

# Reflection on Visiting Washington University in St. Louis

St. Louis, often labeled as one of the most dangerous cities in the U.S., may discourage some from visiting or pursuing education there. However, after my visit, I found that the city is not as perilous as statistics suggest. Instead, it provides a unique environment for the first visit, especially for those considering further education in the U.S. Also, being one of the top medical universities in the US, it provides a rich education and research space for those who want to pursue future work in medical science and biology. Below, I will share my experience across several categories.

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## Internship Daily Life

During my internship, I worked in Professor Chakrabartty's Lab, which consisted of six PhD students and five undergraduate interns. The interns either worked on independent projects or collaborated with a PhD student on a joint project. Based on my professor's previous work, I focused on an independent project addressing the max-cut problem, which allowed me to delve deep into algorithmic optimization and problem-solving techniques.

I took the metro to the lab each day, arriving by 9:40 AM. From 9:40 until noon, we worked on our respective research projects, and Professor Chakrabartty would meet us individually to discuss our progress. This was the perfect time to ask questions or seek advice if we were stuck. These discussions not only deepened my understanding of the subject but also honed my communication and problem-solving skills. After the meeting, it was time for lunch, where we had the option of bringing food or eating out. Most PhD students brought their own lunch, and the school provided a pantry with microwaves for convenience. There were also vending machines with snacks and drinks, which meant most of us would gather and eat together, chatting and occasionally watching sports to relax.

One particularly memorable moment occurred during a conversation about the Olympic men's basketball semifinal between the U.S. and Serbia. A fellow intern, a native American, surprised me by expressing hope that Serbia would win. When I asked why, she said, "The U.S. is too proud of winning; they should lose sometimes." This comment was eye-opening and made me rethink some of my assumptions about national pride. It was fascinating to learn that not all Americans share the same views, and it deepened my understanding of cultural diversity, even within the same country.

During my research, I realized that stepping out of my comfort zone and trying new approaches can lead to unexpected and rewarding results. Initially, I tried modifying an existing model to fit the max-cut problem, but this approach didn't work, as I was trying to force an unsuitable solver onto the problem. It wasn't until I took a step back and really grasped the core principles of the solver—particularly the role of gradient descent in optimization—that I was able to develop a new model specifically suited to the max-cut problem. This change in approach significantly improved the performance of my solution and underscored the importance of creativity, flexibility, and a deeper understanding of the tools at hand in research.

In the afternoons, we returned to our research until 5 PM. The work was intensive but fulfilling, and I learned how to manage my time efficiently and keep track of long-term goals.

Two major events marked the internship: presenting our projects to the lab and participating in a poster session for all the interns across the university. The lab presentations were particularly enlightening. I got to learn about innovative projects, such as an event camera that adjusts its sampling rate based on environmental changes and research using RFID tags to reconstruct object positions—another project aimed to develop a low-cost body signal detection device. At the poster session, I explored work from other departments. Two projects stood out to me: one using waves to guide nasal-administered medicine to specific areas of the brain, avoiding invasive surgery, and another observing how a mouse's brain changes during movement. It was fascinating to learn that researchers had replaced part of a mouse's skull with glass to monitor brain activity in real-time, a remarkable achievement in biomedical engineering.

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## **Activities**

Research was just one part of my summer. We also participated in several after-work and weekend activities, which helped us unwind and connect with the local culture. WashU arranged for us to see *Les Misérables* at the Muny, an outdoor theater in Forest Park. Watching the performance as the sun set was a magical experience that blended culture and nature. Additionally, we attended a Cardinals baseball game against the Nationals. Being in a stadium that holds 45,000 people was an exhilarating experience. I was struck by how deeply rooted sports are in the city's culture. The crowd's enthusiasm was infectious, and when a player hit a home run, fireworks illuminated the sky, creating a truly unforgettable memory.

Another highlight was visiting the Gateway Arch, a famous landmark in St. Louis. We took a unique elevator, a combination of a Ferris wheel, elevator, and escalator, to the top. From there, we enjoyed a panoramic view of the city, including East St. Louis, a place with a reputation that belies its striking landscapes.

We also celebrated the Fourth of July by watching an air show featuring pilots demonstrating their skills, followed by a stunning fireworks display along the riverbank. Downtown was bustling with people wearing red, white, and blue, picnicking in the park, and listening to live music, which turned on the holiday mode for the city.

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## **Social Bonding and Cultural Exchange**

Beyond the daily research routine, several memorable social activities helped us bond as international interns. One event that stood out was a party we organized to allow all the international interns to get to know each other better. We shared Taiwanese snacks, including pineapple cake and egg rolls, which everyone enjoyed. It was rewarding to see how much they appreciated the unique flavors of our traditional food.

We also played a fun game where each person had to come up with a sentence in their native language, and the next person had to memorize and pass it down the line. By the time it reached the final person, the sentence had often been completely transformed. The result was always hilarious, as even the native speakers sometimes couldn't recognize the original sentence!

Another interesting activity was swapping passports. This gave us an opportunity to explore the differences between each country's passport design and visa systems. Through this exchange, we learned about each other's countries, cultures, landscapes, and how various governments manage visas and international travel. It was fascinating to see how something as simple as a passport could spark deep conversations and serve as a window into different worlds.

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## **Food and Grocery Shopping**

Eating out in St. Louis can be quite expensive, with typical meals costing over \$20. As a result, it made more sense for us to cook most of our meals. If you're planning a similar experience, I recommend bringing your own utensils like chopsticks, spoons, and bowls, while larger kitchen items can be purchased locally.

For groceries, the metro from University City Big-Bend to Brentwood I-64 provides access to several stores. Dierbergs is ideal for fresh vegetables, fruits, and meats, while Target offers quality kitchen and household items. Trader Joe's is a great option for baked goods, beverages, and prepackaged food.

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## **Conclusion**

Overall, my summer research internship at Washington University in St. Louis was an enriching experience that allowed me to grow both academically and personally. It opened my eyes to the importance of stepping outside your comfort zone, embracing new perspectives, and forging connections with people from diverse backgrounds. The city, despite its reputation, offered a welcoming and stimulating environment for learning and discovery. This internship will undoubtedly remain one of the most transformative experiences of my academic journey.

