

TO: Nakatani Foundation

Nakatani RIES 2025 Final Report

Your Name: R a y m o n d Y a n g

Your university: University of Tokyo RCAST

Host Lab in Japan: Ota Lab

Meaning of Nakatani RIES Fellowship: How would you describe the meaning/impact of the Nakatani RIES Fellowship

The Nakatani RIES fellowship is a once-in-a-lifetime opportunity that allows students to explore not only their research passions but also build connections and friendships across the world as well as have a lot of freedom exploring Japanese culture.

Complete the following sentences with the intended audience for these responses being potential applicants to the Nakatani RIES Fellowship.

- My favorite experience in Japan was...
 - Matsushima Bay! I really enjoyed exploring one of the three big sites in Japan, and it was fun to be in a very unpopulated place.
- Before I left for Japan, I wish I had...
 - A better understanding of how far I want to go with my research projects. I found it fun and explored many places I wanted, but I didn't have a clear finish for my projects, and they were left partly unfinished. I ended up in my presentation talking about too much and didn't have the opportunity to solidify what I wanted to say.
- While I was in Japan, I wish I had...
 - Tried to set up more hangouts with the JP fellows! They are so great but are also so busy. It is really hard to set up things the day before or two, which is quite unlike Georgia Tech where we will literally just tell someone to come and they would come, not only because everything is in walking distance or we could pick them up but also because my friends all know each other's locations.

Research Internship Overview: Provide a description of your research project and experience during your research internship. How did your project relate to your current or future academic interests? What was the experience of working in an international research setting like? What will you take away from your research experience this summer and what impact do you think this has had or will have on your future academic career or research interests?

I was involved with two research projects.

Project 1: Real-time flow cytometry. What I mean exactly is we want to apply the properties of flow cytometry's instant/live result generation to studying a colony and its growth in **real-time**. This project did not directly relate to my current academic interests, as although I was working in wet-lab procedures that I did mention I wanted to work in, that was to just feel out if I wanted to do wet lab work. I think I will stick to computational work, such as machine learning, coding, and machine learning.

Project 2: Alginate gel optimization. Here I would try to optimize and simplify the process of using centrifugation to create as much alginate gel as possible to create 3D scaffolds to hold cell growth. Although the biology part did not work with my current academic interests, as I am more on the engineering side, I did end up CADing a design for a device to fit the tubes and glass capillaries that we used for making alginate gel, and that was something I could take away —that I can apply my engineering/computer skills to almost any project. This will allow me to better mold myself into someone that can apply my own skills to any given project.

Lab Environment Overview: Provide an overview of what the personal environment of the lab was like. Describe the personality and working style of your research group? What was it like working with your research mentor/s and the overall group dynamic in the lab?

Overall, the group dynamics were really great inside my lab! Everyone was really thoughtful and helpful, especially when I lost bags on the midnight bus or when I needed help getting a package delivered because Sakura House's given address did not work. Everyone works really hard in my group, but that also meant that there was a lack of partying/group events besides my welcoming and leaving parties. In terms of my personal environment, I worked in two projects – one with a direct mentor, and one in a collaborative project between my mentor and a colleague who had also recently joined the lab. It was an independent project, project however, and I would constantly ask my mentors for help, which was quite normal inside the Japanese labs I found, even though I annoyed my mentors too much.

Daily Life in Japan: Provide an overview of what your daily life was like in Japan. This could include the people you interacted with outside the lab on a day-to-day basis, food, your housing/living experience, your travels around Japan and the challenges you faced and the rewarding experiences you encountered over the course of the summer.

In my daily life, I would get up at approximately 7:50AM and then pack and leave the house by 8:10. Then I would walk over to the gym at around 8:30AM and work out for an hour to around 9:30AM. I would note that it always took a longer walk to get there, so sometimes I would be sweating A LOT before coming to lab, especially since Komazawa station was around a 30-minute walk from my gym. I would eventually get around the lab at 10-10:30 AM. Here I will start doing most of my lab projects and will work until around 12PM. Most of the time I don't have meetings at this time, so I dedicate it to mainly setting up experiments or gathering and analyzing data from the day before. At 12PM it's my favorite time —lunchtime! Here I go to the local UTokyo Co-OP / konbini that actually serves some really healthy, balanced meals for 630 yen, which was one of the more rewarding parts of the day. I also ate it with a random new bread that they changed around every 2 weeks, and that totals my lunch to about 800 yen. After eating lunch for about 1 hour, I start working yet again inside the lab, and sometimes I have meetings or experiments to conduct with other coworkers in the afternoon. Here, I also get more into CADing on SolidWorks, because it's a lot easier for me to get in the zone and finish and 3D modeling problems I had before. I continue working to about 7 or 7:30 and have free time from now on. I usually go home, but sometimes I will hangout with the JP Nakatani fellows, such as the escape room, maid cafe, or dinner! If I don't go out, I get back home around 8 and start cooking dinner. Every day I will cook dinner or buy groceries, and I really hated the induction stove but that is just a preference of mine, I understand the worry that I could burn the house down. But after cooking, I will hop on my Emory research, or play video games. I try

to go to sleep around 11, but I always end up delaying it until 12:30 ish. I do shower before sleeping however!

Experiences with Japanese Culture: Provide an overview of your most meaningful experiences with Japanese culture. This could be program activities or interactions you had with your lab or within your daily life in Japan that you think best exemplify aspects of Japanese culture or values. What did the experience(s) teach you about Japan? What did they teach you about yourself?

One of the most meaningful experiences I had of Japanese culture was actually the onsen, where we would constantly have group trips where we had the option to use that. It really exemplifies the Japanese culture/values that made me quite embarrassed at first, such as the dressing naked and bathing with others of the same gender. Although it was very relaxing, and I came back to use it repeatedly, I couldn't get over this embarrassment that I always get when I had to get inside the onsen. It taught me how to be open-minded and not just close off experiences that are initially mentally challenging. I eventually did end up going to the onsen and encouraged others to go as well.