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 - May 2025*
- **Concentrations**: Computer Architecture & Modeling/Simulation
- **Selected Coursework**: Data Structures & Algorithms, Computer Systems & Networking, Computer Organization, Objects & Design, Object-Oriented Programming, Linear Algebra, Probability & Statistics

WORK EXPERIENCE

Georgia Institute of Technology   Atlanta, GA
Undergraduate Researcher - Machine Reading Lab   *May 2023 - Present*
- Researched in-context learning in large language models for cost-efficient adaptation to new tasks and domains.
- Conceptualized PyTorch experiments to empirically identify prompts that induce the most accurate generations.
- Evaluated state-of-the-art prompting techniques such as chain-of-thought and self-consistency, and ensembling.
- Restructured experimental pipeline for automated logs, cached computations, and concurrent experiment runs.
- Optimized batching for open-source LLMs, such as Llama and OPT, leading to 64x speedup in model inference.

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 a 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 & MySQL.
- Created mobile-friendly user-interface for students to learn and practice Chinese using JS & JQuery.
- Designed relational database schema to model students, teachers, classrooms, transactions, etc. using MySQL.
- Integrated user authentication, session management, and transaction payments with PHP & MySQL.
- Built an annotation tool to programmatically label 10,000+ images with UUIDs using Java.

PROJECTS

Crossy Road Android Game | *Java, Android Studio*
- Led bi-weekly scrum meetings to review code, coordinate development, and delegate action items.
- Integrated Factory, Singleton, & Observer patterns into software design, documented as UML diagrams.
- Engineered MVVM architecture to support rapid iteration on game mechanics, interface, and state management.

Georgia Tech VIP - Robot Collective | *Docker, Linux, Python*
- Re-engineered a development replica of the Robotarium, a remotely-accessible swarm robotics testbed.
- Adapted network, robot software, and MQTT broker for robot-server communication via pub/sub service.

Breast Cancer Diagnosis | *Python, Numpy, Pandas*
- Implemented soft-margin support vector machine and stochastic gradient descent from scratch.
- Achieved 99% accuracy, 95% recall, and 95% precision in identifying breast cancer from diagnostic data.

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.

TECHNICAL SKILLS

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