

# KAI A. EDICK

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## EDUCATION

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### Massachusetts Institute of Technology

Cambridge, MA

*B.S in Applied Mathematics and B.S. in Computer Science, Economics, and Data Science*

Expected Class of 2026

- 4.7 GPA (5.0 scale); SFSB South County Honors Scholarship
- Relevant Coursework: Statistics, Probability and Random Variables, Machine Learning, Algorithms, Theory of Computation, Data Science, Programming, Optimization Methods in Business Analytics, Mathematics for Computer Science, Microeconomics
- Extracurricular Activities: Theta Tau Professional Engineering Fraternity, Men's Varsity Water Polo (2022)

## EXPERIENCE

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### MIT Astrodynamics, Space Robotics, and Controls Lab (ARCLab)

Cambridge, MA

*Undergraduate GPU Programmer*

Jun 2024 – Present

- Achieved 10x speedups of the MIT Orbital Capacity Assessment Tool with GPU usage by parallelizing Monte Carlo simulation processes to utilize MATLAB's GPU support and custom CUDA kernels
- Minimized data transfer overhead between CPU and GPU by profiling and parallelizing the slowest code sections
- Tested and validated GPU-accelerated code on MIT's HPC cluster using bootstrapped datasets, ensuring scalability

### Harvard-MIT Health Sciences and Technology (HST) Department

Cambridge, MA

*Undergraduate Machine Learning Researcher*

Jun 2024 – Aug 2024

- Differentiated articles between authors of similar names across a database by collaborating with team of seven peers to adapt a heterogeneous graph convolutional network embedding model using PyTorch
- Implemented several clustering algorithms, including graph hierarchical agglomerative and K-means clustering, then analyzed them using F1-scores and various dimensionality reduction techniques, such as PCA

### MIT Earth, Atmospheric, and Planetary Sciences Department

Cambridge, MA

*Undergraduate Researcher*

Sep 2023 – Feb 2024

- Compared methods for solving systems of differential-algebraic equations by designing MATLAB implementations and test cases with the goal of extending an open-source symbolic toolkit used in the dynamics and control of an aircraft autopilot

### MIT Media Lab

Cambridge, MA

*Undergraduate Researcher*

Jun 2023 – Aug 2023

- Developed Python code using NumPy to design a caustic surface that transforms a light source into an image
- Experienced how to implement relevant mathematical theories in code, such as optimal transport, and tested other implementations to find areas of improvement in my own code

## LEADERSHIP & PERSONAL

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### Riviera Robotics

Santa Barbara, CA

*President & CAD/Manufacturing Team Leader*

Jun 2020 – May 2022

- Self-taught SOLIDWORKS and complex sketching techniques as well as HSMWorks and basic CNC machining, then shared knowledge with CAD/manufacturing team of 16 peers so tasks could be delegated to build a robot in two months
- Collaborated with coding team such that subassemblies satisfied software requirements, ensuring proper functionality
- Assisted in outreach to recruit new members and promote robotics in the community, nearly doubling growth
- Competed in First Robotics Competition, ranking 7<sup>th</sup> out of 35 teams

### Community Service (> 400 hours)

Jun 2019 – May 2022

- Founded the AP Physics C club to help 15 students study for the exam since the class was not offered during high school
- Established an aerospace club for 12 peers to explore interests and gave presentations, earning valuable communication skills
- Tutored ~75 students at my high school with all passing classes, earning the Pandemic Service Award

### Water Polo

Dec 2013 – Aug 2023

- Modelled expected behavior and kept the team together during tough losses while senior captain of my HS water polo team
- MIT's 2022 Varsity team in the Division III NWPC, High school MVP (2022), Academic All-American (2020, 2021)

## SKILLS & INTERESTS

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**Skills:** Python, Pandas, PyTorch, NumPy, C, CUDA, Julia, MATLAB, Java, Bash, Git, Excel, LaTeX, Beginner Spanish and Swedish

**Professional Interests:** Mathematical Modeling, Machine Learning, Algorithms, Theta Tau Professional Engineering Fraternity

**Personal Interests:** RC Car Racing, NASCAR, Cars, Rap, Legos, Machining, Hiking, Travelling, Star Wars, Home Improvement