

Findings through JUACEP

Name: Brian Chang

Affiliation at home country: University of Michigan, Department of Electrical Engineering and Computer Science

Participated program: Summer Course 2017

Research theme: Pressure Control in an Eye Model

Advisor at Nagoya Univ: Prof. Fumihito Arai

Affiliation at Nagoya Univ: Department of Micro-Nano Mechanical Science and Engineering



Japanese language and culture was something I had interest in from time to time. Before coming to Japan, I had never learned Japanese. My first few days, the language barrier made me not so comfortable going out alone. I wanted to be accompanied by somebody, thinking that being with somebody who also did not know any Japanese was less embarrassing than being alone. Knowing some Chinese characters, I could deduce what some of the signs and labels written in kanji were saying, but the hiragana and katakana were completely foreign to me. After taking the Japanese course, I was comfortable reading hiragana and katakana, and could function basically (e.g., order at a restaurant, go shopping) using Japanese. I feel that if I were to spend a year in Japan, I would become able to speak decent Japanese.

The first weekend was dedicated to exploring Nagoya. In Nagoya, I explored the Sakae area, ate unagi at Horaiken (a very famous unagi restaurant), and visited Atsuta Shrine and Nagoya Castle. During later weekends, I traveled to Tokyo, Osaka, Yokohama, Kyoto, Mt. Fuji, Shirakawa, and Kanazawa. Activities which I checked off my bucket list included: climbing to the top of Mt. Fuji, dining at a Michelin star [ramen] restaurant in Tokyo, riding on the Shinkansen, going up the Tokyo Tower, and eating fugu. Other fun activities included taking cruises at Osaka (including Santa Maria at sunset), visiting the Umeda Sky Tower Observatory in Osaka, riding the Tempozan Ferris Wheel at Osaka Harbor, watching the Shibuya Crossing from the second floor of Starbucks in Tokyo, eating fresh sashimi at the Tsukiji Fish Market in Tokyo, seeing the Pikachu festival at Yokohama, and much more. This most stressful, yet most rewarding activity was climbing to the top of Mt. Fuji. My friends and I spent almost 10 hours of the night climbing, with the goal of arriving at the top in time to see the sunrise. Although we were unable to see the sunrise due to being unlucky with the weather, I have now done per the Japanese saying "A wise man will climb Mt. Fuji once".

Research, of course, was an important part of the program. I participated in this program with close to zero research experience, with the hope of gaining such experience. My project involved programming a microprocessor to help a pump maintain fluid pressure at a desired level. Because research was new to me, it would often feel like I was being thrown into the water and expected to figure out how to swim on my own. However, I felt that this was an important skill to learn, and it was not one which could be very easily obtained from the classroom. I learned a lot from the experience, but wish the program was longer, as 10 weeks was a bit too short to complete a substantial project. Although research was the main purpose of my visit, my professor understood that part of my time in Japan was for exploring the country and experiencing the culture, thus he was very accommodating in that respect. While the last few weeks felt like cram time, overall, this program provided a research experience which still allows for a good work-life balance.

What I will miss about Japan is the food, the reliability of public transportation, and the people I met here. Aside from gaining research experience, I also got to explore many places which I have wanted to visit. I am very glad that I chose to participate in this program, as it will be difficult for me to travel like this once I enter work life. Overall, I would recommend this program to anybody who wants a research experience abroad that comes with a lot of fun.

Findings through JUACEP

Name: Hao-En Chang

Affiliation: Department of Aerospace Engineering at the University of Michigan

Participated program: Summer Course 2017

Research theme: Dependence of spark energy on deflagration-to-detonation transition in a high-speed flow

Advisor at Nagoya Univ: Prof. Ken Matsuoka

Affiliation at Nagoya Univ.: Department of Aerospace Engineering



The moment I found out there was an opportunity to conduct research in Japan this summer I immediately knew that I wanted to come. And my experiences here over the last two months have shown to me that it was inarguably one of the best decisions I'd ever made in my life.

Before coming to Japan this summer, I actually had made several short visits to the country over the years. But I know my visit this time was different from the rest because it allowed me to experience the country more in-depth with the time we were given to stay. More importantly, it was also different this time because I would be studying and working on research while adapting to an academic environment previously unfamiliar to me. In fact, the majority of my time here was spent on research. One of the things I was most impressed by the academic curriculum in Japan is the early exposure to laboratory for engineering students. While in the U.S we are not required to have research experience during our undergraduate, Japanese students start going to lab almost as a full-time during their last year in undergraduate and are usually required to submit a research thesis upon graduation. Therefore, by the time they are in master's programs they would already have a great understanding of how to work things around in a lab. I personally think this is better for students who know early on that they want to focus on research for their later studies.

If somebody asked me what is the one rule Japanese people will never break, I'd say it's the practice of always being on time. As a matter of fact, I was never late to my appointments while in Japan except one instance when I misread the meeting time. Similarly, there was never a time I could think of where I had to wait for whomever I was meeting with. My guess is this could somehow be related to the punctuality of its public transportation system. Since most people commute to work or school on a daily basis and the trains are rarely delayed, they can't afford to be late because a minute late could end up costing hours of their time. Or maybe it's just one of the deep-rooted cultural values that has been passed on over many generations in Japan. Either way I really enjoy having faith in Japanese people's sense of time.

To be honest, I didn't know much about Nagoya before coming here. But I dare to say that I really enjoyed living in this city. It's not so overwhelming in terms of size or population like in Tokyo and yet there is still a lot to offer such as the abundance of delicious food and entertainment activities. My favorite food from Nagoya is the unadon served in Hitsumabushi style. It is a little expensive but will 100% excite your taste palette. Obviously I had also taken the opportunity to explore many places in Japan on weekends. I must say the most memorable one was the audacious climb of Mt. Fuji. Four other JUACEP students and I decided to take on the challenge and climb Mt. Fuji at night in total darkness. Our hope was to catch a glimpse of the sunrise in the early morning when we estimated to summit. It took us 9.5 hours without any sleep to make to the top while constantly being braced by cold wind. Although I'm proud to say that I've seen the world atop Mt. Fuji I most definitely would not attempt climbing it again since there goes the saying, "A wise man climbs Fuji once. Only a fool climbs it twice."

The best thing about summer in Japan is that it is filled with cultural festivals (matsuri) and fireworks where you can also try a lot of amazing street food. I had the chance to participate in a few of them to immerse myself in the atmosphere of joy and festivity, which is one of the best experiences I'd had in Japan. With that, I'm forever grateful for my time and learning this summer in Japan.

Findings through JUACEP

Name: Muzhi Zhu

Affiliation at home country:

Mechanical Engineering, University of Michigan

Participated program: Summer Course 2017

Research theme: Vision Based Path Following via Randomized Model Predictive Control

Advisor at Nagoya Univ: Prof. Tatsuya Suzuki

Affiliation at Nagoya Univ.: Mechanical Engineering



JUACEP program has been a wonderful experience for me. I have always been interested in Japanese history, traditional culture as well as pop culture like manga, and of course, Japanese food. Thus it is a great opportunity for me to experience Japan. Through the communication with lab mates, faculty advisor, and travelling around, I got the chance to learn more about Japan.

I joined Prof. Suzuki's lab to work on path following real time control. It is the first time for me to use model predictive control method on an embedded system platform. It enhanced my c++ coding skills, theory background in vehicle dynamics and control, and computer vision. Through the summer's work, I learned practical knowledge regards modeling and control that I will further utilized and developed in my graduate study and work.

Lab mates are friendly and hospitality. Our lab has more than 20 students, even though not every one can speak fluent English, we can still communicate with each other well. During the program, we went out for dinner and bowling occasionally. It is really an interesting and memorable experience talk to person with different culture background.

During my stay in Japan, I visited major cities like Tokyo, Osaka, and Kyoto to view city land markers of Japan. I also climbed Fuji Mountain, visited country area like Takayama, Nara, and Shirakawa to appreciate the beautiful natural scenery and historical buildings.

I truly enjoy my staying in the program and I would highly recommend the program to anyone who is interested in Japanese culture or cross culture experience in general.



Findings through JUACEP

Name: Chenfan Lian

Affiliation at home country:

Department of Mechanical Engineering, University of Michigan – Ann Arbor

Participated program: Summer Course 2017

Research theme:

Human presence sensing of a mobile robot by using 2D laser scanner

Advisor at Nagoya Univ: Prof. Yoji Yamada

Affiliation at Nagoya Univ.: Mechanical Systems Engineering



During this two-month stay in Nagoya University for the JUACEP program, I not only improve my academic research ability by taking part in a topic focusing on human sensing and navigation of the mobile robot, but also spend time exploring the Japanese culture and social life.

At the beginning of the research work, everything seemed totally unfamiliar to me. I realized that I had to work very hard to accomplish my assigned task. Fortunately, Professor Yamada and my TA Mr. Kim kindly offered me a lot of guidance about the background knowledge. As a result, I was able to conduct a successful experiment.

Also, the activities that the JUACEP office arranged are all very meaningful and interesting. For example, the field trip to Toyota factory introduced us the great history and future of the automotive industry. The engine workshop provided us a great hand-on experience.

In the same time, we have chances to travel around Japan on holidays. Communicating with local people helped us learn more about the Japanese culture.

In a word, this summer program is amazing!



Photo: Field trip to Toyota Museum

Findings through JUACEP

Name: Erik Kramer

Affiliation at home country (Dept & Univ): Mechanical and Aerospace Engineering at UCLA

Participated program: Summer Course 2017

Research theme: The Change of Gait Motion During Curvilinear Obstacle Avoidance while Restricted by a Wearable Robotic Device

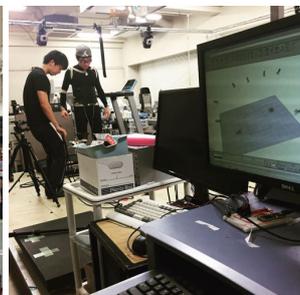
Advisor at Nagoya Univ: Prof. Yoji Yamada

Affiliation at Nagoya Univ. (Dept.): Mechanical Science and Engineering



The Japan-US Advanced Collaborative Education Program has been one of the most fulfilling and exciting summers of academic career. It offers a rare opportunity for engineering graduate students to experience a study abroad lifestyle while still advancing their research. During the course of the summer I was able to design, perform, and analyze an experiment on the effects of a wearable robotic device on the ability of an operator to turn and avoid obstacles. This work is directly related to my own research focus at UCLA and will without a doubt be used to strengthen my PhD dissertation in a few years time. Along with the immensely helpful knowledge and experience that came from my work within the framework of the summer program, I am working with my lab at Nagoya University to submit my results to a conference for publication. A successful conference proceeding greatly strengthens my standing and helps me move closer to my desire to become a professor in the future. I could not have hoped for a better outcome to this summer. Despite my lack of knowledge of the Japanese language, my labmates and advisor were very welcoming. I quickly felt at home in my lab, working side by side with some of the other students as if I had always been there. It was great to be in a laboratory environment with hard working staff that were friendly and open to socialize outside of work.

While the research was the defining factor for my participation in this program, this experience had a lot more to offer! The trip to the Toyota manufacturing plant was especially exceptional. It was both informative and awe inspiring to see first hand how the robotic arms I work with every day in my research can be scaled to massive manufacturing sizes while still working in complete harmony. The workshop on internal combustion engines was also a lot of fun as well as very insightful. Outside the scheduled JUACEP activities I was also able travel around Japan and see many places I wanted to visit. During my time here I visited nearly every place I've dreamed of going to in Japan, from Miyajima and Hiroshima to Tokyo and Yokohama as well as numerous places in between. The city of Nagoya is a great central hub to branch out and visit numerous sightseeing locations. Life in Nagoya itself, though a little scary at first due to the language barrier, ended up being very nice. The Nagoya University housing was modern and well kept up. It was a pleasure to live there for the duration of my stay. While the cultural differences were a bit worrisome at first, overtime and through the knowledge gained from the program's Japanese language course, Nagoya and Japan began to feel like home. Overall, the entire program was a great balance of weekly lab research and exploring Japan on the weekends. It was an experience I will treasure for many years to come.



Amazing Japan where modern and tradition meet up

Name: Jia Wang

Affiliation at home university:

Department of Materials Science, UCLA

Participated program: Summer Course 2017

Research theme: Converse-piezoelectric-effect induced separation of thick GaN film from the SiC substrate

Advisor at Nagoya Univ: Prof. Hiroshi Amano

Affiliation at Nagoya Univ.: Electrical Engineering



JUACEP program is really special to me. Since I have been engaged in the GaN research for several years where Prof. Amano has led the pioneering efforts in this field, I read many of Prof. Amano's publications earlier than he was awarded the Nobel Prize in Physics 2014, and admire his contribution to the development of GaN semiconductor, which led to the commercialization of today's blue and hence white-light LEDs. Thanks to the JUACEP program, I am much honored to have this exceptional opportunity to join Amano group and carry out interested research in the lab. In addition to numerous advanced experimental apparatus and abundant academic resources, I also enjoy exchanging latest research information in the field with many expertized students here. Though GaN achieves dominant role in the illuminating LED market today, it is still far from realizing its true potential due to many materials-related issues. I recalled that during the JUACEP-organized field trip to Toyota exhibition center, the power inverters displayed for the electric vehicles are merely based on Si and SiC semiconductors, if those issues with GaN can be addressed, GaN will dominate the future market in these power electronics applications. However it is not an easy path, therefore the lab members are working hard to tackle these challenges from every possible angle of study. I am deeply impressed by the spirit of diligence demonstrated by the faculty and students in the lab, including Prof. Amano, who would always work in his office till very late night unless having business trip. I think this may account for why Japan has nurtured so many distinguished scientists, with Nagoya University alone enjoying six Nobel Laureates.

Other than experiencing modern science and technology in Japan, I'm also obsessed with traditional Japanese culture.

For example, during weekend trips I like to explore those ancient Japanese castles, a kind of magnificent architecture unique in Asia, so far I've visited Nagoya-jō, Osaka-jō, Niiō-jō in Kyoto, Himeji-jō, Hiroshima-jō, Edo-jō ruins in Tokyo. Besides castles, Shinto shrines are also aboriginal and special. It is the place where one can feel the tranquil peace with nature. I toured different style of shrines like Hachiman shrines, Inari shrines. Among them, the style of Ise shrines left me deepest impression. The design of simple geometry with original wooden color, somehow resembling Scandinavian-style cottage, makes one understand the true harmony between human and nature.

Besides traditional buildings, performance art is appealing. Although it is pitiful that I was not able to watch sumo wrestling during the Tournament in Nagoya since the ticket is in so high demand, I did enjoy Giōn-matsuri parade in Kyoto and two shows of traditional Noh operas at the Nagoya Nōgakudō in July and August. Especially, the classical lion dances in the famous opera *Shakkyō* is so rhythmic and exciting. When I came out of the opera house and walked to Sakae at the heart of downtown Nagoya, I happened to come across World Cosplay Summit 2017, where thousands of young people dressed up in bizarre costumes. It occurred to me that how similar those colorful hairs of cosplay fans are to the red and white wigs wore by Noh players on the opera stage, where traditional beauty and modern fashion meet up in a special way. As the new culture is inheriting and evolving from the old ones, it is amazing to see the new culture thriving while the old culture still gets carefully preserved and respected in Japan.

It is the JUACEP program that fulfill my desires of academic exchange in a world-renowned research group on GaN semiconductor. It is also the JUACEP that enables my deep exploration of these unique cultural stuffs during this meaningful summer. I would like to express my truly gratitude: JUACEP and Nagoya University, arigatō!



Findings through JUACEP

Name: Zhiwei Liu

Affiliation at home country:

Materials Science and Engineering, University of California Los Angeles

Participated program: Summer Course 2017

Research theme:

Stability of preform shape during reactive synthesis of Al-TiC composites

Advisor at Nagoya Univ: Prof. Kobashi

Affiliation at Nagoya Univ.: Materials Science and Engineering



This summer, I took the research internship program from University of California Los Angeles to Nagoya university and stayed there for two months. I feel so lucky to be chosen to participate this program for my summer because I got improved a lot in my academic performance, also, my travelling experience here and deep communication with local Japanese people dramatically sharpen my understanding about Japanese culture.

For the research, my research orientation here is close to the one that I had at UCLA, so my transition to the lab here is smooth. During the two months of my research life, my host professor was very helpful and gave me a lot of assistance and guidance every time I had trouble with my research. Also, my TA was super kind-hearted who helped me a lot in using equipment and data analysis. Although we had a little bit difficulty in communication, we could finally make it and I thought his English improved a lot by constantly practicing with me. My final experimental result here is satisfying and I am now capable of using more equipment than before. Also, I took the Japanese course here. Although the length of the Japanese course is only one month with ten lectures, I now can do basic Japanese communication and know how to study Japanese in the later stage of my life.

For the life here, Nagoya University is not that large but you can basically access all the resources you want. In addition, the transportation here is convenient and we have a subway station just inside the campus which makes our life much easier. Travelling around also occupies a certain amount of our time here. During the two months, I went to Ise, Kyoto, Fuji mountain and Tokyo. Japan is really suitable for travelling! Kyoto is the representative of history part of Japan and you can see different kinds of temples, shrines there. Fuji mountain stands for the natural wonder part of Japan and climbing to the top of the mountain indeed consumes a lot of energy and time. Ginza in Tokyo stands for the modern part of Japan and you can basically buy all the luxury brands there. Except for Ginza, there are a lot of other places that are worth paying a visit to in Tokyo! Also, Shinkansen can basically take you to anywhere although the ticket fare is not that cheap.

To sum up, I feel so satisfied with this summer exchange program and I am sure I will come back to Japan for travel in the future.



Findings through JUACEP

Name: Yizhen Zhang

Affiliation at home country: Materials Science & Engineering, UCLA

Participated program: Summer Course 2017

Research theme: Bonding Between AI and CFRTP using interpenetrating layer

Advisor at Nagoya Univ: Prof. KOBASHI, Makoto

Affiliation at Nagoya Univ.: Materials Science and Engineering



It has been exactly two months since I came to Japan on June 19th. Life here is so amazing that I could not ask more. Every day here is like an adventure with a lot of fun.

Before I came to Japan, I cannot speak Japanese at all, even one simple sentence. The Japanese classes provided by JUACEP program were so helpful that we were able to know all the 50 hiragana and katakana, and also many basic expressions like how to greet, count numbers and tell about weather. I was so excited when I found that I could understand others better after learning.

I am grateful to be a part of professor Kobashi and professor Takata's laboratory. I attend group seminar every Thursday. All of lab members make slides with English for us to better understand their topics. Because of that I can follow the presentations well and ask questions. Professor Kobashi is so thoughtful that he is always patient with explaining research details to me. My teaching assistant is also very helpful and patient. Because of them, I was able to master all the necessary experimental skills in the first two weeks. We also have meetings several times to discuss about my research progress. Besides, my other labmates are all very friendly to me and willing to help me out when I face some troubles. We get along well with each other and have become very good friends. They even held a welcome party for us and it felt so good drinking and having barbecue together.

I was also able to visit several places in Japan such as Takayama, Shiragawa-go, Kyoto, Osaka and Tokyo with other program members. I was impressed with not only the beautiful sceneries but as well the attractive Japanese culture. Japanese people are always very considerate to others, which, I think, is what I should learn from people here. Every time I go to cafeteria with my labmates, we will always wait until all of us get food. Japanese people always think of others so that Japan has the most amazing social order. A very intuitive view about this point is that every place here is so clean, streets, restaurants, restrooms, and so on. When students have food in the cafeteria, they will even clean up the table before leaving. As a result, life becomes easier for ourselves.

I would strongly suggest you to apply for the homestay program held by hippo organization. It is a two-night, three-day program that allow you to live in a local Japanese family and spend time with them. My host family, Goto family is so nice to me. They took me to Inuyama castle, cooked delicious food for me, and watched animations with me. It was so good to have a Japanese family and I like my two Japanese sisters so much. They even took me to attend important family events, making me feel at home. The warm atmosphere was unforgettable.

Too many things happened in the past 8 weeks that I cannot write down them all in one page. So here I just want say thanks to Nagoya University and JUACEP program for providing me with this invaluable chance. I have already fallen in love with Nagoya city so that I am thinking about now to find a job in Japan in the future. I will always carry those precious memories with me. I hope I can visit Japan again in the future and see my friends here again.