Matt Zhang

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EDUCATION

Bachelor of Software Engineering (BSE) 2020 – Apr 2025 | GPA: 91.4%
University of Waterloo

PROFESSIONAL EXPERIENCE

Spatial Systems Sep 2022 – present | San Francisco, CA
Software Engineer
- Developed cross-platform features for collaborative 3D environments in AR/VR in **Typescript**, **C#** and **Go**

Immigrate.ai Dec 2021 – Apr 2022 | Toronto, ON
Software Engineer
- Created **React Native** cross-platform NLP chatbot portal resolving **87%** of user inquiries
- Authored full-featured task management platform in **React** to empower & organize 12 internal teams
- Optimized rendering & memoization, reducing API calls by **28%** and load time by **32%**
- Implemented travelling salesman heuristic to reduce average runtime by **27%**

Imagine Communications May 2021 – Sep 2021 | Toronto, ON
Fullstack Developer
- Built management dashboards for top international TV broadcasters using **React** and **Vue**
- Triaged & fixed critical authentication bugs in **C#** that blocked **35%** of users from accessing products
- Reduced complexity and file size of product deployment by **63%** using **WebSockets** and **RabbitMQ**
- Launched pipeline to normalize **PostgreSQL** databases, reducing storage by **25%** and query time by **33%**

PROJECTS

Automated Proof Checker
- Designed & implemented scanner, validator and checker for mathematical proofs in **C#**
- Modified Shunting-Yard algorithm to parse n-ary inputs, reducing time complexity from cubic to linear

MIPS Compiler
- Built high-level programming language compiler converting Scala-like syntax to MIPS assembly
- Supports type checking, functions(nesting, scoping and recursion), closures and garbage collection

Social Media Aggregator & Visualizer
- Implemented lazy loading & memoized expensive calls in **React** app to shorten load times by **38%**
- Created API to aggregate social media data for sentiment analysis and entity recognition with **90%** accuracy
- Deployed data pipelines to clean and standardize data, reducing server response time by **32%**

Modular Board Game Engine & CPU
- Architected & built turn-based game engine in **C++** supporting creation of arbitrary games at runtime
- Implemented minimax with alpha-beta tree pruning for AI capable of playing arbitrary user-created games

LANGUAGES & TECHNOLOGIES

Javascript | Typescript | React | React Native | Python | C# | Unity | C++ | Go | SQL | MongoDB