Freddy Liu

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Summary

Experienced and self-motivated Full Stack DevOps Engineer with 4 years of hands-on experience in C# and .NET development. Demonstrated expertise in independently building and customising private servers, as well as developing a tailored .NET library. Proven track record of delivering successful projects and a commitment to staying abreast of emerging technologies. Currently seeking internships and part-time roles in Adelaide

Skills

- Front-end: HTML, XML. DOM, CSS, JS, Java, jQuery, VueJS, UI, WPF, WinForms, MVVM
- **Back-end**: C#, .NET, REST, Node.js, APIs, ASP.NET
- **Database**: Redis, SQLite, MongoDB, MySQL
- **Cloud**: S3, VPC, CloudFront, RDS, CDN, SQS
- **Unit Test**: MSTest, NUnit, following Arrange, Act, Assert (AAA)
- **Scripting**: Bash, Shell, Batch

- **File Formats**: JSON, YAML, XML, TOML, INI
- **Coverage & Profiling Analysis Tool**: DotCover, DotMemory, DotTrace
- **Project Management Tool**: Jira, Confluence, Trello
- Development & Operations: Agile, Scrum, Azure
- DevOps, Cake(C#), Git, Github Actions, Teamcity, Jenkins, Cicle Ci, Travis Ci, Gitlab, Appveyer, FTPS, SSH, WebSocket, Docker
- **Game Engine**: Unreal, Unity

Work Experience

Siteforge.io   Adelaide, SA   Dec 2024 - present
Software Engineer Intern

Overview: Developed and implemented a messaging system for SiteForge, an AI startup that automates website creation by generating sitemaps, wireframes, and content. Integrated Discord API with TypeScript and SvelteKit to enhance real-time communication and support ticket management.

- **System Architecture & API Integration**: Designed and documented an implementation plan for a messaging system leveraging Discord API, webhooks, and SurrealDB for ticket management. Automated delayed email notifications using Trigger.dev to improve user engagement.
- **Full-Stack Development & AI-Powered Automation**: Built real-time message handling with live subscriptions and webhook-triggered updates. Contributed to AI-driven automation for SiteForge, enabling seamless generation of website structures and content through intelligent algorithms.

JNX Holdings Pty Ltd   Adelaide, SA   Aug 2023 - Dec 2024
Software Engineer(Part-time)

Overview: Contributed to the development of two innovative projects, showcasing proficiency in Unity game development and AI image processing

- **Doodle Beat Project:** Implemented logic using C# and exported it using WebGL and WebAssembly (WASM) technologies for web deployment. Designed game logic using **miro** for effective collaboration and ideation in the creation of a 2D game.
- **Mystipic Project:** Contributed to an image-to-image application leveraging AI to generate filters based on input images. Designed AI prompts to produce diverse effects, such as transforming human faces into animal hybrids, demonstrating creativity and technical acumen.

Shanghai Block-Styled Media Co., Lt   Remote   Jan 2016 - Dec 2023
DevOps Engineer

Overview: Spearheaded the creation and upkeep of a private Minecraft server, fostering fair play and robust community engagement.

- **Development Leadership:** Directed server configuration, feature deployment, and balance adjustments, ensuring smooth operation and prompt issue resolution.
- **Innovative Contribution:** Played a pivotal role in crafting AssetUpdater library, implementing intelligent asset management and seamless update solutions to drive continuous improvement.

Project Experience

Weather Aggregation System   Adelaide   Feb 2024 - Apr 2024

Overview: Developed a Java-based fault-tolerant, multi-threaded distributed weather data aggregation server with a RESTful API, supporting concurrent client/server interactions and robust failure recovery mechanisms.

- **Test-Driven Development:** Designed using TDD methodology, ensuring comprehensive test coverage through JUnit and Mockito frameworks. Utilised JaCoCo for code coverage analysis.

- **Concurrency and Messaging**: Implemented thread-safe operations with Java's PriorityBlockingQueue and DelayedQueue for message queuing and task scheduling. Developed a pub/sub system for efficient data distribution in the distributed environment.
- **Failure Recovery:** Built a log-based recovery system with atomic writes and operation tracking to ensure data consistency post-crash. Incorporated modular code structure for reusability and scalability.
- **System Design and Synchronisation:** Applied Lamport Clocks for event ordering and coordination across distributed systems. Designed modular architecture for scalability, including JSON-based data exchange and socket communication.

Open Launcher: Auto-Incremental Update and Anti-Cheat Integration Remote Jul 2019 - Dec 2023

Overview: Spearheaded the development and maintenance of a bespoke launcher for a private Minecraft server, serving 1000 users. This launcher facilitated automatic incremental updates and enforced an anti-cheat system to ensure fair gameplay.

- **Technologies Utilised:** Employed WPF, XAML, C#, and .NET for UI and application development, MySQL, MongoDB, and Redis for backend management. Leveraged AWS services such as S3 and VPC for cloud deployment, NLog library for error handling, and Microsoft App Center, Sentry for monitoring and improvement. Additionally, utilised WebSocket for data transmission between client and server, and SMTP, OAuth for user login authentication validation.
- **Auto-Updating Feature**: Leveraged C# and the Asset Update library to implement intelligent auto-updates, optimising data transfer by selectively updating only differential data.
- **Anti-Cheat Detection**: Integrated a robust anti-cheat system using whitelisting and mod blocking mechanisms, safeguarding the server's integrity.
- **Customisation Login Page Theme**: Engineered a personalised UI for login panels, enhancing user experience while fortifying account security.
- **Deployment and Integration**: Seamlessly integrated the registration/login process with the game server's database plugin, deployed across Windows Server and Linux CentOS environments for scalability.
- **System Environment Check**: Implemented pre-game checks for system requirements and necessary dependencies, automatically installing them if missing (e.g., memory, Java version)

C# Library Development: AssetUpdater - Efficient Asset Management and Update Library Remote Jul 2019 - Jul 2023

Overview: Independently developed and packaged AssetUpdater as a C# library, available as a NuGet package. Originating from the necessity of implementing auto-updating functionality in Open Launcher, AssetUpdater efficiently manages and automates the update process for thousands of assets, providing seamless updates with features for error handling and retrying.

- **Intelligent Asset Management Design:** Developed algorithms to calculate and identify assets requiring updates, minimising network bandwidth usage. This includes designing a unique JSON transmission file format and utilising the SHA1 algorithm to calculate differences and extract unique identifiers for incremental updates.
- **Multi-threading with 60% Speed Boost**: : Implemented multi-threaded downloading, resulting in a 60% increase in download speed for faster and smoother asset updates.
- **Extensibility**: Designed an external API for easy extension of library functionality to accommodate future needs.
- **Technology Utilised:** Utilised core .NET/C# technologies for library development, complemented by Winform for user-friendly configuration. Advanced download/upload queue technology enabled seamless transfers, while effective memory management ensured optimal performance. Conducted Unit Test using MS Test. Thorough testing and performance analysis were conducted using software tools like Visual Studio profiling and JetBrains dotMemory.

Education

University of Adelaide Adelaide, SA expected in Dec 2025
Bachelor of Computer Science

Certification

Microsoft Certified: Azure Fundamentals obtained in July 2023

References References available upon request.