David He

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Education

Georgia Institute of Technology — Atlanta, GA
B.S. in Computer Science, GPA: 4.0, Faculty Honors — *Aug 2022 - Dec 2024*

- **Concentrations**: Systems-Architecture & Modeling-Simulation
- **Selected Coursework**: Operating Systems, Algorithms, Deep Learning (G), High-Performance Computing

Work Experience

Point72 — New York, NY
Quantitative Developer Intern - Cubist Systematic Strategies — *May 2024 - Present*

Georgia Institute of Technology — Atlanta, GA
Undergraduate Researcher - Machine Reading Lab — *Jan 2023 - Present*

- Researched in-context learning in large language models for cost-efficient adaptation to new tasks and domains.
- Conducted large-scale empirical evaluations of prompting techniques such as chain-of-thought and self-consistency.
- Trained text-classification model to identify demographics of speeches, beating majority-baseline accuracy by 20%.
- Optimized **PyTorch** inference on GPU cluster, reducing latency by 60% and increasing throughput by 64x.

KidsTeachKids+ — Chicago, IL
Founder, Software Engineer — *Mar 2020 – Aug 2022*

- Launched not-for-profit peer tutoring platform that has provided 100+ hours of free tutoring to local students.
- Constructed **Python** tutor tracking dashboard, saving hours of manual data entry and validation.
- Automated data collection and document generation for official PDF reports of volunteer hours.
- Initiated design and implementation of web app for streamlined registration and logging using **React** & **Node.js**.

LittleChineseChannel — Chicago, IL
Software Engineering Intern — *Jun 2020 – Sep 2020*

- Developed a learning management website to meet the needs of 300+ active users using **PHP**.
- Created mobile-friendly user-interface for students to learn and practice Chinese using **JS** & **JQuery**.
- Designed relational database schema to model students, teachers, classrooms, and transactions using **MySQL**.
- Built an annotation tool to programmatically label 10,000+ images with UUIDs using **Java**.

Projects

Extended UNIX | *C*

- Designed, tested, and developed various extensions to the xv6 kernel for Operating Systems course.
- Implemented lazy page allocation, copy-on-write, threading library, and password authentication.

Crossy Road Android Game | *Java, Android Studio*

- Led bi-weekly scrum meetings to review code, coordinate Agile sprints, and delegate action items.
- Integrated Factory, Singleton, & Observer patterns into software design, documented as UML diagrams.

Clap Detection Audio Peripheral | *VHDL, Python, Librosa*

- Prototyped computationally-efficient moving-average algorithm to robustly detect claps from raw audio data.
- Programmed FPGA to implement low-latency (48kHz) audio algorithm for real-time clap detection.

Sparse Matrix Multiplication | *C++, MPI*

- Designed and implemented parallel SpGEMM kernel with $\frac{1}{sparsity}$ speedup over dot-product based baselines.
- Achieved strong scalability for matrix dimensions over 10000, matrix sparsity up to 0.1.

Technical Skills

Languages: Python, Java, C, Javascript, SQL, PHP, VHDL, C++, C#
Technologies: PyTorch, Pandas, React, Node.js, Express, Docker, JQuery, Android Studio, OOP, REST