

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: 3.72 / 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 Economics Researcher

Advisor - Erzo F.P. Luttmer

Hanover, NH

September 2024 - March 2025

- First author studying adoption of ACA Medicaid expansion's effects on employment and asset holdings
- Use Python, Stata, and Slurm to analyze labor force and asset ownership trends

Economics Research Assistant

Principal Investigator - Erzo F.P. Luttmer

Hanover, NH

September 2024 - March 2025

- Work on The Dartmouth Professor in Economics Erzo F.P. 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

Pharmaceutical Engineering Research Assistant

Principal Investigator - 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

Economics Teaching Assistant

Faculty - Diego Ramos-Toro

Hanover, NH

Fall 2024

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

Music Teaching Assistant

Faculty - Michael Zsoldos

Hanover, NH

Fall 2023, Spring 2024

- Beginning Music Theory Teaching Assistant - Held weekly piano lessons for scales, dynamics, chords, theory, and a simple piece and held 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 2024 workshop, Vancouver, BC, Canada, December 14th, 2024. [pdf]

Honors & Awards

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

- Prestigious, GPA-based undergraduate research program

Dartmouth Economic Research Scholar **Hanover, NH**
Dartmouth College 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 **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

Undergraduate Research Assistantships at Dartmouth Scholar **Hanover, NH**
Dartmouth College 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 **Hanover, NH**
Dartmouth College *Spring 2023, Summer 2024*

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

Skills & Licenses

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

Relevant Coursework

Dartmouth College **Hanover, NH**
Bachelor of Arts *September 2022 - Present*

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

Tacoma Community College **Tacoma, WA**
Associate of Arts *September 2020 - June 2022*

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