

# Erfahrungsbericht

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## 1 General impression of your research stay abroad

I may best sum up my impression by stating that while I was away in the USA for a few months, I feel like I've had a lifetime's worth of experience there. I shall try to be as brief as possible.

The overall impression of the stay was pleasant, invigorating and fun. I have had a highly productive time at Stanford and the collaboration with the mathematicians/physicists there has since continued. The atmosphere in San Francisco and the Bay Area in general, and the welcoming nature of the people around me certainly made me feel at home instantly. There were a lot of sacrifices to be made owing to the high cost of living in the Bay Area but at the end of the day I feel myself enriched scientifically for having stayed there. The natural beauty available for one to explore in the USA is plentiful and a healthy combination of adventure and science is an ever present. Trips to national parks and the wilderness, surfing trips and cycling trips were common place over the weekend or during holidays.

In terms of day to day life, finding a suitable place to stay in the Bay Area is challenging, expensive and complicated. Unfortunately, Stanford were not able to help me with this (and understandably so, because this is the heart of Silicon Valley and the influx of people is large). A rolling AirBnB agreement is the best one could hope for, given that the stay duration is less than a year or two. Moving about from one AirBnB to another every few weeks is common. There were no excessive administrative issues and I was able to start with my research projects almost immediately. I did not set up a bank account because it was much easier and cost effective to maintain a prepaid international debit card with no conversion fee. Once I procured a bicycle and a sim card, everything was set.

In terms of scientific achievements, it was immense to interact with the mathematicians and physicists at Stanford because they made me realise how much I do not know and how I can go about learning new concepts, finding new ideas and problem solving. During my time there, I was additionally able to begin investigating new topics in number theory, arithmetic geometry and physics, and I had no idea that these topics even existed. There was a constant need for me to bring my A-game if I was to keep up with the people at Stanford. This has made me a much better scientist and has prepared me for what lies ahead if I am lucky enough to maintain a career in science.

## 2 Quality of the host institution

Most of the research was done at the Stanford Institute for Theoretical Physics (SITP) at Stanford University (SU) in the group of Prof. Shamit Kachru. Shamit is a leading mathematical physicist with key contributions to many areas of mathematical and theoretical physics. During my time at the SITP, I interacted very closely with many members of the institute and from these interactions, we were able to develop new research ideas which are currently being investigated. SU's math department is also highly reputed and I had many close discussions with many members of the math department.

As a university, Stanford is superlative in almost every way and the quality of facilities available

and the location of the university made it a very productive place to carry out research and have a healthy work-life balance. I've had the good fortune of having studied in 6 universities so far and it was a refreshing change in scenario and pace.

### **3 Contacts within the host institution, inclusion in the organization**

I felt included in scientific and social events at Stanford almost immediately. Owing to the nature of silicon valley where it is all about networking, networking and networking, it was almost unimaginable to not find an event which was not focused on networking. I developed close ties with members of the SITP and the Prakash bio-engineering lab and even managed to occasionally consult as a mathematician for them. I am very grateful to the SITP and the Prakash lab for almost instantly seeing me as one of their own.

### **4 Recommendations for future Marshall Plan students and fellows**

For Stanford/Bay Area specific advice:

- Buy a bicycle. Reliance on public transport was not ideal (unless one refers to the subways in major metropolitan cities) and Uber/Lyft rides are expensive. Even with a bicycle, a Caltrain pass will prove useful if one lives south of Mountain View or north of Redwood City. Trains don't run with the same regularity as in Europe/Vienna.
- Living in the bay area is difficult and in it may even come to pass that you do not have a constant place to stay. (For ex: a few weeks in San Jose, a month in San Francisco, two weeks in Palo Alto, etc.) Pack light enough to making shuttling about easy (unless you have a fixed place to stay), but not so light that you will have to buy most of your things there which is again expensive.
- Flying in and out of San Jose is easier, more comfortable and cheaper if you are at Stanford, rather than San Francisco. Both airports are connected to Caltrain stations (SJC to the Santa Clara station, SFO to Millbrae station).
- There are many exceptionally talented people at Stanford and networking with them would be highly advisable. Having said that, since it is the heart of Silicon Valley, everyone has an idea and that big dream, so one needs to ensure that one stands out from early on if one wishes to make an impression.
- If one is more entrepreneurial/business/tech oriented, networking will go a long way.

General advice:

- This is an unusually excellent chance to not only make new friends and connections, but also a chance to experience the culture and nature of the country. The US has some of the most breathtaking natural wonders in the world. Visiting them as and when a chance presents itself is highly recommended. If you crave adventure, outdoors and a setting that gets your adrenaline gushing, there is plenty to do.