Anh Bertz

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EDUCATION

Georgia Institute of Technology   Atlanta, GA
Master of Science in Computer Science. GPA: 4.0/4.0   *Jan. 2025 – May 2027*

University of Wisconsin-Madison   Madison, WI
Bachelor of Science in Computer Science. GPA: 3.64/4.0   *Sep. 2021 – Dec. 2023*

EXPERIENCE

Full Stack Developer   Apr. 2024 - Present
She Inspires Me   *Irving, TX*
- Created a multi-page, responsive company landing page by translating **Figma** designs using **Next.js** and **SCSS**
- Designed and implemented an admin panel that allows non-technical team members to contribute to the website content management without needing to dive into source code, reducing content update time by **70%**
- Developed and integrated **10+ C# APIs** used for updating website's content with data provided through a **MySQL** database, allowing for dynamic content loading and storage
- Implemented and optimized **MySQL** database schema to efficiently store user data, donations, and content management system data, ensuring scalability and maintaining data integrity across the platform, managing data for **10,000+ users**

Database Student Researcher   Jun. 2023 – Dec. 2023
University of Wisconsin-Madison   *Madison, WI*
- Utilized the column-oriented **Parquet** file format specification for understanding encoding mechanisms for large data compression and retrieval
- Analyzed and compared **Parquet** capabilities on encoding techniques like delta encoding for time-series for data storage and retrieval by implementing them in **C++**
- Developed comprehensive test suites leveraging **Arrow's testing framework** to validate Parquet file operations, data encoding mechanisms, and query processing functionality while ensuring robust error handling

PROJECTS

Limit Order Book Streaming Service | *C#, gRPC, WinForms*
- Developed a **gRPC** client-server **C#** application with server streaming using a broadcast daemon for real-time order book updates and client unary calls for modifying order book state
- Implemented coarse-grained locking to manage concurrency for multiple clients and a **ConcurrentQueue** for receiving orders for order matching using a **First In, First Out** matching algorithm
- Structured limit order book levels using linked lists and Dictionaries for constant time modifications and removals of orders, and stored each level in a sorted set for efficient $O(\log_2(N))$ order insertions/matching

Enigma Machine Simulator | *Java, SQL, AWS RDS, JDBC, HTML, CSS, JavaScript, Springboot, Docker, JUnit*
- Created interactive UI features in **JavaScript** for dynamic display updates triggered by rotor and plugboard changes and custom keyboard handling to capture key presses for encryption and live ciphertext display
- Architected the core Enigma encryption algorithms and components in **Java**, including developing **JUnit** integration tests to validate correct encryption/decryption behavior
- Setup **AWS RDS MySQL** database to store, retrieve, and manipulate rotor configurations, messages, and user data, storing **1000+ user** records with **50+** unique rotor configurations

Virtual Reality Battle Chess AI | *C#, Unity*
- Designed and implemented a Chess AI engine using **C#** and machine learning algorithms, including **Monte Carlo Tree Search** and **Mini-max with alpha-beta pruning**
- Collaborated with **3 teammates** to optimize default **VR** configurations for enhanced gameplay, including audio settings, movement tracking, and comfort adjustments

TECHNICAL SKILLS

Languages: C#, Java, Python, C/C++, SQL, JavaScript, HTML, CSS, R, Tableau, Power BI
Frameworks: Next.js, React, Node.js, JUnit, AWS RDS, Docker, Springboot, gRPC
Other: Git, JDBC, pandas, NumPy, Matplotlib, Excel, Word
Certificates: Google Data Analytics Specialization