

Reflections on My Caltech SURF Experience

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Spending ten weeks at the California Institute of Technology (Caltech) through the Summer Undergraduate Research Fellowship (SURF) was one of the best experiences of my undergraduate life. The program was not just about doing research; it was also about immersing myself in a new academic culture, exploring Los Angeles and beyond, and meeting people from across the world. What made the journey particularly meaningful was not only the research I pursued but also the challenges and lessons I encountered while applying, adapting, and ultimately thriving in a new environment.

Research at Caltech

I joined Professor Anima Anandkumar's AI + Science Lab in the Computing and Mathematical Sciences Department. The lab, with its focus on applying machine learning to physics, chemistry, and astronomy, embodied the interdisciplinary spirit of Caltech. Although the group was small in terms of graduate students, it hosted an unusually large number of SURF students, reflecting both the breadth of the projects and the resources available. In particular, I was given unlimited access to NVIDIA GH200 gpu, which can later be used for courses back at NTU to get easy A+.

Day-to-day life in the lab was surprisingly flexible. Much of the work could be done remotely through coding and experiments on remote servers, which allowed me to manage my schedule independently. Meetings with my mentor and peers happened about once a week, it feels like both my PI and mentor was too busy to care about what I was doing, this gave me freedom to explore whatever I wanted to do with my project. My mentor was very nice, and even encouraged me to go out and have fun. Other students at my group were also great, but I rarely had the change to meet them.

Beyond Research: Life at Caltech

The SURF program was not just about work. It was also about experiencing life at Caltech and in California. My dorm room was modest but comfortable, and daily life revolved around the dining hall, shared kitchens, and occasional late-night gatherings. There was a basketball hoop at the yard right outside my dorm, sometimes other students play basketball until 3am, it was very annoying. Pasadena itself was quiet, with limited entertainment nearby, but Los Angeles was just a ride away. On weekends, I explored countless attractions: Santa Monica beaches, Hollywood, the Getty Center, and even farther destinations like San Francisco, San Diego, and Stanford. These trips made the summer feel like a blend of academic pursuit and cultural exploration. There are quite a lot of activities at the Caltech gym, including basketball, climbing, badminton, and yoga.

Conclusion

My summer at Caltech was, in many ways, a dream realized. From the long, uncertain months of application to the rewarding yet challenging weeks of research, every stage taught me something valuable. I learned perseverance in the face of silence and rejection, adaptability in an unfamiliar environment, and humility when surrounded by brilliant peers.

In the end, the greatest gift of SURF was perspective: on research, on life abroad, and on my own potential. I am deeply grateful to my PI, Prof. Anima Anandkumar, and my mentor Robert Joseph George, my sponsor Dr. Oyang for offering me this opportunity.

If you are interested in a more detailed version of my application process and experience, you can check out <https://hackmd.io/@durantyes/SJPjqxYdJe>

If you have questions, feel free to message me: <https://www.facebook.com/xiang.da.jun/>

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