and JWT-based authentication.
- Applied deep Node.js knowledge including performance tuning, Redis caching, and scalable file handling with AWS S3.
- Employed advanced Node internals concepts (event loop, worker threads, clustering) to maximize application performance and reliability.
- Coordinated closely with cross-functional teams to integrate advanced backend services with responsive frontend interfaces.
- **Practical Impact:** Spearheaded WhatsApp integration into the Learning Management System (LMS), enhancing accessibility and communication. Designed interactive LMS features to boost user engagement.

MERN Stack Developer (Internship), Zaiio Internship

March 2022 - February 2024

- Developed and maintained full-stack web applications using MongoDB, Express.js, React, and Node.js (MERN Stack).
- Built and consumed RESTful APIs for seamless communication between front-end and back-end.
- Implemented user authentication and authorization using JWT and OAuth for secure access control.
- Designed and optimized MongoDB schemas for efficient data storage and retrieval.
- Created responsive and dynamic UI components using React and Tailwind CSS to enhance user experience.
- Integrated third-party services and APIs to extend application functionality.
- Debugged and resolved front-end and back-end issues to ensure smooth application performance.
- Collaborated with senior developers on code structure, version control (Git), and deployment strategies.

Projects

Learning Management System (LMS)

- **Project Link:** [LMS](#)
- **AWS Architecture:** [LMS AWS Architecture](#)
- **DynamoDB Design:** [LSM DynamoDb Design](#)
- **Description:** A full-featured learning management system allowing users to create and

manage courses, upload images/videos, and share educational content. Students can purchase courses via Stripe. Includes course organization, student progress tracking, multimedia lessons, and secure user authentication.

- **Front-End Tools:** Next.js, Redux Toolkit, Clerk, Vercel.
- **Backend Tools:** Node.js, Express, AWS S3, AWS API Gateway, AWS Lambda, AWS DynamoDB, AWS CloudFront, AWS ECR, Docker, Stripe.

Project Management Dashboard

- **Project Link:** [Project Management](#)
- **AWS Architecture:** [PMD AWS Architecture](#)
- **Amazon RDS Design:** [PMD RDS Design](#)
- **Description:** Comprehensive dashboard for managing projects, tracking timelines, and organizing tasks. Supports real-time collaboration (team management, project creation, task prioritization, Gantt chart). Integrates with Clerk for user authentication and leverages AWS EC2 for backend hosting. Provides intuitive interface for managing data (project search, team assignment, user management).
- **Front-End Tools:** Next.js, Redux Toolkit, Redux Toolkit Query, Clerk, Material UI Data Grid.
- **Backend Tools:** Node.js, Express, PostgreSQL, AWS EC2, AWS RDS, AWS API Gateway, AWS S3.

Education

Diploma in Business Information Technology

University of Johannesburg | 2021 - 2024 | NQF Level: 6

National Certificate: Information Technology: Systems Development

MICT SETA | Issued: 30 September 2024 | NQF Level: 5

Certifications

- AWS CLOUD PRACTITIONER