Diren D Bharwani

Software Engineer

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Recent computer science graduate specialising in backend development, with some experience in front-end development. Familiar with real-time systems, cloud technologies, microservice and web development, and blockchain development, with a strong foundation in data structures, algorithms & design patterns. Demonstrated ability to contribute to teams with minimal training; commended by superiors for grasping new concepts swiftly and leveraging new knowledge to apply effectively.

EDUCATION

DigiPen Institute of Technology Singapore   08/2023 – 04/2024

Bachelor of Science in Computer Science in Real-Time Interactive Simulation (BSc)

- **GPA: 4.43/5.0** (Second Upper Class Honours)

SKILLS

Programming Languages: C, C++, JavaScript/TypeScript, Go, Python, Java/Kotlin, HTML5

Frameworks: Node.js, Svelte

Technologies: Amazon Web Services (AWS), Serverless, Linux, Git, Terraform, Android

Development Practices: Test-Driven Development (TDD), Continuous Integration/Continuous Deployment (CI/CD), Agile

PROFESSIONAL EXPERIENCE

Government Technology Agency (GovTech)   08/2023 – 04/2024

Software Engineer Intern

- **Enhanced Authentication using Passkeys:** Instrumental in the implementation of FIDO passkey as a standalone authentication method and as part of a Multi-Factor Authentication system, significantly improving Singpass security.
- **Decentralised Identifier System:** Contributed to the development of a decentralized identifier system, enhancing security by restricting third-party access to user information.
- **Backend Maintenance and Development:** Maintained critical components of Singpass Mobile's backend and set up interface and authentication between Singpass Mobile's backend and the FIDO passkey server.
- **CI/CD Pipeline Optimisation:** Optimised unit tests within the CI/CD pipeline, resulting in a 15% reduction in build times and improving overall efficiency.

AIA   11/2019 – 07/2020

Customer Insights Analyst

- **Designing Data Solutions:** Designed and implemented scalable data solutions, leading to increased team efficiency and productivity.
- **Database Migration:** Led the migration between new and old data warehouses, resulting in an 80% reduction in data errors.

PROJECTS

Blockchain-based e-Voting System

Designed and deployed a secure e-Voting system utilizing a private blockchain, aimed at digitising the electoral process in Singapore for overseas voters while maintaining high levels of security and transparency.

- **Cost and Efficiency Improvements:** Achieved 52.7% potential cost reduction and reduced vote counting time by 640% through innovative design and implementation.
- **Proof-of-Concept Development:** Collaborated with GovTech to develop the system, demonstrating the feasibility of blockchain technology for use in public services. The project is being proposed to the IEEE World Forum to become a full-fledged research project, highlighting its potential and innovation in the field of secure voting systems.
- **Full-stack Development:** Utilised Hyperledger Fabric as the blockchain, AWS Lambda, DynamoDB and Serverless Framework for the backend, and Svelte for the frontend.

Fides

Fides is a narrative 2D platformer video game. The game was built using a custom engine built by my team.

- **Technical Leadership:** Led a team in research, planning, testing and development of a custom 2D game engine from scratch. Drafted comprehensive technical documents to document the architecture and best practices for engineering.
- **Library & System Engineering:** Engineered an optimised math library, a robust constraint-based 2D physics engine, a particle system and a UI system.
- **Technological Innovation:** Pioneered a 2D lighting system with shadows, using ray casts and spatial partitioning.

LANGUAGES

- English – Native/Bilingual
- Chinese (Mandarin) – Conversational