David Zhang

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Education

Massachusetts Institute of Technology Sep 2023 – May 2027

Bachelor of Science in Computer Science, Physics (GPA: 5.00 / 5.00)

- **Relevant Coursework:** Inference and Information (G), Machine Learning (G), Multi-agent Learning (G), Design and Analysis of Algorithms, Data Structures and Algorithms, Computation Structures, Software Construction, Quantum Mechanics II

Experience

Amazon Jun 2025 – Aug 2025

Software Development Engineer Intern

- Designed and implemented a new Kotlin package for Kindle on Android.
- Architected MVVM modules and service layer; built Compose UI; wrote Robolectric tests; established internal CI/CD and a standalone test app.
- Integrated with company SDKs for data fetching, updating the host app to adopt the package.

International Olympiad on Astronomy and Astrophysics Aug 2022, Aug 2023

Competitor

- Represented team USA at the International Olympiad for 2022 and 2023, awarded Gold and Silver respectively.
- Placed 2nd on the National Astronomy Competition, the national level qualifying exam.

MIT CSAIL - Pulkit Agrawal's Lab Sep 2025 – Present

Undergraduate Researcher (UROP)

- Conducting research in algorithm design of RL and Imitation Learning.

MIT Plasma Science Fusion Center Sep 2024 – May 2025

Undergraduate Researcher (UROP)

- Modified existing active learning pipeline to predict properties of the pedestal within a Tokamak fusion reactor.
- Trained Bayesian networks on the EPED simulation, using uncertainty outputs to inform future experiments.
- Gained a background in plasma physics and ML packages, extended an active learning pipeline, generated datasets, and tested the model.

Projects

5th Place PokerBots 2025 | *C++*

- Placed 5th out of 89 teams at MIT's annual Poker AI competition. Wrote a solver and player from scratch using C++.
- Researched, implemented, and tested machine learning techniques, including K-means clustering, game state and action abstractions, and Monte Carlo Counterfactual Regret Minimization (MCCFR).
- Designed, developed, and playtested the bot against other teams, ensuring robustness.

Tree of Thoughts — HackMIT 2025 | *Python, TypeScript, React, Vite, WebSocket*

- Built a Tree-of-Thoughts (ToT) reasoning app for HackMIT: orchestrates branching search over LLM "thoughts" with self-evaluation to solve problems, powered by the Cerebras inference API for fast, low-cost calls.
- Built the backend Python services implementing ToT search (thought generation/evaluation, prompt generation + api calls, branching + backtracking) with configurable depth/branching/temperature and clean endpoints for the UI.

Honors

IOAA Gold Medalist (2022), Science Olympiad 2x National Team Champion (2021, 2022), M3C Mathworks Technical Computing Finalist (2023), MIT Pokerclub Tournament Placings: 2/80 (Fall 2023), 3/100 (Spring 2024), Mason Science Olympiad Club Captain (2023)

Skills

Programming Python, C++, TypeScript, Kotlin

Tools/Frameworks Android Studio, Git, Jetpack Compose, Pandas, NumPy, PyTorch, Matplotlib, Adobe Lightroom