William DeBoer Wang

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Education

Columbia University **Sept 2022 - May 2024**

Bachelor of Science, ***Computer Science*** *New York, NY*

- GPA: 3.6/4.0, Fu Foundation School of Engineering & Applied Science
- Relevant Coursework: Computer Networks, Advanced Programming in C, Object-Oriented Design, Computer Systems, Databases, Analysis of Algorithms, AI, Computer Science Theory, Data Science, Natural Language Processing.

Claremont McKenna College **Sept 2019 - May 2022**

Bachelor of Arts, ***Economics & Engineering (3+2 Program)*** *Claremont, CA*

Experience

Microsoft (Azure, CosmosDB) July 2024 – Present

Software Engineer *Redmond, WA*

- Engineer on Azure CosmosDB MongoDB Team, building the Virtual Core MongoDB service (DocumentDB) with C, C#, Rust, and Ruby. DocumentDB is partially open-sourced: `https://github.com/microsoft/documentdb`
- Shipped the Mongo Data API, a RESTful, HTTPs interface that streamlines customer connection to MongoDB clusters, in both C# and Rust Gateways; designed and developed the embedded request handler, dynamic server-load balancers, plain authentication mechanism, control plane elements, and telemetry, before deploying to all production regions. Currently leading livesite, engineering, and integration of this feature group.
- Built the Mongo Rust Gateway, a memory-safe, low-latency bridge for MongoDB clusters; developed user CRUD operations, BSON request handler, and HTTPs interface, and worked on cursor and transaction management (store, retrieval, and sessions), authentication logic, and user session management. Shipped to production regions and open-source.
- Designed and implemented Full RBAC (Role-Based Access Control) functionality, enabling users to create, drop, and update custom roles, and to manage fine-grained database privileges for enhanced security and multi-tenant access control.

Microsoft (Azure, CosmosDB) May 2023 – August 2023

Software Engineering Intern *Redmond, WA*

- Engineer on Azure CosmosDB Backend Team; worked on vectorization algorithms, e2e database indexes, and VectorDB
- Developed high-performance AVX SIMD Cosine & Normalized Cosine Distance functions into CosmosDB's DiskANN repository using Rust and C++; implementation resulted in benchmarked time reductions of 82.3% and 89.1%
- Built CosmosDB's first e2e vector index with distance functions L2, Cosine, Normalized Cosine, & Inner Product and contributed 4 test suites with 50+ scenarios; vector querying and storage now operate with 31.2% and 29.1% time reductions
- Created a normalizing utility function for OpenAI binary test files - allowing CosmosDB to compute, store, and query OpenAI embeddings - and spearheaded early-stage VectorDB initiative with multiple research presentations

Microsoft (Security, Intune) May 2022 – August 2022

Software Engineering Intern *Redmond, WA*

- Engineer on Intune R&D; worked on building macOS device enrollment and improving the Apple enrollment pipeline
- Engineered Apple enrollment capabilities for Microsoft Intune end-to-end, allowing $1,000,000+$ tenants to register, authenticate, and query $500,000+$ macOS devices; developed UI, built Graph processing, and improved data warehouse
- Collaborated with Apple's API team to design a seamless experience, communicated with cross-functional design, engineering, and product teams within Intune, lead scrum meetings with PMs, and delivered a thoroughly-tested, robust service

Microsoft (Security, Intune) May 2021 – August 2021

Software Engineering Intern *Redmond, WA*

- Engineer on Intune R&D; worked on the Win32 application collector and implementation across several Intune applications
- Developed the Win32 application analyzer/collector for Intune applications, allowing tenant administrators to access, collect, and store intricate details from all applications from all machines; engineered three scalable, map-based solutions in C#

Awards

Drone Balanced with Neural Network January 2017 – May 2018

Intel ISEF 2018: 3rd in Engineering Mechanics

- Constructed a spherical drone with 3D modeling, developed neural network for surface stabilization with TensorFlow, and presented at Intel ISEF; won 3rd in Engineering Mechanics internationally and INCOSE: Honorable Mention abstract

Skills

Languages: Java[Proficient], Python[Proficient], C#[Proficient], C/C++[Intermediate], JavaScript[Intermediate], Rust[Intermediate], HTML/CSS[Intermediate]

Technologies/Frameworks: Azure CosmosDB, Git, Docker, JUnit, TypeScript, Pandas, Matplotlib, Figma, SQL