Josh Friedson, Software Engineer

U.S. Citizen based in San Diego, CA
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PROFESSIONAL EXPERIENCE

Software Engineer Nov 2022 - May 2024
JPMorgan Chase & Co.

- Authored and maintained Spring Boot web apps' functionalities utilizing OpenAPI, Oracle DB, IBM MQ, and Apache Kafka
- Containerized microservices with Docker, managed scaling with Kubernetes, and migrated from a private cloud to AWS
- Contrived JMeter scripts for performance and stress testing of web apps, conducted testing on BlazeMeter, and utilized Dynatrace, Grafana, and Splunk to collect and analyze metrics for performance and cost optimization
- Evaluated app resiliency using Gremlin, BlazeMeter, and ChaosMonkey
- Upgraded JDK and dependencies for Spring Boot apps while retaining functionality and increasing unit test coverage

Intern Engineer June 2016 - Aug 2016
Kenautics *San Diego, CA*

- Collaborated with San Diego Harbor Police to discover ways of improving handheld diving equipment with the prospect of upgrading the underwater experience for professional divers
- Designed and began development of a prototype Java Android app with navigation capability for an underwater handheld navigation device

EDUCATION

BASc, Computer Science Aug 2017 - May 2021
San Diego State University *San Diego, CA*

- Successfully completed upper division electives in Artificial Intelligence, Wireless Networks, Computer Security, and Database Theory and Implementation

CERTIFICATIONS

AWS Certified Developer - Associate Feb 1, 2024
Amazon Web Services

Certified Kubernetes Application Developer (CKAD) Jan 7, 2023
The Linux Foundation

Machine Learning Specialization Sep 11, 2022
DeepLearning.AI, Stanford University

Deep Learning Specialization Aug 24, 2022
DeepLearning.AI

CONTINUED BELOW

OPEN-SOURCE CONTRIBUTIONS

Voxel Grid and Octree Ray Tracer, Parallelized Voxelizer, and Voxel Particle Simulator

- Implemented ray tracing algorithms to quickly and efficiently render voxel (uniformly aligned 3D blocks) grids and octrees consisting of diffuse color, transparency, and normal data efficiently and in real-time using modern C++ and an OpenGL compute shader
- Implemented a voxelization algorithm to convert traditional 3D models made up of triangles into a sparse octree directly on the GPU in a geometry shader
- Designed and implemented a 3D particle simulation where parallelized physics calculations take place in real-time using an OpenGL compute shader, eliminating the need for CPU and GPU memory swap

Neural Network-Driven Cars Evolved by Genetic Algorithms

- An ensemble of genetic algorithms crossbreed and mutate the best performing neural networks to navigate a car through a race car track in as little time as possible
- The neural network takes 13 inputs: 7 forward-facing distance sensors, and 6 about the car's physical state, such as the velocity and steering angle
- The neural network's output controls the car's accelerator, steering, and standard and emergency brakes
- The project comprises Python for track creation and Javascript for inference, and runs natively in modern web browsers

Event Ticketing App with Contactless Check-In

- Event hosts authenticate guests' tickets using Near Field Communication (NFC) on Android devices
- Web server is written in Go (Golang) with the Fiber framework
- PostgreSQL database contains users, businesses, events, and tickets
- Android app developed in Kotlin with React Native

UNIVERSITY PROJECTS

RISC Assembly Interpreter in C++

- Interpret SIC/XE assembly source code from a plain text file
- General purpose, program flow, and floating point registers
- All register, bitwise, integer, and floating point manipulation instructions
- Comparison and conditional jump instructions
- Interrupt handling and device interfacing for keyboard input

TECHNICAL SKILLS

Programming Languages: C, Modern C++, Java, Go, Python, SQL, GLSL
Frameworks: Spring Boot, Fiber, Express, React
Database Systems: MongoDB, MySQL, Oracle Database, PostgreSQL
Testing Frameworks and Tools: JUnit, Mockito, JMeter, ChaosMonkey, Gremlin
Machine Learning Instruments: PyTorch, Tensorflow, Scikit-Learn, Stable-Baselines, OpenAI Gym
Graphics APIs: OpenGL
Computer Vision: OpenCV
Embedded Systems: ARM Cortex-M7
Misc.: Git, Jenkins, IBM MQ, Apache Kafka