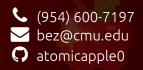
Brian E. Zhang



EDUCATION

May.'23 – May.'24 Carnegie Mellon University

Pittsburgh, PA

Masters of Science in Computer Science (GPA: 4.0/4.0)

Built LithOS, an operating system for multi-tenant deep learning workloads on GPUs.

Advised by Dimitrios Skarlatos & Todd Mowry.

Aug. '19 – May. '23 Carnegie Mellon University

Pittsburgh, PA

Bachelors of Science in Computer Science (GPA: 3.8/4.0; \$200,000 grant)

Coursework includes: Theoretical CS Toolkit; Higher-Ordered Typed Compilation; Advanced Distributed & Operating Systems; Robot Localization & Mapping; Computer Vision; Com-

puter Graphics; Compiler Design; Great Ideas in Computational Biology.

WORK EXPERIENCE

Jun.'22 – Aug.'22 Meta - Al Infra.

Software Engineer Intern

Improved Starlight, an internal ML pipelining platform, with compile-time type checking for various native Python types to preemptively catch failures in user code before launching expensive training jobs. Designed Python framework where users can provide their own routines for object serialization or visualization.

Sep. '21 – Dec. '21 NASA - Orion Backup Flight Software

Software Engineer Intern

Engineered software limits on rocket thruster firings to meet power usage requirements on the Orion spacecraft for the Artemis II mission. Built tooling to manage how bytes are packed in Orion's telemetry message structs, including a script to that are run on thousands of lines of C/C++ programs.

Jun.'21 – Aug.'21

Amazon - Search Relevance

Software Developer Intern

Extended Amazon's A/B testing library to track the impact of newly released Amazon search ranking features on business metrics. Scheduled daily jobs to clean, preprocess, and extract insights from petabytes of user data using Scala Spark and AWS Lambda.

PROJECTS

May.'23 – Present LithOS: The OS for GPUs

Lead Researcher & Developer

LithOS achieves best-in-class performance isolation and GPU utilization across many GPU sharing benchmarks. Compatible with any deep learning framework. Required significant reverse engineering effort for NVIDIA GPU drivers. Written in Rust & CUDA. Work is a collaboration with Meta and a submission to ASPLOS'25 conference (1st author).

Jan.'24 – May.'24 Tiny SML: A SML to C Compiler

Developer

Implemented compiler passes including elaboration, hoisting, closure conversions, etc in the SML functional programming language. Includes cheney-scan semispace garbage collector.

Oct. '22 – Nov. '22 Pebbles OS: Does not run DOOM

Developer

Developed a preemptive Unix kernel from scratch in C & x86 assembly. Supports guest OSes with para-virtualization. Also wrote a POSIX-like user-space threading library on top of Pebbles. Solved challenging concurrency problems.

Mar. '22 – May. '22 RadarSLAM: Localization for Self-Driving Cars in Adverse Weather

Developer

Published first open-source implementation of SOTA RadarSLAM algorithm. Evaluated algorithm performance on real-world driving datasets. 30+ GitHub stars \square .

DED	\circ \circ \circ \circ	D & C	EDI	/ICF

Jul.'23 – Aug.'23	Come On Out - Japan Taught English to Japanese middle and high school students for and Yamanashi.	Teacher five weeks in Tokyo, Nagano,	
May.'20 – May.'23	CMU School of Computer Science Graded student work, wrote exams, and taught recitations for F putation (Summer '20), Introduction to Robotics (Spring '23), and and Implementation (Fall '23). Received overwhelmingly positive student feedback. Read revi	nd Operating System Design	
Dec.'21 – May.'23	CMU Explorer's Club Maintain club's outdoor equipment and host weekly gear check	Quartermaster kouts for members.	
Dec.'20 – Jan.'22	CMU Puzzlehunt Organized and wrote the biannual CMU Puzzlehunt for over 1500 participants. My puzzles include: Mother Functions ♂, The Pirate's Gambit ♂, A Tartan's Responsibility ♂.		
Aug. '20 – May. '23 Dec. '20 – May. '21	CMU Recreational Running Club CMU Housing Services	Treasurer Resident Assistant	

LANGUAGES	* = team competition	5	AWARD
fluent English conversational Mandarin	CMU Algorithms With A Purpose AI Contest* CMU Robotics Club SHRG Grant	3rd Place \$250 Recipient	2024
PROGRAMMING	CMU	University Honors	2023
C, Rust, Python, Java, CUDA, SML, Why3, MATLAB, Mathematica, Scala, Docker, Bash, Git, Łatex	CMU Robot Arm Autonomous Jenga Contest* CMU Mobile Robots Race	1st Place 1st Place, \$1000 Prize	2022
	CMU TartanHacks*	1st Place	2020
	CMU Intro Comp. Biology, Research Project FAMAT Programming Contest*	"Ring of Honor" 10th Place	2019
INTERESTS puzzlehunts, 2d animation, biking, shogi, cooking, board games, pickleball	Mu Alpha Theta Grant Wolfram Summer School	\$2000 Recipient Alumni	2018
	NSU Psychology Bowl*	2nd Place	2017