David Zhang

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Education

The University of Texas at Austin, Austin, TX **Aug 2023 – May 2027**
Bachelor of Science in Computer Science & Mathematics with Robotics Minor **GPA: 4.00/4.00**
University Honors – Fall 2023, Spring 2024, Fall 2024, Spring 2025, Fall 2025
Relevant Coursework: *Operating Systems, Computer Architecture, Algorithms and Complexity, IOS Mobile Computing, Machine Learning 1, Data Structures, Intro to Programming, Gateway to Robotics, Discrete Math, Probability, Linear Algebra, Mathematical Statistics, Numerical Analysis, Vector Calculus*

Clear Falls High School, League City, TX **Aug 2019 – May 2023**
Weighted GPA: 5.78/5.00 Rank: **2/547** (Salutatorian) *National Merit Scholar*

Professional Experience

Amazon Web Services **May 2025 – Aug 2025**
Software Development Engineer (Embedded) Intern | Python, Lua *Austin, Texas*
- Develop baseboard management controller firmware for Amazon EC2 instances accelerated by NVIDIA Blackwell GPUs
- Developed infrastructure to automate validation of vendor firmware and monitor for regressions across firmware releases

University of Texas at Austin **Aug 2024 – Present**
CS314 Data Structures Undergraduate Course Assistant *Austin, Texas*
- Lead weekly discussion sections for 20+ students on Java data structures and algorithms
- Assist students with project debugging, algorithm efficiency, and code hygiene in help hours
- Answered **500+** student questions on Ed Discussion, providing detailed explanations of course material
- Grade weekly programming assignments within 3 days and exams within a week
- Received **4.75–4.81/5** (5 = Excellent/Strongly Agree) ratings from students on Course Evaluation (Spring 2025)

Database Mart LLC **July 2024 – Aug 2024**
Systems Engineering Intern *Irving, Texas*
- Assembled, upgraded, and maintained 80+ servers, handling tasks ranging from motherboard to CPU installations
- Installed and maintained servers/server racks in data centers, ensuring consistent uptime
- Explored the applications of Generative AI to address real-world problems and developed a startup business plan for DBM's Generative AI Challenge (June – Aug 2024)

University of Texas Medical Branch **July 2022 – Aug 2022**
High School Research Intern under Dr. Massoud Motamedi and Jonathan Lin *Galveston, Texas*
- Learned and worked on Imaris software to track cells and quantify their movements
- Co-first author of research paper (Fan Xia*, Jonathan L. Lin*, **David L. Zhang***, Shuizhen Shi, Seth E. Buscho, Massoud Motamedi. Quantification of leukocyte trafficking in a mouse model of multiple sclerosis through in vivo imaging. *Equal contribution)

Projects

Operating System | *C++, x86 Assembly* **Jan 2025 – May 2025**
- Engineered a preemptive, multi-threaded C++ kernel for a multi-core SMP system
- Implemented read functionality for an Ext2 file system and integrated virtual memory management
- Integrated kernel system calls and a UDP networking stack (socket APIs, UDP/IP layer, NIC driver)

Ed Discussion Board Q&A Web App | *Java, Spring Boot, HTML/CSS* **Dec 2024 – Jan 2025**
- Designed a website enabling CS314 TAs to reference past practice exam Q&As from Ed, reducing repetitive workload
- Leveraged the Ed Discussion API to fetch and aggregate past exam questions and answers
- Integrated OpenAI's GPT-4 to standardize question title formatting and stored Q&A entries in a SQLite database
- Built dynamic, form-driven web pages using Spring Boot MVC, Thymeleaf, and Bootstrap
- Disclaimer: The site is hosted locally and GitHub repository is private to avoid violating FERPA

Technical Skills

Languages: Java, C++, C, ARM Assembly, Python, Lua, Swift, MATLAB
Developer Tools & Platforms: IntelliJ, VS Code, Git/GitHub, Linux, Firebase
Web Technologies/Frameworks: HTML, CSS, Bootstrap

Extracurriculars

Texas Aerial Robotics (TAR) **Jan 2024 – May 2024**
- Software member developing fully autonomous drones for Project TAL+ (Takeoff/Landing + Team-Selected Mission)
- Installed and configured required software in an Ubuntu Linux environment, including ROS and OpenCV
- Developed simple object tracking algorithms using OpenCV to detect and track objects such as tennis and golf balls

FIRST Robotics (Robonauts 118) **Sept 2019 – May 2023**
- Scouting Captain: Led data collection and strategy to win FRC Texas State Championship (2023)
- Robonauts Committee Member (2023)