Azaan Khalfe

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Education

Bachelor of Science in Computer Science - University of Washington June 2024

Relevant Coursework:
Distributed Systems, Data Centers, Algorithms, Data Structures, Software Engineering, Systems Programming, Web Browser Engineering, Security, Databases, Operating Systems

Experience

Software Engineer Intern| Microsoft (via MAQ Software) October 2024 – January 2025

- Collaborated with Microsoft engineering teams to architect and implement enterprise-grade backend systems, including high-performance Azure Function Apps utilizing C#/.NET, featuring comprehensive asynchronous message processing with Azure Service Bus queues and Microsoft Dataverse SDK integration
- Engineered solutions following Microsoft development standards with robust dependency injection patterns and extensive unit testing frameworks, achieving over 90% code coverage while implementing secure authentication through Azure Managed Identities
- Developed advanced logging, telemetry systems, and RESTful API integrations within Microsoft's infrastructure, leveraging Application Insights for detailed monitoring and performance optimization of production backend services used by Microsoft clients
- Gained deep hands-on experience working within Microsoft's Azure cloud ecosystem and development practices, collaborating directly with Microsoft teams to develop and optimize enterprise solutions while expanding expertise in Microsoft's technology stack

Teaching Assistant | University of Washington April 2024 – June 2024

- Instructed 24+ students on web architecture fundamentals and browser engineering concepts
- Created technical learning materials and provided one-on-one mentoring during office hours
- Evaluated student assignments with a focus on code quality and architectural design principles

Projects

Distributed Systems Paxos Consensus Algorithm

- Designed and implemented a fault-tolerant distributed system using the Paxos consensus algorithm, ensuring consistency and replication across multiple nodes
- Developed code in Java to handle each phase of the algorithm and implemented communication protocols for nodes to reach a consensus
- Authored a comprehensive design document detailing the Paxos consensus algorithm, encompassing all associated states and high-level information to guide system-wide integration and optimization

NFL Fantasy Picker

- Developed a real-time full-stack application using React, Node.js, and Python, dynamically predicting the top ten starting players and updating scores based on real-time data.
- Constructed and maintained an SQL database housing comprehensive data on 50 NFL players, ensuring timely score updates and data integrity.
- Applied time-series analysis techniques to account for player form, injury history, and performance trends
- Utilized cross-validation techniques to prevent overfitting and ensure model generalizability across different game conditions

University of Washington Registration System

- Led backend development of a student registration platform using JavaScript and SQLite
- Implemented core features including waitlist management, course swapping, and a professor rating system
- Established an automated testing pipeline using GitHub Actions for CI/CD
- Designed RESTful APIs and database schema to support concurrent user operations
- Implemented tests for the backend and created a YAML file to automate the tests with GitHub Actions using CI/CD for the tests

Technologies and Languages

- Python, Java, Go, JavaScript, C++, C#, SQL, HTML
- Git, GCP, Kubernetes, Docker, NPM, Unix, PostgreSQL., JDBC, Maven, YAML, AWS, Azure, Dotnet