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Hajimemashite! Dozo yoroshiku onegai shimasu! ("How do you do? It is a pleasure to meet you!")

Last summer, I had the privilege of participating in a research program in Fukuoka, Japan, as part of the National Science Foundation (NSF) Summer Programs in Japan, Korea, and Taiwan. During this eight-week program, participants have the opportunity to get a glimpse of their fields of research in a foreign setting, to build contacts with researchers for possible future collaboration, and to be exposed to a completely new language and culture. This program is extremely worthwhile both on an academic and personal level, and it is my hope that by the end of this article I will be able to compel at least some statistics graduate students to consider this wonderful opportunity.

The NSF Summer Programs in Japan, Korea, and Taiwan consist of four components: the Summer Institute in Japan, the Monbusho Summer Program in Japan, the Summer Institute in Korea, and the Summer Institute in Taiwan. I took part in the second program (officially titled “Research Experience Fellowships for Young Foreign Researchers”), which was established in 1995 by the Japanese Ministry of Education, Science, Sports, and Culture (Monbusho). The two NSF programs in Japan are similar, although there is a difference in language training (the Summer Institute has a more intensive program) and in host institution placement. For the Summer Institute, assignments are mainly in the form of internships at government and corporate laboratories in the Tokyo or Tsukuba areas. For the Monbusho Program, participants are usually assigned to national universities or inter-university research institutes. The Summer Institute participants are all from the US, whereas the Monbusho Program participants are from various parts of the world (US, France, Germany, and the UK). This year there were about 80 Monbusho participants representing disciplines such as anthropology, biology, chemistry, engineering, psychology, and statistics (tokeigaku in Japanese).

At this point, I would like to dispel a popular misconception about the Summer Programs in Japan.

MYTH: You must know Japanese to participate in the program.

FALSE! Although there were many participants who had studied the language, the majority had not taken a formal course and spoke little or no Japanese. However, most Japanese researchers are quite fluent in English, so language should not prove to be a major obstacle in terms of making progress in research. A lack of language skills may prove to be a challenge as you go through the day-to-day life in Japan – but that's all part of the experience! Of course, the more of the language you know, the better off you'll be, but fluency is not mandatory, and all participants seemed to do just fine. Since my formal studies in Japanese began at the grade school level, and since I was brought up in a Japanese household, I was pretty comfortable in my new environment, and I had the good fortune of being able to communicate with most people I met (although it wasn't always easy!).

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During the first week of the Monbusho Program, we participated in language and cultural training sessions at the Graduate University for Advanced Studies (Sokendai). After separating into class levels corresponding to our respective language abilities, we spent three days learning about the Japanese culture and language. For those new to Japanese, there was certainly no expectation for participants to master the language in only three short days. However, the instructors tried to make the best use of this limited time by teaching helpful vocabulary and expressions to get through daily life – for example, the all-important and essential phrase “Sumimasen, o te arai wa doko desuka?” – “Excuse me, where is the restroom?”

Aside from the language classes, we also participated in cultural activities that included a visit to the famous and picturesque area of Kamakura and a cultural exposition at Sokendai showcasing origami, shodo (calligraphy), and chado (tea ceremony). For most participants, the highlight of this first week was the homestay experience. For a period of two days, we stayed with a host family, and we had the opportunity to experience life in a Japanese household. In addition to interacting with family members and learning about the daily Japanese lifestyle, most families gave participants tours of the local sights. My host family treated me to a visit to a refreshing onsen (natural hot spring) and the famous Ramen Museum in Shin-Yokohama. (Yes, a ramen museum – it’s far more interesting than it sounds!) Although my homestay experience was brief, the time we spent together was wonderful, and I enjoyed getting to know each of the family members. I am certain we will continue to keep in touch for a long time to come.

After returning from our homestay experiences and completing our first introductory week, we prepared for departure to our respective host research institutions. Assignments were particularly widespread this year, as they spanned from the northern area of Hokkaido to the southern islands of Okinawa. I flew to the southern region of Japan known as Kyushu and landed in the prefecture of Fukuoka. I spent the following seven weeks at my host institution Kyushu University, one of several universities in Japan active in statistics research. Dr. Takashi Yanagawa, one of the well-known statistics faculty members at Kyushu University, kindly agreed to serve as my host advisor during this program.

Dr. Yanagawa is known as one of the leading biostatisticians in the country, but his research interests are quite broad and include areas such as multivariate discrete data analysis and nonlinear/chaotic time series. The research topic we selected was more related to biostatistics. Along with one of Dr. Yanagawa’s graduate students, Masahiro Makishita, our research subject was based upon ongoing work by Sakata, Yanagawa, and Fukuichi (2000) entitled “The $q$ Value and its Application to the Determination of the No-Observed-Adverse-Effect Levels in Dichotomous Response.” To provide background for this research, let $X$ and $Y$ be independent binomial random variables. The sample size for $X$ is $n_1$, and the success probability is $p_1$. The sample size for $Y$ is $n_2$, and the success probability is $p_2$. Consider cases such as toxicology studies where the usual set of hypotheses are $H: p_1 = p_2$ versus $K: p_1 < p_2$. In this setting, the problem of controlling the type-II error rate is of main concern. In an effort to help control the type-II error rate, Dr. Yanagawa and his
ASA colleagues have proposed a statistic called the $q$ value, an analogue of the $p$ value. During the research stage of my program, we examined the properties of the $q$ value and examined size considerations of the test based upon $q$. Due to the presence of a nuisance parameter, we tried to incorporate the confidence interval $p$ value method proposed by Berger and Boos (1994) and to extend the idea to address the smallest change point problem for binomial proportions.

Although most of the seven weeks were dedicated to conducting research at Kyushu University, I had the opportunity to visit a number of institutions during this time and to interact with other statisticians. One of the places I visited was the Institute of Statistical Mathematics (ISM) in Tokyo. Consisting of four major departments (Fundamental Statistical Theory, Statistical Methodology, Prediction and Control, and Interdisciplinary Statistics), the ISM has been one of the main leaders of statistics research in Japan for many years. After I gave a brief presentation on my preliminary work at NC State University, I had the chance to meet several ISM faculty members and graduate students and to learn about their broad range of research interests and projects.

Another one of my visits was to Hiroshima University, where I had the opportunity to meet faculty and graduate students from the statistics and the biostatistics research groups. The areas of research in both groups were quite diverse, and some were specifically aimed at the statistical analysis of radiation effects data stemming from the 1945 atomic bomb. Such research has also been a focus at the site of my next visit, the Radiation Effects Research Foundation (RERF). The RERF is a bi-national research institution managed by both Japan and the US and has continued health follow-up studies of atomic bomb survivors started over 50 years ago. The RERF consists of many departments, including the departments of clinical studies, epidemiology, genetics, and radiobiology. I had the chance to visit their statistics department and meet some of the lead statisticians. As I spoke with these researchers and learned about their many ongoing projects, it was immediately clear that the RERF offers a rich source of many fascinating statistics research problems. Many who I encountered expressed an interest in recruiting students from places like the US. There is a need for more statisticians to work on these projects, especially people with a strong applied background. For more information about the RERF and possible postdoctoral and internship opportunities, visit the RERF web site (listed below).

In comparing the statistics environment in the US to that in Japan, something I found interesting was the fact that there was not a single department of statistics within a university throughout Japan. This was quite surprising given the active level of statistics research and the important contributions by people like Taguchi and Akaike over the past 50 years. However, with the current growth of...
statistics research, their widespread applications, and the expansion of the statistics community nationwide, researchers are optimistic about the establishment of a department of statistics or biostatistics in the near future.

Although research is a main component of the Monbusho Program, it is certainly not all-work-and-no-play! Aside from conducting research, participants are encouraged to take personal time, not only to visit other research institutions, but also to do some sightseeing to get to know this beautiful country, which many of the participants are visiting for the first (and possibly last) time. Many of this year’s participants took trips to famous and historic sites such as Kyoto and Nara. Also, several participants were able to plan a joint hiking expedition up Mount Fuji, which I heard was a great success! During my stay at Kyushu University, the graduate students and faculty members extended generous hospitality to me. They regularly took time out of their busy schedules and invited me on trips to local scenic attractions, the downtown area of Tenjin, and many delectable dining excursions (which surely led to some weight gain!). As I traveled through the country on my own, one of the most memorable and moving experiences was my visit to the Hiroshima Peace Memorial Museum. If you ever have the chance to visit Japan, do not miss the opportunity to see this exhibit. It will surely have an impact upon you.

My participation in the Monbusho Summer Program was, without a doubt, one of the best experiences of my life, both on an academic and personal level. Through my interaction with Dr. Yanagawa and our research activities, I have been able to develop new ideas and a stronger foundation for work related to my dissertation. Through the many contacts I have been able to establish at Kyushu University, Hiroshima University, the ISM, and the RERF, I believe there is potential for future collaborative work and possible postdoctoral or visiting position opportunities. I am grateful to the National Science Foundation and Monbusho for their outstanding support and the opportunity to be a part of this unique program. Without hesitation, I would recommend this program to anyone — even if you have never studied Japanese. It provides the special opportunity to conduct research in a foreign setting, and it will probably be one of the last chances for a graduate student to have such an experience before entering the job market. I would especially encourage graduate students in statistics to participate. As I have looked over the backgrounds of Monbusho participants from previous years, I believe I was one of the first participants whose area of research is statistics. As I encountered researchers across the nation, many expressed their hope that programs like the Monbusho Summer Program will attract more and more statistics students from the US to conduct research in Japan.

The annual deadline for submission of applications is December 1st. Below, I have included some online resources that provide more information about the NSF Summer Programs. Finally, please feel free to contact me through email if you have any questions about the program, as I would be more than happy to share my experiences. This program is indeed a once-in-a-lifetime opportunity and, if you are able to participate, it will surely be one of the best experiences of your life.

References

Online resources
NSF Social, Behavioral, and Economic Sciences – International Programs
http://www.nsf.gov/sbe/int/
NSF Tokyo Home Page
http://www.twics.com/~nsftokyo/
Kyushu University
http://www.kyushu-u.ac.jp/english/index-e.htm
Radiation Effects Research Foundation (RERF) Home Page
http://www.rerf.or.jp
The Institute of Statistical Mathematics
http://www.ism.ac.jp/index-e.html
Home Page of Jimmy Doi
http://www.stat.ncsu.edu/~jadoi