Scientific Inquiry with AI

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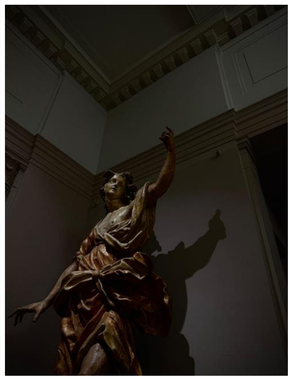
ABOUT ME

- Physics Major
- I aim to further develop my skills in physics and nuclear engineering so that I can enter a PhD in Plasma Physics focussed on nuclear fusion.
- I chose LLF to apply my previous experiences in physics education research to a project which uses AI to support student learning.
- Interests: I love doing photography and videography!



SUMMER RESEARCH

Abstract: This project focuses on the development of a course that teaches students how to use AI to analyze experimental data, create simulations, and conduct research. We produced a semester long course containing labs and activities that use AI to assist students in investigating scientific and technological principles, producing research, and understanding of topics such as assessment grading biases.

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Methods: We developed a lesson template that predefines learning goals based on observations motivating the lesson, analytical skills students need to develop, and reflection practices the students will develop. Each lesson plan includes a socratic AI tutor phase, in-class investigation phase, and and a post class phase where students solidify their understanding of the current and past lessons. We applied this template to produce documents for different lesson types. We produced several lessons which taught students how to use AI for computation and data analysis, visualize complex/new scientific concepts, and understand AI's role in scientific education and research.

Results: We mcreated a first of its kind college level STEM course which integrates the the latest LLM models into the scientific inquiry process. The extensive course materials will be piloted at UC Merced in the fall of 2026 with two classes of 24 students each and afterwards be made freely available globally to all educators. In the process of working on the course with a team of 8 students, I enhanced my own AI knowledge and skill set that will be instrumental in my future studies and career.

LLF AWARD

- My LLF award is being saved to fund potential travel to academic conferences as well as support any potential costs of education while I transfer from Las Positas College to UC Berkeley.
- This fellowship has greatly impacted me by giving me access to several remarkable professionals in physics. I have been able to meet with several plasma physicists, design physicists, and LLF alumni of whom have helped me immensely in working towards my goals of pursuing a PhD in Plasma Physics / Nuclear Engineering.

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