

LUCAS ZHAO

Yale CS & Data Science | 3x Published Researcher | 2x Patent-Holder | Builder & Innovator | Tech for Global Impact
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EDUCATION

Yale University, New Haven, CT

Expected Graduation May 2028

- B.S., M.S. in Computer Science and B.S. in Statistics & Data Science

TECHNICAL SKILLS

- Programming: Python, SQL, JavaScript, TypeScript, C/C++, R, Racket
- Machine Learning: PyTorch/TensorFlow, Transformers, Diffusers, Sparse Autoencoders, Convex Optimization, Explainability (XAI), Bayesian Inference, Adversarial Robustness, Fairness
- Web Development: React, Next.js, Tailwind CSS, HTML/CSS, FastAPI, REST APIs, Vite
- Cloud & DevOps: Docker, Railway, Vercel, CI/CD, JWT Auth, Environment Configuration
- Tools: Git/GitHub, Jupyter, LaTeX, Quarto, R Markdown
- Languages: English (native/bilingual), Chinese (native/bilingual), French (limited working proficiency)

RELEVANT COURSEWORK

Graduate Level: Algorithms via Convex Optimization, Mathematics of Deep Learning, Building AI Infra Systems, Statistical Inference, Trustworthy Deep Learning, Computability and Logic
Core: Algorithms, Systems Programming, Data Structures, Stochastic Processes, Discrete Mathematics, Probability & Bayesian Statistics, Mathematical Economics: General Equilibrium Theory

AWARDS

- Gold Award, Third Place in China | USABO2023
- Global Tied Top 15, National Second Prize | S.T. Yau High School Science Award2022
- National Gold, Regional Top 10 | Physics Bowl (Division 2),2023
- Silver Award | London International Youth Science Forum (LIYSF)2022
 - Paper published in the forum’s official Science Collection (pp. 38-41)
 - Invited to speak at the closing ceremony as an outstanding student representative
- Student Honor Roll (Top 1% of 24,716 participants) | Euclid Math Contest2022
- AIME Qualifier | AMC122022
- National Gold | Continental Calculus League2022

PROJECTS & LEADERSHIP EXPERIENCE

- Yalie Search, Solo Developer
- Aug 2024 – Present
- Built a live [full-stack web app](#) enabling natural-language search over Yale student profiles using CLIP ViT-L/14 embeddings; 5,800 images pre-encoded into 768-dim vectors for fast cosine similarity retrieval
 - Designed FastAPI backend (Railway, Docker) with LRU caching, GPT-4o-mini moderation, SQLite leaderboards, and JWT auth; ~500–800ms search latency on CPU
 - Shipped Next.js + React frontend (Vercel) with Tailwind UI, responsive grid, “Find Similar,” advanced filters, and search history/anonymous mode; CAS-protected access via Yale NetID
 - Implemented analytics (trending queries, usage stats) and privacy controls (opt-out logging, HTTPS); deployed with CI/CD and environment-based configs
- Yale Computer Society (Y/CS), Catalyst Mentor
- August 2025 - Present
- Mentored 8+ students weekly in web development, leading 10 sessions and providing hands-on technical guidance to accelerate project outcomes
 - Earned exclusive prize eligibility and priority for future advanced roles through exceptional program engagement
- Yale Computer Society (Y/CS), Catalyst Developer
- August 2024 - Jan 2025
- Built multiple interactive web apps, culminating in a Demo Day project with 60+ audience members
 - Mastered key web tech (HTML, CSS, JavaScript, Node.js, React, Vite)
- Yale Artificial Intelligence Alignment Student Association (YAIA), Active Member
- Dec 2024 - Present

- Selected for competitive 8-week Intro Fellowship—explored advanced AI safety, mechanistic interpretability, and alignment research, culminating in group presentations and policy recommendations
- Attend twice-a-week discussion sessions on state-of-the-art machine learning alignment papers

Yale Effective Altruism (YEA), *Active Member*

Aug 2025 - Present

- Selected for competitive Intro Fellowship — intensive 8-week program on global priorities, AI safety, and high-impact problem solving with top student cohort

2 Proprietary Beekeeping Devices, *Inventor, Patent-Holder*

2020-2021

- High-Efficiency Radial Honey Extractor & Multifunctional Pollen Collector
- Designed & manufactured with friends; slashed beekeepers' labor intensity & boosted efficiency; patented at CNIPA on June 18, 2021; now mass produced

PUBLICATIONS

3 published papers:

- **SCI Journal, co-first-author:** Studies on macrofungi diversity and discovery of new species of *Abortiporus* from Baotianman World Biosphere Reserve. *Open Life Sciences*. <https://doi.org/10.1515/biol-2022-0614>
- **Single-author:** Morphological and DNA Barcode Identification of the *Delottococcus confusus*, (Hemiptera: Pseudococcidae), an invasive alien species to China. *Life Science Journal*. <https://doi.org/10.7537/marslsj200423.02>
- **Single-author:** Identification and Research into a Wild Parasitic Fungus and its Biological Characteristics. 2022 LIYSF official *Science Collection* (pp. 38-41) <https://www.liysf.org.uk/liysf-china> (“Download 2022 Selected Student Research Projects”)

RESEARCH EXPERIENCE

Yale University, *Inside the Hive Mind: The Psychology of Group Life, Team Leader*

2022-2023

- Led undergraduate research team under the Psychology Dep. Director of Undergraduate Studies (DUS) Prof. Yarrow Dunham

Discovery, Identification & Activity Study on a new macrofungal species, *Field Researcher*

2020-2023

- Identified a **new species**, *Abortiporus baotianmanensis*, over 2 years using electron microscope observation, DNA sequencing & more; Discovered high medicinal value in activity study

Large-Scale Macrofungal Census, Field Guide Writing, Biodiversity Conservation, *Field Researcher*

2020-2023

- 3 years, 600km, personally collected 500+ specimens; illustrated guides to nearly 100 mushrooms included in *Funiu Mts. Macrofungal Species Dictionary*

Morphological & DNA Barcoding Identification of an invasive species, *Individual Researcher*

2023

- Discovered & identified **1st instance of invasive species *D. confusus* in China** on Father's Day flowers, which causes citrus extinction; paper published

Identification & Biological Characteristics Study on parasitic macrofungi, *Individual Researcher*

2023

- Identified *A. lycoperdoides*; explored macrofungi's effect on its growth; provided theoretical basis for macrofungal parasitism studies; paper published

ADDITIONAL EXPERIENCE

Chinese Undergraduate Students at Yale (CUSY), *Outreach Chair (Board Member)*

August 2024 - May 2025

- Organized 20+ events, increasing undergraduate engagement by 100%
- Collaborated with Harvard and MIT to host XWeek, a week-long immersive study tour for 40+ top 0.1% Chinese high school students

The Traditronauts Club, *Founder & President*

2020-2024

- Founded and scaled heritage club to 500+ members, leading digital outreach and tech-enabled cultural workshops
- Built partnerships with cultural institutions and managed cross-functional teams—paralleling startup leadership

Large-Scale Campus Stage Play *Can You See?*, *Director, Producer*

2021

- Led 70+ team members across technical, creative, and production roles to deliver a major live performance.
- Pioneered digital tools for stage design and promotion, building project management and crisis-resolution skills.

Beelingua Exchange Club, *Founder, President*

2021-2024

- Launched language support initiative for beekeepers, scaling to ongoing operations at multiple industry expos.
- Developed digital workflows and led volunteer teams—bridging tech problem-solving with high-impact community outreach (affectionately called “Beekeepers’ Best Friends”).