

Brian Shen

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EDUCATION

University of Chicago | Chicago, IL

September 2025 - December 2026

Masters of Science: Computer Science

- Specialization: High Performance Computing

University of Wisconsin-Madison | Madison, WI

September 2021 - May 2025

Bachelor of Science: Computer Science

- Relevant Coursework: Data Structures & Algorithms, Operating Systems, Computer Networks, Artificial Neural Networks and Deep Learning, Linear Algebra, Statistics for Engineers, Building User Interfaces,

PROFESSIONAL EXPERIENCE

Synopsys | Sunnyvale, CA

May 2023 - August 2023

Software Engineering Intern

- Designed and implemented a multithreaded tool (4 threads, 3.6x speedup) to analyze logs from 10,000+ distributed processing tasks
 - Extracted per-task CPU/memory utilization, I/O throughput, and runtime; designed algorithm to capture idle periods between two tasks in IBM's DP logs.
- Built a dynamic profiling tool using "strace", "top" and custom logic to trace CPU, memory, and I/O usage of executing code in real time
 - Applied tool to Synopsys Proteus, analyzed multiple test cases and identified heavy I/O bottlenecks affecting runtime performance

Milliman MedInsight | Seattle, WA

May 2024 - August 2024

Data Engineering Intern

- Developed a python script to parse and transform batches of internal job logs (~2,000 + lines per run), extracted error patterns and filetype data into a structured table for ingestion into PowerBI
 - Created a KPI dashboard to visualize trends in system log errors, including frequency by filetype and error code; used weekly by the team to analyze issues and spot recurring failures
- Researched and evaluated multiple data confidence platforms (e.g., Collibra, Snowflake) to handle terabyte-scale EHR and claims data; summarized findings for the engineering team to inform future data pipeline structure

MAGIC Lab (UW - Madison) | Madison, WI

Oct 2024 - Jan 2025

Software Assistant

- Investigated integration of 3D Motion capture APIs (Google's MediaPipe Pose Landmarker) for STEM educational games with real life body tracking
- Debugged frontend Javascript logic to enhance gameplay responsiveness and player feedback

PROJECTS & EXTRACURRICULARS

High-Performance Real-Time Option Pricing Engine

June 2025 - Present

- Built a multithreaded European option pricing engine in C++ using OpenMP and CUDA, accelerating Monte Carlo simulations of real-time option chains pulled from Tradier and FRED APIs
- Achieved $5.1\times$ speedup on CPU (8 threads) and $180\times$ GPU acceleration (CUDA) over serial baseline (100M paths/contract); accuracy validated against Black-Scholes model
- Extended pricing engine to support American options via Longstaff-Schwartz

March Madness Neural Network

March 2024 - May 2024

- Collaborated with a 3-person team to build a neural network with TensorFlow and scikit-learn to predict NCAA tournament outcomes using KenPom data; applied regularization and dropout to prevent overfitting

SKILLS

- **Languages:** C++, C, Java, Python, R, Javascript, HTML, CSS
- **Frameworks/Libraries:** CUDA, OpenMP, TensorFlow, pandas, scikit-learn, PySpark React
- **Tools:** PowerBI, Databricks, Apache Spark, Azure Monitor, Perforce, Intel vTune