Canada-Japan Co-op
Experiential Report

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3/31/2015
# Table of Contents

1. Introduction ..................................................................................................................................................1
2. ATR Background ............................................................................................................................................2
   2.1 General Introduction ...............................................................................................................................2
   2.2 Company Structure .................................................................................................................................2
   2.3 Department of Computational Brain Imaging (CBI) ..............................................................................4
3. Life at ATR .....................................................................................................................................................5
   3.1 My Work .....................................................................................................................................................5
   3.2 Work Environment ...................................................................................................................................6
   3.3 Lunch Time ..............................................................................................................................................7
   3.4 ATR Open House ....................................................................................................................................7
4. Personal Life ...................................................................................................................................................9
   4.1 Accommodation .......................................................................................................................................9
   4.2 Travelling ................................................................................................................................................9
   4.3 Japanese Study .......................................................................................................................................16
5. Future Recommendations ...............................................................................................................................17
6. Conclusion ....................................................................................................................................................18
7. Reference ......................................................................................................................................................19
1. Introduction

At the very beginning of this report, I would like to express my sincere gratitude to Canada-Japan Co-op Program (CJCP) and to my host institute ATR for offering me such a precious opportunity to work in Japan for 10 months. I have been fascinated in Japanese dramas and cultures since my secondary school, and to live in Japan for more than just a short period was a dream for me for a long time. Therefore, when I was informed that I was accepted by ATR as an internship student for 10 months, I was extremely excited and could not wait to go to Japan. These 10 months were proved to be the most enjoyable time in my life, and this work experience allowed me to strengthen my technical skills as well as shape my future career.

I am currently a first year master student majored in Electrical and Computer Engineering. Before coming to University of British Columbia (UBC) to study for my master’s degree, I finished my undergraduate courses in United Kingdom. I think I was the only master CJCP student as well as the only non-Canadian resident in my year. I had a hard time preparing for documents before I came to Japan; however, with the help of CJCP, my host company and my university, I finally made this internship possible.

I am truly thankful for ATR and my supervisor, Dr. Okito Yamashita, for accepting me as an internship student and providing me with help in all respects. My internship lasted for 10 months in total from June 2014 to March 2015. In the rest of this report, I will firstly briefly describe the company ATR, followed by life in ATR. Then in the next section, I will show my personal life in Japan with pictures. The last two sections are conclusion and future recommendations for future CJCP students.
2. ATR Background

2.1 General Introduction

ATR is a private company established in 1986 through the support of industry, government and academia [1]. It was moved to current location (Kyoto) in 1989. There are 226 people including 163 researchers working in ATR right now, with a total capital of 100 million Japanese yen [2].

ATR is aiming at promoting fundamental and innovative research and development (R&D) activities on information and communication-related fields in order to contribute to a wide variety of welfare of society and humanity, as well as to develop highly-professional human resources [3]. In order to realize the missions, researchers in ATR have carried out R&D in neuro science, intelligent robotics, machine language translation, wireless communication and so on.

ATR is really an international company. It has established many collaborations and research exchanges all over the world. The managers accepted researchers, including engineers and internship students, from around 30 overseas research institutes and universities in the past several years. And by the time March 31st 2012, the total number of people who have joined ATR is 2098 from 58 countries [4].

2.2 Company Structure

In general, there are two main divisions in ATR. One division is responsible for carrying out research and development activities, and the other is in charge of commercialization of the research outcomes, as shown in figure 1.
The R&D division can be further divided into 3 categories of laboratories: Cognitive Mechanism Laboratories, Neural Information Analysis Laboratories and Computational Neuroscience Laboratories. Under each laboratory group, there were several departments, and in total there are 6 departments. A summary of the structure of Brain Information Communication Research Laboratory Group (BICR) is shown in figure 2.
2.3 Department of Computational Brain Imaging (CBI)

I was working as an internship student of Department of Computational Brain Imaging, belonging to Neural Information Analysis Laboratories. The goal of their research is to develop analysis tools to clarify human brain functions and communication techniques based on brain activities [6]. They are using statistical models and machine learning methods to understand human brain imaging data in order to make applications of human brain imaging data [7].

My department consists of 15 members, including director of laboratory, head of department, secretary, researchers and internship students.
3. Life at ATR

3.1 My Work

As mentioned previously, I was working in CBI department. My colleagues have developed a MATLAB toolbox called VBMEG [8] to estimate spatial distribution of current sources from obtained experimental data. This source localization is important for exploring human brain dynamics, but it is very difficult to assess the results. My task is to develop an evaluation system to judge whether the results after source localization are acceptable or not.

My supervisor had kindly helped me divide my project into two stages. In the first five months, I worked on preprocessing experimental data and then proceeded to evaluate source localization in the last five months. I used MATLAB for most of the time, and wrote programs based on the codes developed by my colleagues to analyze collected experimental data. Because my major is electrical and computer engineering, I was new to neuroscience and had a hard time understanding the algorithms of VBMEG. Luckily, my supervisor is a very helpful and patient person, who is willing to teach me and help me in necessary. We had regular meeting every Friday afternoon to discuss obtained results and decide on tasks for the following week. Besides my project, I also helped my colleagues in the experiments.

Our department is more university style, in which each researcher works on his own projects and the department head is responsible for managing all the projects. However, their projects are related, and in order to share information within the group, they have a regular CBI meeting every Thursday afternoon. During the meeting, one person will give a presentation and the audiences will give feedbacks. I did 3 presentations in total during the 10 months to report my progress, and received a lot of useful suggestions. In the last month, I also did a ten-minute formal presentation in front of the head of BICR group and researchers from other departments in English.
3.2 Work Environment

Unlike other traditional Japanese companies, the work place in ATR is also similar to university offices. Each researcher has his/her own space with division plates around the desk, as shown in figure 3. Most researchers dress casually. Jeans and sneakers are allowed to wear to work, which is also the same as in university.

Figure 3. Work space in ATR

Almost all the people in ATR can understand English, and most of them can speak English quite fluently. I always spoke English with my supervisor, and we could communicate without any difficulty. Although there was only one foreign person in my group, I did see a lot of foreign faces in ATR. All my colleagues were very friendly and helpful, and I received a lot of help from them at work. They were willing to talk to me either in English or Japanese. They also invited me to the end-year party, and we had a good time talking about Japanese cultures. They made me feel I was a member in this group, and I really enjoyed working with them.
3.3 Lunch Time

ATR has its own canteen. Normally, there are 3 different lunch sets, curry rice and noodles (udon or ramen) offered every day. One lunch set costs 500 yen. People need to buy the tickets from the vending machine at the entrance of canteen. Rice and soup are self-served.

Figure 4&5. Ticket for one lunch set and the lunch set

Lunch time is the only official time for people to stay away from work and talk about whatever they want. I ate lunch with my colleagues and joined their conversations every day. I treated lunch time as the best time for me to get to know about my colleagues, real Japanese life and interesting stories in Japan. My colleagues told me about many things that I would never learn from the books or TV shows, and I also received a lot of useful information for traveling. It was also the ideal time for me to practice listening and oral Japanese. Their conversations were all in Japanese and I tried to speak Japanese to them as much as possible. They were very friendly and explained a lot to me when I could not understand their Japanese.

3.4 ATR Open House

There is one open house, which lasts for 2 days, in ATR every year. It is also the only period when everyone is dressed in formal shirts and suits in ATR. All the departments need to create several posters to display their work, and explain their work to people from outside ATR. It is a big event in ATR and people start to prepare for it since several months ago.
Although I did not join the poster session of my group, another CJCP student from another department did. I got to walk around and had a look at the work from other departments. There were a lot of demonstrations, which were very interesting, and there were also quizzes in which people could join and win the prize. My friend and I won a small torch in the quiz, it was really fun!
4. Personal Life

4.1 Accommodation

ATR provided me with an apartment on the fifth floor in Nara. It is around 50 m² with two rooms, one kitchen, one bathroom and one toilet. I felt it was enough for even two people to live together. It is fully furnished, including a TV, a microwave, a fridge, an air conditioner and so on. There are two rooms and I always slept in the Japanese style room with futon.

The apartment is about 17-minute walk from the nearest station, and it takes around 15 minutes to get to ATR from the station by bus. Since it is an isolate apartment, there is no meal provided. However, it is very close to supermarkets, and I always bought bento boxes after work.

There is a group dedicated to helping foreign researchers working in ATR, called SHIEN. They helped me set up the accommodation as well as the bills for water, gas and electricity. Before I leave Japan, they also helped me arrange the final bills for utilities, so the only thing I need to do is to pay the bills. Apart from the bills, they can also help foreign people set up bank account, Internet, mobile phones and etc. They can speak English very fluently, so even if the researchers in ATR cannot speak Japanese, they still do not need to worry about living in Japan.

4.2 Travelling

I would say Japan is a perfect place for travelling. The transportation system is complicated but super convenient in Japan. I spent most of my holidays travelling around Japan, and a summary of the places I visited is shown as red stars in figure 8.
Since ATR is located in Kyoto, I went to almost all the big cities inside Kansai area around Kyoto, and most of them can be visited in one day. The same as in Canada, there are several long weekends in Japan, and I used these days to travel to further places such as Hiroshima and Fukuoka. Among all of these places, Hiroshima is the most impressive city to me. Especially after visiting the Hiroshima Peace Memorial Museum, my friends and I were shocked but moved by the rebirth of the city. If now anyone asks me where I will recommend visiting in Japan besides Tokyo and Osaka, I would say Hiroshima.
In the rest of this section, I will talk about my impressions on Japan.

4.2.1 Transportation

Although the railway system and underground in UK are quite convenient, I was still amazed by the transportation in Japan. The trains between cities allow people to travel to other cities as easily as taking the subways. For example, if I want to go to Kobe from Nara, I do not need to go to a specific railway station to take the trains to Kobe, but just take the train from the nearest station and transfer once. With an IC card I even do not need to reserve a ticket but just go at any time I want.

However, the transportation system is very complicated and confusing. It took me a week to figure out which lines are owned by private railway and which lines are operated by Japan Railway (JR). Especially in Kansai area, most of the lines belong to Kintetsu Corporation (Kinki Nippon Railway Co., Ltd), which is a private corporation. So with a JR pass, people cannot take Kintetsu trains. There are also many types of trains in Kintetsu lines. The fastest train is called LIMITED EXPRESS, which requires passengers to buy separate tickets. The second fastest train is called RAPID EXPRESS followed by EXPRESS. There are also SEMI-EXPRESS trains and the slowest trains are called LOCAL. It was easy to take the wrong train for me at the beginning of my internship.
There are also subways in big cities (in Hiroshima, there are streetcars). Japanese municipal government pays a lot of attention to the development of the tourism industry, thus there are always day passes available for tourists. Figure 11 shows some examples of day passes and one Shinkansen.

Figure 11. Examples of day passes and Shinkansen

To travel to further places, there are normally three choices: night/day bus, Shinkansen and airplane. Since I did not have time to go to Okinawa and Hokkaido, I never took airplane, but I used night bus and shinkansen quite often. Taking night bus always costs less than the half price of using Shinkansen, but it is almost impossible to have a good sleep on night bus I would say. However, Shinkansen is really fast (around 2 hours 15 minutes from Kyoto to Tokyo) but expensive. As a compromise, I always took night bus on Friday night and took Shinkansen back on Sunday night so that I could have a good sleep before going to work on Monday.
4.2.2 Food

To me, food is one of the main purposes for traveling. Japanese food is awesome. A lot of cities have their own popular food, for examples, Osaka (Kansai area) is famous for Takoyaki and Okonomiyaki, and Hakata is well-known for Ramen. I always searched online for famous spots as well as popular food before travelling.

![Figure 12&13. Traditional Japanese meal set and super-size Okomoniyaki in Nara](image)

![Figure 14&15. Nagoya miso katsu and Hakata ramen](image)

Japanese size is not big, so sometimes my friends and I got to really want to eat a lot. Then buffet may be the best choice. There are various kinds of buffets in Japan, which are written as ‘放題’ in Japanese. I have tried all you can eat hotpot, grill and desserts. Some of the buffets allow people to pick up foods by themselves, but some of them require people to order (‘追加 tsuika’) after the first plate.
Japanese people are good at making desserts. Crepes, ice creams, cheesecakes and other kinds of desserts are everywhere, and they are all delicious!

4.2.3 Shrines and Temples
There are numerous shrines and temples in Japan, especially in Kyoto and Nara. Since Kyoto and Nara used to be the capitals of Japan in history, there are substantial number of
shrines and temples in Nara and Kyoto where some of them are inscribed on the World Heritage List.

Although there is only one word 'Shrine' in English, actually, there are many status of shrines, such as 'Jinja (神社)', 'Jingu (神宮)' and 'Taisha (大社)'. I am still confused about the differences among these types, but it is easily to differentiate shrines and temples by looking for Torii (鳥居). If there is Torii at the entrance or inside, then it is a shrine, otherwise it is a temple.

It took me quite a long to figure out the correct way to worship at a shrine or temple. At the very beginning, people should rinse their hands and mouth at the ablution basin. Then they proceed to the alter and ring the bell if possible. Next, people throw coins (normally 5 yen) into box placed in front of the altar, bow deeply twice and clap their hands twice. After making a wish, people need to bow once again and finish. After worshiping, Japanese
people always do one o-mikuji (random fortune) and buy omamori (Japanese amulet) when necessary.

Japanese people are used to do a shrine visit on the first day of new year, which is called Hatsumode (初詣). It is one of the biggest event for Japanese family at the beginning of each year. I did Hatsumode in Kawazaki Daishi in Kanagawa prefecture with my friends. There were a lot of people even in the early morning like 4 am. It was an interesting experience that I will never forget.

4.3 Japanese Study

I studied Japanese for two years in UK and took one 300-level Japanese course before I came to Japan, so I could understand probably half of the daily conversation in Japanese at the time when I arrived in Japan. However, I could not speak much Japanese especially long sentences at the beginning of my internship. I had this problem when I studied English as well, since my mother tongue is not English. However, after studying in UK and Canada for 4 years, I can communicate in English fluently, so I believed that my Japanese must improve a lot after my internship.

There are Japanese courses offered in ATR, and I heard that a lot of foreign researchers took the courses. But I decided to study by myself because my major problem is speaking rather than readings or grammars. As mentioned previously, I practiced listening and speaking with my colleagues during lunch time. I also applied for N1 level of Japanese Language Proficiency Test (JLPT) in December 2014, and studied for the test during weekends. I tried to use Japanese as much as possible in my daily life, and finally I passed the JLPT N1 level with 57/60 in listening. By the end of my internship, I could communicate with people in Japanese with confidence and go to watch Japanese movies without getting lost.
5. Future Recommendations

The first thing I would recommend to future CJCP students is to use Japanese as much as possible. I always switched to English when I got stuck in speaking Japanese at the beginning, then I realized that if I do not show that I want to speak Japanese, people will always speak English to me and I will not get the chance to practice. Language is just a tool for communication, and making mistakes is common and acceptable. Do not be afraid when someone cannot understand your Japanese, worst comes to worst, we can still use English and all the Japanese people can understand English to some extent. The best way to study a language is to talk to native people in their language, so catch the chance to talk to Japanese people in Japanese and you will improve a lot.

Showing kindness and making friends are also very important. Getting to know your colleagues and making good relationship with them may be the first task for you to live in Japan. They are the people you will meet almost every day, and you will receive a lot of help from them both at work and in life. Besides, you should always be friendly to other people outside the company, so that if you are in trouble, they may be willing to help you. Also remember to make good friends in life so that you will not feel lonely in the weekends and you can travel with them to further places.

Finally, I recommend future students to travel around Japan. Japan is an amazing country which is safe and convenient for travelling. There are a lot of places to see, a lot of food to eat and a lot of things to experience. Do not waste all your weekends staying at dormitory and watch online videos, you can do it after you go back to Canada. To live in Japan for an extended period may be a once in a lifetime opportunity, you should catch the chance to open your eyes and get to know more about another country. Work hard, play hard and enjoy life in Japan!
6. Conclusion

By completing this internship, I gain experimental skills as well as knowledge of neuroimaging, which was completely new to me. I also improved my programming skills by writing a lot of codes in MATLAB. I learnt how to analyze large data using statistical methods and how to perform formal comparison between data sets. I believe all these technical skills are useful for my future career.

Actually, this is my first internship in a company outside campus. I never worked in a company environment and did not have any experience dealing with colleagues before I came to Japan. I was worried about whether I could manage to get involved in the group at the beginning, but after this internship, I learnt how to adapt to new environment and how to communicate with other people in a group. Before I started this internship, I had no idea about how researcher’s work is like. But now I know what a researcher does at work and I am considering the possibility of working in the R&D department in the future.

All the above skills may be acquired from other internships, but what is unique for this CJCP internship is to work and live alone in a foreign country where all the people around you speak language other than English. I did not only improve problem solving skills, but also learnt how to overcome the language barrier and how to look for help when necessary. This unique experience broadened my perspective and opened up the possibility of working in a non-English country in the future.

Ten months seems to be long, but it was short to me. It used to be a dream for me to live in Japan for such a long time, so I made the best use of my time, met a lot of amazing people and experienced a lot. This internship is no doubt the best experience in my life. I would like to thank ATR and CJCP for making this extraordinary experience possible for me.
7. Reference


