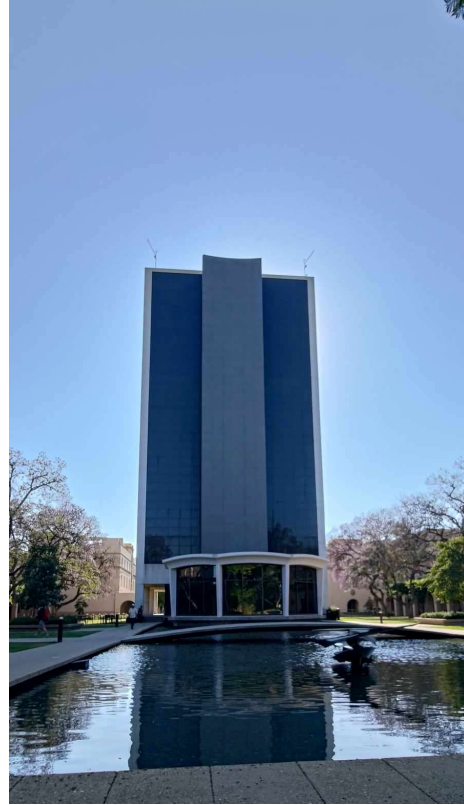
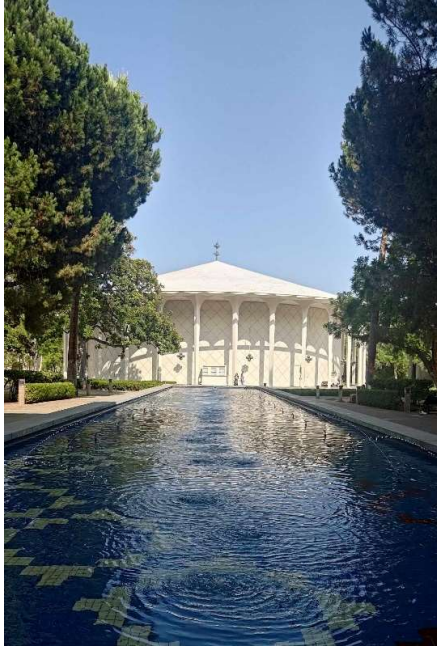


2024 Caltech SURF 心得 B10202021 電機四 尤翊安

Participating in the Caltech Summer Undergraduate Research Fellowships (SURF) program was an unparalleled experience that significantly shaped my academic and professional outlook. The opportunity to conduct research at such a prestigious and innovative institute was more than just a summer intern in my career—it was a transformative journey that broadened my horizons and deepened my understanding of the academic world.



The moment I stepped onto the Caltech campus, I was struck by the sense of community that permeated the environment. Caltech is known for its cutting-edge research and intellectual rigor, but what impressed me the most was the collaborative spirit that runs through every department. Faculty members, postdoctoral researchers, and students are all eager to engage in discussions, share ideas, and work together, regardless of their department or area of expertise. This culture of openness and collaboration was incredibly refreshing and made the entire experience much more enriching.



One of the first things I noticed was how approachable everyone was. Whether it was a quick chat in the hallway or a more in-depth discussion during office hours, the willingness of professors and fellow students to engage in meaningful dialogue was evident everywhere. This atmosphere of mutual respect and intellectual curiosity fostered an environment where ideas could be freely exchanged, leading to fruitful collaborations that I believe are unique to Caltech. It was inspiring to see how students from different disciplines could come together to tackle complex problems, often leading to innovative solutions that might not have been possible in a more siloed environment.

Pasadena, the city that houses Caltech, also contributed significantly to my positive experience. Pasadena is an exceptional place to live, combining the vibrancy of urban life with the tranquility of suburban living. The city is both safe and fabulous, characterized by neatly ordered streets, stunning architecture, and a variety of cultural landmarks. The area surrounding Caltech is incredibly convenient, with essential services like supermarkets, banks, and restaurants located within walking distance. Lake Avenue, in particular, is a hub of activity, offering a wide range of dining options that cater to every taste. The accessibility of these amenities made my stay in Pasadena not only comfortable but also enjoyable.

Transportation in Pasadena is another aspect that greatly enhanced my experience. Caltech provides its students with free TAP cards, which grant unlimited access to the local bus system. This made it incredibly easy to explore the city and beyond. For instance, if I ever craved a taste of home, a short bus ride east of the campus would take me to an array of Asian supermarkets, including 99 Ranch, where I could find ingredients and snacks that reminded me of Taiwan. The ease of transportation also meant that I could easily visit various tourist attractions around Pasadena, such as the Huntington Library, Pasadena City Hall, and the Norton Simon Museum. The city's well-maintained infrastructure and the general sense of security allowed me to explore with peace of mind, although I always remained mindful of my surroundings.





On campus, the dining options were both affordable and varied. The Red Door Café and the Browne Dining Hall quickly became my go-to spots for meals. Both locations offered a range of options that were not only delicious but also reasonably priced, with most meals costing less than \$10. I particularly enjoyed the Mongolian Grill, where I could customize my bowl with a variety of ingredients. The ability to create my own meal made it easy to eat healthily and stay within my budget. Additionally, the buffet in the Browne Dining Hall was a great option for those days when I needed a quick, satisfying meal. The fact that rice and vegetables were available at no extra cost made it an even better deal, especially when I wanted to save money.

Beyond the practical aspects of daily life, one of the most profound takeaways from the SURF program was the insight I gained into the life of a graduate student. Sharing an office with my co-mentor provided me with a unique vantage point from which to observe the day-to-day activities of a PhD student. I learned firsthand how to manage time effectively, balancing the demands of research, experiments, and discussions with other researchers. This experience was invaluable, as it gave me a realistic understanding of what pursuing a PhD entails. It also helped me to develop essential skills such as time management, communication, and collaboration, all of which are crucial for success in any research-oriented career.

One of the highlights of my time at Caltech was my involvement in the Quantum SURF program. This special event brought together SURF students from various disciplines who were all conducting quantum-related research. Each week, we

gathered to listen to a professor discuss their research in quantum science, followed by a lab tour and a free dinner. This program was an incredible opportunity for me, offering a deeper understanding of the diverse research interests and directions within the field of quantum science at Caltech.

The Quantum SURF program was more than just a series of lectures and lab tours; it was a gateway to a broader academic community. Through conversations with professors, I gained invaluable insights into the graduate school application process, particularly in the field of quantum science. These interactions provided me with a clearer sense of the expectations and requirements for admission to top-tier PhD programs. Moreover, the program allowed me to connect with undergraduate students from around the world who shared similar interests. The exchange of ideas and experiences with these peers was incredibly enriching and broadened my perspective on the global academic community. My participation in the Quantum SURF program was made possible by my mentor, Prof. Nai-Chang Yeh, to whom I am deeply grateful. The knowledge and experiences I gained from the Quantum SURF program have been incredibly valuable, particularly as I consider pursuing a PhD in quantum science.

Finally, I would like to express my sincere thanks to Dr. James Yen-Tang Oyang for his generous support and funding during my SURF project. His financial assistance made it possible for me to participate in this life-changing program, and I am deeply appreciative of his generosity. I am also immensely grateful to my co-mentor, Aki, for his guidance, patience, and teaching throughout the summer. His expertise and support were crucial to the success of my research project. I would also like to thank another graduate student, Jen-Te, for his help with experiments and simulations. His assistance was invaluable, and I am grateful for the time and effort he dedicated to helping me succeed.

Last but not least, I want to express my deepest gratitude to Prof. Nai-Chang Yeh for accepting me into the SURF program and for dedicating her time and energy to my development as a researcher. Her mentorship has been a guiding light throughout this journey, and I am incredibly fortunate to have had the opportunity to work with her. In conclusion, the Caltech SURF program was an extraordinary experience that has had a profound impact on my academic and professional trajectory. The skills, knowledge, and connections I gained during this program will undoubtedly serve me well as I continue my journey in the field of quantum science. I am deeply thankful for the opportunity to be a part of this prestigious program, and I look forward to applying the lessons I learned at Caltech to my future endeavors.

