

Ethan K. Sun

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Education

Dartmouth College

Bachelor of Arts - Economics Major and Mathematics Minor Candidate

Hanover, NH

September 2022 - Present

- GPA: 3.73 / 4.00
- Member of Dartmouth Economic Research Scholars Board of Directors

Tacoma Community College

Associate of Arts - Mathematics Specialization

Tacoma, WA

September 2020 - June 2022

- GPA: 3.98 / 4.00 - High Honors
- President of Phi Theta Kappa International Honors Society - January 2021
- Running Start dual-enrollment program. Earned Associate of Arts degree in mathematics during high school

Research Experience

Lead Researcher (Dartmouth College Department of Economics)

Advisor - The Dartmouth Professor in Economics Erzo Luttmer

Hanover, NH

September 2024 - Present

- First author studying whether healthcare consolidation leads to better care or just higher costs with the same, or worse, health outcomes
- Use Python, Slurm, and Stata to analyze insurance claims, payment data, and patient care quality metrics

Research Assistant (Dartmouth College Department of Economics)

Principal Investigator - The Dartmouth Professor in Economics Erzo Luttmer

Hanover, NH

September 2024 - Present

- Work on Professor Luttmer's team to value human lives based on respondents' choice between vignettes of life stories where life-time income and age of death are randomized
- Create literature reviews, test survey data to ensure randomizations are implemented correctly and that respondent responses are coded accurately, produce high-quality exhibits based on data analyzed by Professor Luttmer or other senior members of the research team, and help proofread, edit, and format the paper

Research Assistant (Dartmouth College Department of Chemistry)

Principal Investigator - Assistant Professor Xin Qi

Hanover, NH

March 2023 - November 2023

- Worked in Assistant Professor Xin Qi's Qi Lab at Dartmouth and collaborated with pharmaceutical companies to develop antibodies to target Interleukin-33, a protein in the IL-1 family of cytokines known to be associated with various inflammatory and allergic conditions
- Analyzed data by utilizing RCSB, VMD, Pymol, and AlphaFold to visualize and analyze the structure of antibodies targeting Interleukin-33, then used GROMACS, Slurm, and Python to perform molecular dynamic simulations for data analysis and studying of their properties and binding efficacy to Interleukin-33

Teaching Experience

Teaching Assistant (Dartmouth College Department of Economics)

Faculty - Assistant Professor Diego Ramos-Toro

Hanover, NH

Fall 2024

- The Price System: Analysis, Problems, and Policies Teaching Fellow - Grade problem sets, exams, and hold weekly office hours for a class of 90 students to ask questions about the course material

Teaching Assistant (Dartmouth College Department of Music)

Faculty - Lecturer Michael Zsoldos

Hanover, NH

Fall 2023, Spring 2024

- Beginning Music Theory Teaching Assistant - Hold weekly piano lessons for scales, dynamics, chords, theory, and a simple piece and hold weekly office hours for a class of 11 students to ask questions about the course material

Publications & Presentations

- Sun, Alan, **Ethan Sun**, and Warren Shepard. "Algorithmic Phase Transitions in Large Language Models: A Mechanistic Case Study of Arithmetic." Paper presented at ATTRIB @ NeurIPS workshop, Vancouver, BC, Canada, December 14th, 2024.

Honors & Awards

James O. Freedman Presidential Scholar (Dartmouth College) **Hanover, NH**
Undergraduate Advising and Research *May 2024*

- Prestigious, GPA-based undergraduate research program

Dartmouth Economic Research Scholar (Dartmouth College) **Hanover, NH**
Department of Economics *March 2024*

- Competitive selection-based program designed to support Presidential Scholars who are majoring in economics and provides additional mentoring and support to students with strong potential in economics research

William H. Neukom 1964 Scholar (Dartmouth College) **Hanover, NH**
The Neukom Institute for Computational Science *August 2023*

- Selective program that funds enrolled undergraduates engaged in faculty-advised research in the development of novel computational techniques as well as the application of computational methods to problems in the Sciences, Social Sciences, Humanities, and the Arts

URAD Scholar (Dartmouth College) **Hanover, NH**
Undergraduate Advising and Research *March 2023*

- Competitive program intended to introduce students to research with priority given to sophomores and juniors (received award as a freshman)

Citations for Meritorious Performance (Dartmouth College) **Hanover, NH**

- Probability, Research Associate Linh Huynh - Summer 2024
- Introduction to Programming and Computation, Albert Bradley 1915 Third Century Professor of Computer Science - Spring 2023
- Italian Briefs, Dartmouth Faculty Michael Wyatt - Spring 2023

Skills & Licenses

- Python, Stata, Slurm
- National Registry of Emergency Medical Technicians - B License

Relevant Coursework

Dartmouth College **Hanover, NH**

- *Economics* - microeconomics, macroeconomics, econometrics, game theory, public economics, financial markets
- *Mathematics* - accelerated multivariable calculus, probability, differential equations

Tacoma Community College **Tacoma, WA**

- *Mathematics* - calculus I/II/III, multivariable calculus, differential equations, linear algebra