To: Nakatani Foundation

Nakatani RIES 2026 Final Report

Your name: David Chung

Your university: Georgia Institute of Technology

Host lab in Japan: Biomedical Microsystems Lab (University of Tokyo)

Research mentor(s): PI Soo Hyeon Kim. PhD Mentor Jaekyeong Jang. MS Mentor Kodai Mitsubayashi

Meaning and Impact of the Nakatani RIES Fellowship: How would you describe the meaning and impact of the Nakatani RIES Fellowship on you?

The Nakatani RIES Fellowship has allowed me to not only enjoy traveling to Japan, but also stay to work, interact, and research alongside other people who share common interests/backgrounds at a respected university and I have learned so much from being surrounded by these wonderful people every day during my time in this fellowship. The research I was conducting was a new experience for me and has allowed me to explore the different areas that my area of focus can be applied to. I also was able to learn cultural values firsthand and make meaningful relationships with everybody. Everybody associated with this program has been the nicest and made me feel very comfortable spending time with them!

Please complete the following sentences with potential applicants to the Nakatani RIES Fellowship as the intended audience.

- My favorite experience in Japan was...
    - Traveling with the rest of the Nakatani Fellows to various areas of Japan together!
- Before I left for Japan, I wish I had...
    - Learned more Japanese because there were so many times where I wanted to have conversations but I felt hesitant because I wasn't confident enough.
- While I was in Japan, I wish I had...
    - More money to spend on foods, events, souvenirs, and weekend trips

Research Internship Overview: Provide an overview of your research project and your experience during the internship. How did the project relate to your current or future academic interests? What was it like to work in an international research setting?

What did you learn from your research experience this summer, and how has it influenced, or how do you expect it to influence, your future academic path or research interests?

My project focused on using an electroactive microwell array and dielectrophoresis (DEP) to trap pancreatic cancer cells at the single-cell level. I worked on fabricating the device design, culturing cells, determining suitable DEP conditions, and performing trapping experiments. The project had a mixture of engineering and biology, which is an area where I wanted to explore but unfortunately never had the option to in the past. Having been able to conduct research in this field has strengthened my interest in research that specifically utilizes hardware engineering. Working in an international research setting also taught me how to

adapt to a different lab culture, communicate with graduate students and researchers, and become more independent when learning unfamiliar techniques. It also taught me that no matter where you are in the world, working with people who share the same curiosities and interests as you makes a really enjoyable time.

One of the biggest lessons I learned was that research does not always go according to plan. My experiments had some setbacks where I was only able to get meaningful results at the last day. I learned to accept that sometimes research does not always go the way you plan it to be, and that you have to be ready for any problems you face. This experience gave me such a clear understanding of the research process and made me more excited about pursuing future research projects.

Lab Environment Overview: Describe the lab environment and the personality and working style of your research group. What was it like to work with your research mentor(s)? How would you describe the overall group dynamic in the lab?

The lab environment was fairly independent, and I felt especially close to my research mentors because we worked on the same project and spent most of our time together. I did not have as many opportunities to interact with lab members who were working on completely different projects, aside from asking general questions about the lab, learning about what they were working on, or talking during lunch. My mentors were always very respectful, kind, and patient with me, and I am extremely grateful that I had the opportunity to work under them. For most of the fellowship, I worked closely alongside my mentor rather than completely independently, and I only began doing more individual work toward the end. Looking back, I think I could have been more vocal about wanting opportunities to work independently earlier, which is something I learned from the experience. Overall, the group dynamic was friendly and welcoming, and I really enjoyed working with my mentors and being part of the lab.

Daily Life in Japan: Describe your daily life in Japan. You may include the people you interacted with outside the lab, food, your housing and living experience, travel around Japan, challenges you faced, and rewarding experiences you had over the summer.

By the end of the fellowship, I had become so familiar with Tokyo that I often knew which subway lines to take from place to place without having to look at a map. At the beginning of the summer, I had a lot of free time, so I spent many days taking trips around Tokyo and exploring the surrounding areas. I usually ate lunch and dinner by myself, although I would occasionally eat with other fellows, and I tried to choose a different restaurant or type of food almost every day. Of course, there were also days when I just defaulted to fast food or convenience store meals. My housing became comfortable over time, although getting used to a 20-minute walk to the subway station and about a 10-minute walk to the nearest convenience store was an adjustment at first. Whenever I had enough time, I preferred walking instead of immediately taking public transportation because I enjoyed seeing the scenery and the experience of getting to a destination rather than rushing there. I spent a lot of time simply wandering around, exploring new places, and sometimes staying out late at night. Being able to become comfortable navigating Japan on my own and freely explore so many different places was one of the most rewarding parts of my summer.

Experiences with Japanese Culture: Describe your most meaningful experiences with Japanese culture. These could include program activities, interactions with people in your lab, or experiences from daily life that you feel illustrate aspects of Japanese culture or values. What

did these experiences teach you about Japan? What did they teach you about yourself?

One of the most meaningful parts of living in Japan was experiencing how much consideration and respect are built into everyday life. I noticed this in simple things such as people staying quiet on trains and in other public places, lining up in an orderly way, and being mindful of shared spaces. I also had the chance to experience more traditional parts of Japanese culture through activities with Japanese fellows, such as glass sculpting, eating traditional Japanese foods, and visiting historic and cultural sites. These experiences gave me a better understanding of Japan beyond what I saw in the lab or in modern Tokyo. In the lab, my mentors were also consistently polite, patient, and respectful, which reflected many of the same values I noticed in daily life. Overall, these experiences taught me how strongly Japanese culture values respect, consideration, and tradition. They also taught me that I am more independent and adaptable than I expected, since I became comfortable navigating unfamiliar places, experiencing new customs, and adjusting my own behavior to better respect the culture around me.

Returning to Japan: Do you plan or hope to return to Japan in the future? If so, what would you like to do? What would you need to make that happen?

I would absolutely, without a doubt in my mind, love to return to Japan in the future. I want to spend a lot more time interacting with locals (such as choosing more localized cuisine and restaurants that might not necessarily have English translations), because I felt too intimidated by a language barrier. I also would love to travel to more regions of Japan, because every time I traveled to a different prefecture, there were different vibes and memories associated with it. Unfortunately, to make traveling to Japan a reality, I would have to work hard and earn a lot of money to cover the travel expenses.