

## RUNBAO (FRANK) DU

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### EDUCATION

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**The University of Chicago**, Chicago, IL

*Bachelor of Science in Computational and Applied Mathematics, Minor in Astronomy and Astrophysics, May 2027*

### HONORS

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Dean's List, Duolingo English Test Merit Award (2024)

### EXPERIENCE

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**Lyra**, Chicago, IL

*Founder*, April 2026 – Present

- Built and deployed a full-stack AI music platform where users upload a song and chat with an LLM that "listens" through a custom Python audio-analysis pipeline and generates on-the-fly visual scenes via Claude tool-use orchestrating Google's Gemini image model.
- Shipped it to production on Render with a Lovable-hosted frontend

**Directed Research**, Chicago, IL

*Undergraduate Researcher*, Feb 2026 – Present

- Analyzing artifacts in AI-generated music through Python pipelines in scale, including Crest Mean, MFCC Delta Mean Abs, Chroma Entropy Mean, Centroid-to-Rolloff Ratio etc.
- Building a deepfake detector that targets Suno-generated music and exploring prompts-engineering as a method of optimization

**SUPERGroup Lab**, Chicago, IL

*Research Assistant*, Nov 2025 – Present

- Examining behaviors of 8 major LLMs in value-based reasoning through persona and scenario descriptions
- Practicing prompts-engineering and output-formatting while also parsing and analyzing text data in bulk

**UChicago Directed Reading Program**, Chicago, IL

*Mentee*, Oct 2025 – Jan 2026

- Studied elliptic curves and algebraic geometry with a focus on cryptography; covered important topics like Affine and Projective Varieties, The Group Law of Elliptic Curves, and the Elliptic Curve Primality Test.

### LEADERSHIP & ACTIVITIES

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**Southern California Math Competition**, Los Angeles, CA

*Vice President*, Feb 2024 – May 2025

- Co-led the only student-initiated math competition that's recognized by the university; secured \$1000 + grants and held competitions per semester with 150+ participants coming from nearby high schools.
- Past participants have also won other awards, including IMO gold medals.

### HIGHLEVEL COURSES

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**MATH:** Theory of Numbers, Probability Theory, Seminar in Problem Solving, Abstract Linear Algebra, Analysis in  $\mathbb{R}^n$  I-II-III

**CS:** Discrete Methods in Computer Science, Mathematical Foundations of Machine Learning, Standard Cryptography I (Online)

### SKILLS

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**Languages:** Chinese (Mandarin), English

**Computer:** Python, C++, Adobe Photoshop, Affinity Photo, LaTeX

**AI:** Claude Code, Claud Cowork, Cursor, Lovable, Suno, ACE Studio, Krea

**Interests:** Music Production (10+ Million Streams), Poetry, Boulderling, Ultimate Frisbee