

## Findings through JUACEP

**Name:** Emanuel Antony Chirayath

**Affiliation:** Department of Aerospace Engineering,  
University of Michigan, Ann Arbor.

**Participated program:** Summer 2015

**Research theme:** Rotating Detonation Gas-Turbine Engine

**Advisor at Nagoya University:** Prof. Jiro Kasahara

**Affiliation:** Aerospace Engineering



The JUACEP program has been a very valuable opportunity for me to pursue research in Aerospace Engineering. I have been able to collaborate with my colleague from University of Michigan, on a joint project to design, develop and test a Rotating Detonation Gas-Turbine Engine. My experience in Kasahara Lab has been very excellent. Prof. Kasahara and Prof. Matsuoka have been diligently guiding us from the very beginning of the project. My Teaching Assistant Mr. Ishihara has been very helpful at every step of the process. Besides them, all other members in the Kasahara Lab have been very welcoming and helpful in dealing with life in a different place. The staff at the JUACEP office, especially Ms. Yada and Ms. Kato, have been very helpful at all times.

Life in Nagoya has been quite busy. I found the International Residence to be a very excellent and well-kept place. It allowed me to relax after coming back from a busy day at the lab. The excursion to the Toyota Motors plant at Motomachi was an eye opening opportunity for me to see an advanced Japanese industrial plant. The Japanese pottery class and the chance to make our own pottery was a unique experience in my life.

I was able to visit places like Kyoto, Osaka, Tokyo, Mount Fuji and Kamikochi. Every place had its own charm and story to tell. Kyoto exuded old heritage and culture, while Osaka was a picture of modernity. Tokyo was the busy, bustling city that I had expected it to be. The trip to the Japanese Alps in Kamikochi was very relaxing and refreshing. Watching the sunrise at Mount Fuji was something I would describe as a once-in-a-lifetime opportunity. The whole experience of climbing and staying on the mountain is something I would cherish forever.

The most important aspects of Japanese culture that I personally recognized were the punctuality, hospitality and politeness of its people. I realized how discipline could lead a nation to greatness. The Japanese way of life also enlightened me to a sustainable use of the limited resources available to humankind. I felt that everything in Japan tried to blend with the environment.

I hope these experiences will have a positive influence in my life. The research experience I have gathered in the Kasahara Lab would be very valuable for my career in Aerospace Engineering. I hope to continue pursuing research with similar themes in the future as well.

## Findings through JUACEP

**Name:** Fang Dai

**Affiliation (Dept & Univ):** Mechanical Engineering. University of Michigan

**Participated program:** Summer 2015

**Research theme:** IMPLEMENTATION AND PARAMETERS IDENTIFICATION OF WIEDEMANN VEHICLE FOLLOWING MODEL

**Advisor at Nagoya Univ:** Prof. Tatsuya Suzuki

**Affiliation (Dept.):** Mechanical Engineering



My research topic in Nagoya University is 'Implementation and Parameters Identification of Wiedemann Vehicle Following Model for Fuel Consumption'. My supervisor is Prof. Tatsuya Suzuki and I gain much more than I expected both in academic and non-academic. For research itself, I enhanced the skills of programming in Matlab and got access to an amazing software, Carmaker, which is an advanced vehicle simulation tool.

The life in lab is casual and people here are very kind and easy-going. They organized the welcome party for me and after that we went to play bowling together. Beside the research experience in the lab, I like the culture here. We travelled to many cities in Japan like Kyoto, Osaka and Tokyo. We experienced the firework festival here with the traditional yukata and tried a lot of traditional and delicious food like Takoyaki, Sashimi and Ramen, which I would never forget.

JUACEP program was very kind and considerate to organized many meaningful activities for us. The handcraft exercise was one of these and it offered us a good chance to well apply the theory into real-life. The pottery training was also very interesting and we were absorbed in making our own work. I believe all things I learned and all experiences I gained in Japan must have positive impact on my future career.



### Findings through JUACEP Experience 2015

**Name:** Ulka Dandekar

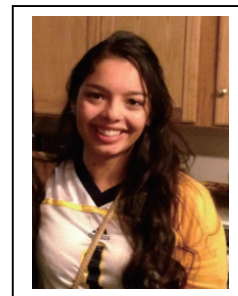
**Affiliation (Dept & Univ):** Pharmaceutical Engineering, University of Michigan

**Participated program:** Summer 2015

**Research theme:** siRNA as gene silencing system for therapeutic use

**Advisor at Nagoya Univ:** Prof. Hiroyuki Asanuma

**Affiliation (Dept.):** Molecular Design & Engineering



Firstly, I would like to thank Kato-san and Yada-san, as they both worked hard to make our experience as pleasant as possible, and always did so with a smile. Also, thank you to the coordinators of JUACEP and the UMich IPE Office, for making this opportunity possible. JUACEP is my first study-abroad experience, and I was more apprehensive than excited at the prospect of spending 3 months in Japan. However, this program has been a wonderful experience and I would be happy to return if ever given such a chance.

Working in Asanuma Sensei's lab, I learned several new methods and analytical techniques including RNA synthesis and purification, gel electrophoresis, and mass-spectrometry. Learning such academic concepts was difficult, but even using things like MS Office and other computer software was challenging because it was all in Japanese. I found it interesting that most of the students in lab are undergraduate and master's students, with only one PhD student, yet they worked long hours coming in around 9:30 am and staying until 9 pm. My lab mates always made efforts to include me in social activities, despite the language barrier - they invited me to play softball, eat lunch with them, and recommended fun places for me to visit in Nagoya and other cities. Asanuma-sensei was even kind enough to take me and a few others to watch the Grand Sumo tournament!

JUACEP activities outside of research such as the field trip and Japanese class were a great opportunity to take a break from lab and also interact with the other students. Even though I am hardly well-versed in Japanese, I highly recommend taking the Japanese class because by studying the language we inherently learned about the cultural norms. I thoroughly enjoyed the field trip because before coming to Japan, I interned at Toyota in Ann Arbor, MI for eight months and at the field trip to Toyota City we were able to witness examples of the Toyota Production System in practice. Also, that day the UM students were able to socialize with JUACEP staff and UCLA students at dinner and karaoke.

Since the first day I arrived, I kept learning new things about Japan - both small and big details. For example, Japan truly is the "the land of the rising sun" as the sun came up every day before 5 AM. Additionally, punctuality is followed here quite closely, not just by people but by the trains and subways, too. Before my arrival, I was initially very nervous about eating in Japan, because I am vegetarian. At times I missed food from home and it was difficult to find food without meat or fish, but never impossible. Unfortunately, I could not eat much authentic Japanese cuisine, but I was still able to eat new fruits like yellow kiwi and yellow grapefruit, and enjoy Japanese culture in other forms.

The program allowed for free time, giving the opportunity to visit Kyoto, Osaka, Tokyo, and more. A few of my favorites include seeing temples and downtown Kyoto, Ise Jingu shrine, the beach at Toba, Osu Kannon shopping in Nagoya, and learning to make sushi in Tokyo.

As a final note, my sincerest thank you to Asanuma Lab, especially Kamimoto-san, as well as JASSO, UM-IPE, and JUACEP for an unforgettable summer of new and exciting opportunities. ありがとうございます!!

## Findings through JUACEP

**Name:** Yuting Gao

**Affiliation (Dept & Univ):** Chemical Engineering, UM

**Participated program:** Summer 2015

**Research theme:** Analytical Study on Combustion Kinetics of Various Solid Fuels / Waste Products

**Advisor at Nagoya Univ:** Prof. Ichiro Naruse

**Affiliation (Dept.):** Mechanical Engineering



On May 13<sup>th</sup> 2015, I arrived at Nagoya, and started the 3-month program. As a Chinese, I am always interested in our neighbor country, Japan. I have been here once about ten years ago. However, I believe that if you want to experience a different culture, the best way is to live there rather than just travel there. Thanks to JUACEP for providing me a great opportunity to experience authentic Japanese culture.

Japan is a country that is totally different from America. People here are really care about others. When I first arrived at my room, I found that everything was well prepared, including beddings, internet cable, cloth hangers, and even a lamp. As long as you had your personal belongs, you could settle down within one hour. Maybe in America we can have more freedom to prepare our own living supplies, but when I saw a well-prepared room, I could feel that they really cared about our residents and was truly grateful for that.

Daily life in Nagoya was just going to lab and work with lab students. Japanese students were relative shy compared to American people. Maybe because of language problem, they seldom came to talk with me, but if I had some problems and ask them what to do, they were all willing to help me. Getting along with them made me believe that all the engineers around the world are funny people. When they introduced a new student to me, I was told that his English was very good and his Chinese was also very good.

Besides experiments, lab students also invited me to the softball game and lab trip. They played softball very well and I only knew a little about that, but they taught me and practice with me with great patience and enthusiasm. During the lab trip, the two professors helped me a lot. They explain the similarity and difference between Chinese and Japanese cultures, and interpreted for me when I bought souvenirs. They lived with students in the same Japanese style room and even play mahjong and games together. They were not like professors, but just close friends with everyone, making me feel like the lab was like a family.

On weekends, I hung around with other JUACEP students. We bought yukata and went to the firework festival, traveled to Kyoto, enjoyed the hot spring in Inuyama, and etc. Before JUACEP, I did not know anyone of them, but now we are really close friends. It is always hard to live alone in an unfamiliar city thousands of miles away from hometown, especially when you hardly speak their native language. Thanks to these friends, life in Japan was never hard but enjoyable, although language was still the biggest problem.

I really like this JUACEP program. The simplest words express the truest feelings. The lab experience impresses me greatly. If there is a chance, I will consider to apply for a PHD program in Nagoya University and even work in Japan for some years in the future.

## Findings through JUACEP

**Name:** Xudong Hao

**Affiliation (Dept & Univ):** Department of Mechanical Engineering,  
University of Michigan

**Participated program:** Summer 2015

**Research theme:** Evaluation of Contact States Using A Wound Testing System  
with Slip and Force Sensors for Estimating Skin Scratch Risks

**Advisor at Nagoya Univ:** Prof. Yoji Yamada

**Affiliation (Dept.):** Mechanical Science and Engineering, Nagoya University



It is my first time visiting Japan. The three-month experience makes me love the life here. I had a lot of fun with friends from University of Michigan and students of Nagoya University.

The first thing we learnt in Japan is the one-month Japanese class. It is not that long but very helpful. We learned a lot daily words and conversation sentences with a kind professor. The limited Japanese we had learnt helped us a lot during our later travel in Japan. We could tell which were the shops, what was the sushi we wanted to eat and ask some basic questions in Japanese.

Furthermore, I also like the research experience at Professor Yamada' lab. People here work very hard, which inspires me to do my research diligently. Professor Yamada and post-doctor Akiyama warmly answered my questions and pointed out the problems of my work. My lab mates are from different countries, such as Japan, China, Germany and Ecuador. We had wonderful parties and helped each other with the researches.

Also, JUACEP office held a lot of interesting activities to enrich our life in Japan. We had a field trip to Toyota Motor Company assembly work and Toyota Museum. We were shocked by the automation of robots and achievements they had made. In the afternoon of that day, we made potteries of different shapes. I made my first heart-shape pottery with pink color. That day ended with a BBQ feast. It was one of the most wonderful days in Japan. The handcraft exercise later made me understand the basic structures of a gasoline internal combustion engine by disassembling and assembling it.

What's more, I also travelled in Nagoya, Kyoto and Tokyo with friends from University of Michigan. We tried different kinds of Japanese food and visited many places of interest, like shrines and skyscrapers.

All in all, it is an amazing experience in Japan that I will never forget. After this program, I am much interested in working and living in Japan or working for a Japanese company in Japan or in US.

## Findings through JUACEP

**Name:** Chadwick Harvey

**Affiliation (Dept & Univ):** Aerospace Engineering, University of Michigan

**Participated program:** Summer 2015

**Research theme:** Rotating Detonation Gas-Turbine Engine

**Advisor at Nagoya Univ:** Prof. Jiro Kasahara

**Affiliation (Dept.):** Aerospace Engineering, Nagoya University



My experience in Japan through the JUACEP program is certainly something that I will never forget. After arriving, I was presented with cutting-edge research in aerospace propulsion that will have a profound effect on my life. Every person that I've interacted with in my lab has been extremely welcoming and always willing to help. My TA has gone above what was required of him to help integrate me with the lab, and I feel that after only three months we are all working as a team.

This program has not only exposed me to life at a new university, but to an entirely new country and culture. Through the program I've been able to explore many cities in Japan including Tokyo, Osaka, and Kyoto, as well as to participate in adventures such as hiking through Kamikochi in the Japanese Alps and climbing Mt. Fuji to watch the sunrise. Having lived in a completely foreign culture for three months has exposed me to a great deal of understanding that I previously did not have. I feel more connected to the rest of the world and certainly more well rounded as an individual. I'm also great with chopsticks now!

I strongly believe that both my research here as well as my cultural experiences will have a significant contribution to my future, and for that I am forever grateful. In Michigan, my focus has been entirely on the class aspect of learning. Here at Nagoya University in Kasahara-sensei's laboratory, I have been able to thrive in a completely new aspect of learning in the research and laboratory setting. Even though it was only for three months, my experiences here will apply significantly to my future careers as a strong asset. My experience will make me more marketable when looking for a job, as well as more versatile when I have found it.

## Findings through JUACEP



**Name:** Jiahong Ju

**Affiliation (Dept & Univ):** EECS University of Michigan

**Participated program:** Short (Summer) 2015

**Research theme:** Investigation of Performance of the Modified MCCB with A New-Developed Fault Current Limiter in Low Voltage DC Distribution System

**Advisor at Nagoya University:** Prof. Matsumura and Associate Prof. Yokomizu

**Affiliation (Dept.):** Electrical Engineering

I feel so lucky to have the chance to attend the last year of the JUACEP program. Before attending the JUACEP program, many imaginations are in my mind about Japan. Just like other people around me, I knew and started to contact with and be interested in Japan from the Japanese animations during my childhood, especially from the Japanese movies when I grow up. Most of all, the power system protection is always my favorite topics in electrical engineering. Unfortunately, there is no such minor field in University of Michigan, so it is definitely a great gift for me to be here, in Prof. Matsumura' lab, in Nagoya University and in Japan.

The management of JUACEP is really a good combination of research and pleasure. In the first several weeks, I take the Japanese class with all the students from Michigan, it is helpful to have an overview about the Japanese language and Japanese culture. During the weekdays, I stay in my lab to read papers and conduct experiments. All the lab mates are really hardworking. Sometimes we talked about the topics in our major field and it is found that all the things in electricity has some things in common around the world but also with minor differences, which actually reflects the difference behind each culture. We also discussed about the difference culture between Japan, America and China and there are always some interesting stories to share with each other. People in my lab are also very friendly to help me both in research and the life in Japan. They taught me how to configure each equipment when I have difficulty in reading about the Japanese instruction manual. As all the experiments in my lab are about large current and power system protection, so they instructed me how to conduct the experiments safely. Sometimes when I want to travel to some neighborhood cities around Nagoya for sightseeing, they helped me make the travel plan and recommended me interesting places and good restaurants, which made my travel experience incredibly amazing.

For my favorite aspect about Japan is definitely the Japanese food. Not to mention all the good restaurants outsidess the campus, the food in the Dining hall in campus is much better than that in America, what's more? They are much cheaper. Normally I will go to the cafeteria for lunch and dinner with my lab mates together. What surprised me most is the small portion of the Japanese dishes and also the small stomach size of Japanese people. I might eat almost twice portion of the food as my lab mates ate and they were also surprised to my good appetite.

Besides the food, I also want to behave like Japanese people. I wear Yukata to attend the Nagoya University festival and the firework festival in Nagoya harbor. When I choose the hotels during traveling, I preferred to choose to stay in Tatami and Capsule hotels. All these experiences enrich my life in Japan and makes me understand Japanese culture better.

The only concern for me is that English is not so popular in Japan. Although people cannot speak too much English, they are still willing to talk with you and help you, which always gives me a good impression of Japanese people.

In a word, I never imagine I could have the opportunity to be in Japan like this. I really want to thank JUACP and all the officers, TAs and professors working in JUACEP. Thanks to their kind help and good management of this program, I have this wonderful experience in Japan. For me, three month program goes so fast and I am still not ready to leave here, but I am sure that I will have more opportunities to come back to meet all you people in the future. I will miss all of you.

## Life and Research in Japan with JUACEP

**Name: Andrea Manoppo**

**Affiliation: Biomedical Engineering, University of Michigan**

**Participated program: Summer 2015**

**Research theme: Fabrication of Tissue-Engineered Small Blood Vessels via 3-Dimensional Cell Self-Assembly and Organization In Vitro**

**Advisor at Nagoya University: Professor Fumihito Arai**

**Affiliation: Nagoya University, Micro-Nano Systems Engineering**



I am very happy to have had the opportunity to participate in the JUACEP research program. I am grateful to the Arai Lab for hosting me and grateful to both the JUACEP and IPE program staff for their support. The research project that I worked with alongside my mentor was highly innovative. It was fascinating to learn novel approaches to tissue engineering. I have a fondness for cellular and tissue research, microfluidics, and micro-mechanics – so needless to say, that was a great learning process for me. The Arai lab seems to be famous on Nagoya University campus for their incredibly rigorous approach to research and for their accomplishments in bio-robotics and micro-nano systems. It's unfortunate that I am not fluent in the Japanese language (and even less so in a scientific setting). In that sense, the most difficult challenge was the language barrier. Laboratory protocols are also written in Kanji, so I felt like I required a lot of assistance. However, challenges were overcome with the enthusiasm of my fellow lab mates at Arai Laboratories. I always felt welcome here; both their intellect and their helpfulness always impress me.

While the project at Arai Laboratories expanded my knowledge in a biomedical topic that I am passionate about, the JUACEP events allowed me to see aspects of engineering outside my concentration that I wouldn't have seen otherwise. For example, I learned about car manufacturing techniques during the Toyota Factory tour, learned to assemble internal combustion engines by hand, and attended production-engineering seminars. From there, it's easy to see why everyday technological convenience and environmental conservation is so exceptional in Japan.



Regarding culture differences, actually I felt like I fit in right away. The change in diet was no problem for me; I tried every type of sushi, okonomiyaki, yakitori, udon, ramen, or takoyaki imaginable. I made many Japanese friends who pushed me to try new things. One of my favorite moments was when friends taught me how to play card games (such as daifugo) on the train to visit Osaka. I participated in traditional tea ceremony at Nagoya castle, took classes in traditional fan dance, spotted geisha in Kyoto, fed deer in Nara, bought antiques in Takayama city, saw temples in Ise and huge fireworks festivals in Gifu. I stayed in Tokyo and even climbed to the top of Mount Fuji. All this activity combined with research was quite exhausting – but the good kind of exhaustion. I made efforts to talk to all kinds of Japanese people and make use of the Japanese language that I learned. I discussed philosophy with locals to get a sense of new attitudes and approaches to life.

In the end, it is not just the opportunity to contribute to a cutting-edge biomedical research project that is so valuable, but the global aspect as well. It was an impactful experience in terms of learning to communicate and work toward common goals with others in a new environment. I learned a lot with JUACEP and I hope to visit all in Japan someday in the future!





## Findings through JUACEP

**Name:** Haodong Shen

**Affiliation (Dept & Univ):** Electrical Engineering and computer science

**Participated program:** Summer 2015



**Research theme:** All-polarization-maintaining Er-doped ultra-short pulse fiber laser using carbon nanotube saturable absorber

**Advisor at Nagoya Univ:** Prof. Nishizawa

**Affiliation (Dept.):** Electrical Engineering

Firstly, I want to express the appreciations for the JUACP programs. It is really a good experience. I'm impressed by the kindness of Japan.

My professor is a hard-working and talented professor who is the pioneer of his area. He taught me by himself and I learned a lot from him. In the past 70 days, I learned many practical skills in the laboratory which I believe will help me in the future career. I was warmly welcomed by the lab mates. They helped me to solve the problem in research and life. Also, I went out and drank with them. Thus, I knew how was Japanese. They are very shy outside and very nice in their deep heart.

The lectures and the excursion organized by JUACEP are fantastic. I learned a lot of knowledge about the manufacture. And I was shocked by the steam-line of the Toyota. In the BBQ, It was very delicious Japanese style BBQ. Also, I felt the "craziness" of Japanese. They

This program did a good preparation for my future career. Moreover, it teaches me how to live. I traveled many places in Japan, Kyoto, Gifu, Mt.Fuji and Sapporo. It's different from China and USA. It is just like the Japanese animation. I will come to Japan next time in a different season. I could imagine what is the altitudes of Japanese towards life: they just do things extremely good and enjoy the nature.

The culture in Japan is very interesting. In the Nagoya University, it has Meidai Festival. In different places, they have their own festivals. I remember that we wore Japanese traditional suit Yukata to join the atsutajingu festival. There were lots of people joining different kind of activities and also many small stores to sell interesting items.

It is very worthy to be here.



## Findings through JUACEP

**Name:** Goutham Thangaraj  
**Affiliation (Dept & Univ):** AOSS, UM  
**Participated program:** Summer 2015



**Research theme:** Solar Neutron Data Assimilation and Analysis obtained through SciCRT

**Advisors at Nagoya Univ:** Prof. Itow, Prof. Matsubara and Prof. Shiokawa  
**Affiliation (Dept.):** Solar Terrestrial Environment Lab

The JUACEP program was the perfect blend of education and fun. It challenged me in many ways and helped my growth both professionally and personally. In the program, I was able to perform research in my chosen field with my peers. They were not only very intelligent but also witty and very welcoming. The professors were very kind and helpful and were always willing to help me through my troubles. I learned a lot during my stay here and the research project provided me with valuable experience that has strengthened my knowledge in the field of Space Science.

Attending the Japanese Language Course was very helpful and it made conversation and travelling the country much easier. By learning simple phrases and keywords, I was able to connect with my lab mates and not be totally lost during any conversation.

The excursion was simply amazing. The tour of the Toyota factory and the museum were very informational and the watching a robot play the violin was truly marvelous and a testament to the hard work and compassion that the Japanese people have for progress. The Seto Pottery Museum was also interesting and making a pot for the first time was exciting and surprisingly fun! The two and a half hour all-you-can eat restaurant was the truly one of the best places I have been to, the different kinds of food and drink along with the live performance all added to the great ambience of the place. This was all topped off with a trip to the Karaoke where we all sang our hearts out and had a great time!

Life in Nagoya is very vibrant with plenty of places to visit such as the Nagoya Castle, the Aquarium, Science Museum (one of my favourite places in the city), Osu Kanon, Nagoya Station and many more. It will be a long time before anyone can cover the whole city but I tried my best to cover as much as I could during my stay here. I also visited Kyoto, a city that maintains the country's cultural heritage to this day. I visited a lot of shrines such as Fushimi-Inari, Heian-Jingu, Yoshida as well as temples such as Kinkakujin (Golden Temple), Ginkakujin (Silver Temple) and Kiyomizu Dera. Japan is a lovely country to stay in as the people are very polite and patient. Even if you do not speak a word of Japanese they will try to help you out in any way they can.

JUACEP provided me with the opportunity to work in Space Science field thereby strengthening my knowledge and providing me with the technical background to further establish myself in the sector. It also helped improve my communication and analytical skills as language was often a barrier and other forms of communication such as non-verbal language needed to be adopted. It provided me with a chance to experience a different culture thereby helping me understand the intricacies of the difference in personality between people from varying backgrounds.

## Research and Fun

**Name:** Chen Wang

**Affiliation (Dept & Univ):** Department of Mechanical Engineering, UM

**Participated program:** Summer 2015



**Research theme:** A Study on Topology Optimization with FEM Based on Iterative Mesh Division

**Advisor at Nagoya Univ:** Prof. Toshiro Matsumoto

**Affiliation (Dept.):** Department of Mechanical Science and Engineering

This is my second time to Japan. So everything here is not totally new to me. I can even speak some simple Japanese. But this time I have experienced more compared to last time thanks to JUACEP.

First of all, let me talk about the lab life and research. I join Matsumoto Lab in the Department of Mechanical Science and Engineering here, of which lab members are really nice and helpful. They've organized a welcome party for me and really helped me a lot about both my daily and academic life. As to the research, Prof. Matsumoto is always happy to answer any question I raised. I have learnt a new programming language Fortran and used it to use a practical problem in finite element analysis. With this experience, in the future, I think it may help me to start my job as an FEA engineer.

Secondly, I really love the introductory courses given by experts from different automobile related companies like TOYOTA and DENSO. Although the lectures are not deep into specific techniques themselves, they show me a general pic of the current situation and development of Japanese vehicle industry. Moreover, as my major and concentration is automobile technology, this is the first opportunity that I can start to get to know the big car corporations. I hope, in the near future, I can obtain a job in such kind of companies in Michigan.

Furthermore, I have improved my Japanese proficiency during this stay in NU. Although I didn't take the language classes provided by JUACEP, I found many chances to communicate with natives like lab members and local people through daily life. I think it is the best to come to Japan if you want to learn its language!

Last but not the least, I really enjoy the trips this time. Since this is not my first time to Japan, some big cities or hot tourists spots are so appealing to me. And thus I tried to find some beautiful places that Japanese natives would like to go. I went to 湘南 and 伊豆 areas to see sceneries of sea and Mt. Fuji. And I also went camping in national park of Mie prefecture and watched the fireworks in Nagoya. It is really good memory for me to keep all the time.



## Life Experience in Japan

**Name:** Hanyi Xie

**Affiliation:** Mechanical Engineering, College of Engineering;  
Engineering Sustainable Systems, School of Natural Resources & Environment;  
University of Michigan

**Participated program:** Short (summer) 2015

**Research theme:** Annealing effect on Hardness of DLC Coating

**Advisor at Nagoya University:** Prof. Noritsugu Umehara

**Affiliation (Dept.):** Mechanical Science Engineering



Photo I. With my TA: Eitaro Nakatani



Photo II. Umehara Lab

It's the second time I came to Umehara Lab in Nagoya University. Compared to previous experience, I achieved more than I expected not only because I learned advanced technology in tribology area, but all lab members treated me as if I have never left here before.

After last year's JUACEP program, I started to learn Japanese since I returned to Umich until now. I did not think about coming again until I got the offer from School of Natural Resources & Environment for pursuing my second Master's degree. During the time I was thinking about how I would spend this summer, I received encouraging email from both Chiharu and Prof. Umehara saying I was permitted to take one more time part in the JUACEP. I was moved a lot. And even now, it sounds like a dream for me and I feel thankful for being able to get involved in this wonderful program again.

Due to the achievements of my Japanese learning, it was possible for me to communicate much better and more deeply with people in our lab. I witnessed how hard M2 students were doing the job hunting and how much effort B4 students paid on preparing the entrance exam. I stayed up whole night with my TA working on our research. I was also shared the success and happiness when M2 students got good news from companies. Even though I spend most of time together with lab members and even have not been to Tokyo, I feel satisfied so much. For me, accompanying with my friends in this lab is much more significantly meaningful than travelling to places of interests by myself. Three months is too short. But it was good enough to give me a start to learn the surface of tribology, to get to know Japanese culture, to develop friendship and to build an unforgettable memory here.

Again, thanks to JUACEP for giving me such a chance to enrich my life experience, meeting trustful friends. If my Japanese is getting good enough, I would also be glad to have job hunting in Japan since I really like the culture and people here. I believe it would make me live a great life in Japan as well.

## Findings through JUACEP

**Name:** Yalim Yıldırım

**Affiliation (Dept & Univ):** Mechanical Engineering, Michigan

**Participated program:** Summer 2015

**Research theme:** Human Running Assist Exoskeleton

**Advisor at Nagoya Univ:** Prof. Yasuhisa Hasegawa

**Affiliation (Dept.):** Micro-Nano Systems Engineering



When I received the email about the JUACEP program in Winter semester, it seemed like it was just what I needed. I had just recently been admitted to the one-year Master's program at Michigan, and I had been looking for summer opportunities where I would gain some experiences that would help me with my work next year. JUACEP seemed to be the perfect opportunity because it allowed me to travel in Japan, work with world-class faculty on one of dozens of research opportunities, and transfer research credits to my Master's. And over two months into the program, I can say that it was a once in a lifetime opportunity and am glad to have done it.

At Nagoya I joined Prof. Yasuhisa Hasegawa's lab to work on a Human Running Assist Exoskeleton. It was already a relatively mature project that had started about 4 years ago, and it is currently given to one of the experienced graduate students in the lab. So working with him on the project taught me a lot about how to navigate through a research project and helped me gain skills not only like engineering design and data collection and analysis, but also more academic skills like article and presentation writing and communication.

Apart from my time at the lab, I also had the chance to take Japanese classes, go on field trips to exciting places like a Toyota plant, and attend seminars by faculty from Nagoya, Michigan and UCLA. The Japanese classes, although having only lasted 5 weeks, covered most of the basic conversation skills. I cannot say I retained most of the material we learned during class, but it was still a good opportunity to become acquainted with the language, read the Japanese alphabets, and learn how to say the basic daily-life phrases. The field trips were well organized and were a great opportunity to get to know other students from Michigan and UCLA. Although the seminars were often about fields unrelated to each student's interests, they were still a good opportunity to become acquainted with research going on in various fields and universities.

Aside from the activities organized by JUACEP, I also joined the Judo Club. Looking for an exciting way to stay in shape, I searched for clubs at the university and emailed their president before coming to Nagoya. He returned my emails very quickly, helped me arrange my first training, and introduced me to the members in my first week here. During my first training I found out that they practiced a special kind of Judo called Kosen that was only done in the 7 former imperial universities, and that they are very competitive. I was surprised about how welcoming they were to a foreigner with minimal martial arts training. I went to practice every week during the program and made great friends, including a Danish visiting medical student, a Brazilian law PhD student, and a Japanese senior who is going to study in Michigan next year. So it was a great opportunity to not only stay in shape, but also to learn a true Japanese martial art and make a lot of friends.



The biggest difficulty that I can mention about coming to Japan for a research program is the language barrier. Because Japan is an island country with dominant popular and academic cultures, most students are not good at English. It still is a very safe and organized country and the people are very welcoming and helpful, which makes daily life a lot easier. But as research is based mostly on exchange of information, the language barrier can become frustrating and limiting. That is why I believe that this program was as much about experiencing a laboratory and work environment in Japan as about doing actual research, if not more so.

## Findings through JUACEP, Summer 2015

**Name:** Douglas Chen

**Affiliation (Dept & Univ):** Materials Science and Engineering, UCLA

**Participated program:** Summer 2015

**Research theme:** Hydrogen Production

**Advisor at Nagoya Univ:** Prof. Seiichi Deguchi

**Affiliation (Dept.):** Thermal Engineering



I have thoroughly enjoyed the time spent living in Japan and working at Nagoya University and am grateful to have had the opportunity to do so. During my time here, I explored much of Nagoya and Japan, including Kyoto and Tokyo. Being able to experience Japanese culture firsthand has been an eye-opening adventure, and I have learned much both academically and personally. The chance to learn Japanese both via classes as well as through communication and reading in society has been great, and I look forward to learning more upon my return to the United States. The necessity to learn some Japanese in order to navigate and communicate with people has also been a catalyst to make me learn Japanese, a goal that I have been attempting for many years. I have also been grateful for the chance to experience the vast amount of media and anime in Japan: I have enjoyed the music, animation, manga, and videogames available here which I would find back home. Having the chance to explore Kyoto and Tokyo gave me glimpses of a variety of subcultures and building architectures present throughout Japan. Japanese culture as a whole proves to be very different compared to the United States, but it is a culture that I quickly and easily adapted to as a quiet, introspective, and respectful person. The summer weather proved to be difficult, but I managed to withstand the heat and humidity even while continuing to wear long pants. It has shown me that I can live in environments that I previously felt I would not be able to live in for long periods of time. I also extremely enjoyed the food in Japan, whether it was ramen, onigiri, pork katsu – just about anything I ate was delicious.

Academically, the research I have been working on has been fulfilling. Being able to physically work in order to attempt hydrogen production has been satisfying, and trying to find an environmentally friendly method to produce and store energy coincides with my desires and life goals. The experiments run so far have proven to be unsuccessful, but even the process of determining and assembling experimental setups and analyzing why experiments did not work are good mental exercises for scientific purposes. My lab mates have proven to be good friends, and have introduced me to much of Japanese culture and humor. I enjoyed spending time within both within and outside of the lab, bonding with them while learning each other's' languages.

Overall, the time I have spent in Japan thanks to JUACEP has thoroughly introduced me to many aspects of Japanese culture and has greatly assisted in making me learn the Japanese language. It has shown me that I would be more than willing to live in Japan if given the chance and financial ability to do so.

## Findings through JUACEP

**Name:** Jiang, Yifan

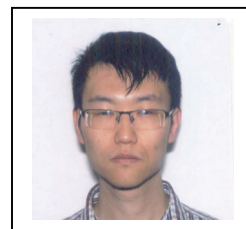
**Affiliation (Dept & Univ):** Department of Electrical Engineering, UCLA

**Participated program:** Summer 2015

**Research theme:** Characterization of the Properties of GaN Nanowires and Their Devices

**Advisor at Nagoya Univ:** Prof. Amano, Hiroshi

**Affiliation (Dept.):** Electrical Engineering and Computer Science



It is amazing for me to see that there are so many people in Prof. Amano's group. The group is large and many research topics are covered. I am very exciting to get involved in the study of GaN nanowires and related devices. It is the first time for me to do experiments in this field. I appreciate that many group members are willing to help. I learned the operation of many devices and learned many knowledge and skills about this area. The more important thing is that I see a relatively large picture of the development of GaN nanowires and nanowire-based devices after this experience.

I want to pursue a PhD and get involved in a research institute in the future. Of course, the best is to find a faculty position in a university. For my career goal, the research internship provides me opportunities. I hope that I can take advantage of what I learned in Nagoya University for my career goal. It is really a valuable experience in my life.

Besides the research internship, there are many interesting activities in this program. I love the experience to assemble a motor and the experience to create a mug. Furthermore, the field trip to the factory provides me the opportunity to learn about how a vehicle is produced. It is always exciting to see big machines and large scale production. Prof. Amano's lab also had a trip. I went with other group members in the lab. It is interesting to see and live in a Japanese style hotel and took part in a Japanese style party. Japanese food is good.

The Japanese language course is also very useful. As a relatively widely used language (for me, it is), Japanese is very useful. I have wanted to learn Japanese for many years. There are so many conditions in which I really want to know Japanese. The course is short and only elementary; however, I still learned the basics of Japanese. It is a good start for me. Moreover, now it is more possible for me to learn Japanese by myself.

I appreciate Prof. Amano to provides me with this good opportunity. I also appreciate those group members who help me with my research. Overall, It is a nice experience.

## My Experience in Japan

**Name:** Austin Kuo

**Affiliation (Dept & Univ):** HSSEAS, UC Los Angeles

**Participated program:** Summer 2015

**Research theme:** Autonomous and Dynamic Robotics

**Advisor at Nagoya Univ:** Prof. Hayakawa

**Affiliation (Dept.):** Mechatronics Laboratory



JUACEP has provided a unique opportunity for American students to immerse themselves in Japanese culture with special regard to academia and graduate life in Japan. I am very thankful to have such an opportunity to learn more about my field of study and develop a professional and social network of contacts.

My work at Professor Hayakawa's lab was an excellent primer into the burgeoning field of applied robotics. I was amazed at how intellectually-graspable kinematic equations can translate into highly sophisticated motion by a robot. The design process was, to me, a mysterious 'black box' that magically turned theory into application. But by meticulously poring over the 5+ years of work put into the robot, as well as conducting some experiments with the robot, the box's opacity was rendered null, and the design process was elucidated. I can now appreciate the competency and interdisciplinary knowledge that is required in the undertaking of such a project. The project demands fluency in mathematics, programming, and engineering concepts as well as the ability to integrate those topics into a coherent system.

During my time here, I was able to visit several places that were eminently reachable by bus or train: Nagano, Ise, Tokyo, Kyoto, Lake Suwa, Mt Fuji, and more. I tried many foods: ramen, sushi, sashimi, yakitori, katsu, and a plethora of regional specialties (usually sweets). They were both delicious and cheap when compared to food of similar quality in the states. With the JUACEP program, I visited Toyota's automotive manufacturing plant, and got to experience karaoke, izakaya (Japanese gastronomic bar), onsen (bath house), and shrines. There was never a shortage of things to do in Japan.

I am most grateful for the opportunity to learn Japanese language and culture, and interact with Japanese people. I have come to greatly admire the collective propriety of effusive cordiality and obsequious humility that is a trademark of Japanese culture. I learned a great deal about subtlety, an art perfected by the Japanese, and was astounded by how everything from syntax to gesticulations could impart a colloquial vibe or formal atmosphere and everything in between. While some may regard the observance of such customs as tedious or even trivial (my own immoderacy tolerated because I was a foreigner/guest), I believe many cultures can study Japanese culture and adopt some of their values to great effect. I hope that my presence here was also beneficial for my Japanese counterparts who may have learned a little about how to interact with Americans or other Westerners.

I would like to thank JUACEP, Professor Hayakawa, the members of the mechatronics laboratory, and the many people I met on this trip for an unforgettable time and a learning experience in the laboratory and well beyond. Thank You.



## Findings through JUACEP

**Name:** Haroula Kyriacou

**Affiliation (Dept & Univ):** Materials Engineering, UCLA

**Participated program:** Summer 2015

**Research theme:** Polyolefin Catalytic Cracking for Fuel Consumption

**Advisor at Nagoya Univ:** Professor Hirasawa

**Affiliation (Dept.):** Molecular Design and Engineering



To say I was a bit skeptical about traveling across the Pacific is a bit of an understatement. As a proud Southern Californian Greek Princess, traveling to a country and continent unfamiliar to me seemed like the end of the world. Luckily, the world kept spinning. Though I would say I enjoy traveling, until this summer, I don't think I was able to classify myself as an expert traveler. However, after managing the Tokyo subways like a boss and planning extensive weekends trips around Japan, goal reached: I am on my way to becoming a world traveler! More than that, I have learned so much about myself, in both the academic and social worlds.

At UCLA, I purposely avoided laboratory settings as much as possible. The constant attention to detail as well as monotonous work seemed like something I could not possibly accomplish. However, through JUACEP, I was able to spend the summer mastering a laboratory with my best friend by my side. Though the language barrier was immense, the Hirasawa lab members did their best to welcome fellow Bruin MSE Lindsey and I to Nagoya and aid us in our research. It has been amazing to not only experience hands-on research but to also perform it in a country whose approaches and standards are different than our own. As Structural Master's students with a concentration in Characterization, the opportunity to use such a wide variety of analysis was a great help for our future careers. From SEM-EDX, to XRF, XRD, ICP-MS, OEA, NMR and GC-MS, it is incredible to say that I now have experience with all of these machines. As the avid student I am, I especially enjoyed the Japanese language course offered through JUACEP and loved our adorable Sue Sensei-I only wish it was longer, or even better, brought to the States to allow us to prepare before our arrival!

Lastly, to talk about the amazing experiences that Japan has offered me. From exploring all the wonderful parts of Nagoya- Kanayama, Osukannon, Sakae, Fushimi, Higashiyama, Motoyama, Yagoto- to weekend adventures throughout Japan- Osaka, Nara, Kyoto, Gifu, Gujo, Tokyo, Chiba, Mt Fuji, Seki- this trip has been nothing short of non-stop fun (and sweating, atsui desune). My favorite events have been all the wonderful summer festivals found throughout the country. From the Hanabi Festival in Gifu to the Fukagawa Festival in Tokyo, I find the Japanese cultural fascinating. As a lifelong Greek folk dancer and instructor, you can imagine my favorite would be an Odori Festival and the small town of Gujo made the event something magical. The live music and hundreds of yukata-clad locals adorning the streets took my breath away. The love and respect felt for their culture was felt in every word sung and step taken.

Thank you JUACEP for a wonderful summer, filled with laughter, friendships, accomplishments and self-realizations. Though I never imagined myself a lover of laboratory research or matcha (the holy green grail of Japan), I can now proudly say I am both! ありがとうございます & じゃあまた!

## Findings through JUACEP

**Name:** Hongyang Li

**Affiliation:** Department of Materials Science and Engineering

**Participated program:** Summer 2015

**Research theme:** Deep Discharge and Elevated Temperature Performance of Solid-state Thin Film LiCoMnO<sub>4</sub> Batteries

**Advisor at Nagoya Univ:** Prof. Yasutoshi Iriyama

**Affiliation:** Department of Materials, Physics, and Energy Engineering



As a student majoring in materials science and engineering, I know it very well that Japan has accomplished a lot in the field of material research, and the commercialization of lithium ion batteries is one of the shining achievements of Japan. That is also my motivation for coming to Nagoya University through the JUACEP program.

The first thing that impressed me is the orientation for us. It was the first time to meet a Noble Prize winner. I cannot express how excited we were when we met Prof. Amano, such an approachable and humble man who has achieved a lot and changed the world to some extent. And of course I shared the photo I took with Prof. Amano with all my friends in America and China.

My research life here started with a talk with my two advisors, Prof. Iriyama and Prof. West. Before coming here, I was a little bit worried whether I could truly get involved in the research here as an exchange student who will only stay here for less than three months. However, this talk made me believe that I could have a satisfying summer here and I feel pretty lucky that I could work under the guidance of two experts in my research area. Not only does the advanced and creative research perspectives inspire me, the rigorous research spirit in my lab offers me a lot as well. From working with my advisors and the experienced students in my lab, I learned a lot about lithium ion battery research and I do consider it useful for my following study and career.

The field trip to Toyota impressed me a lot as well. I have never thought about how a car is made and was astonished when went to Toyota factory. The highly automatic assembly line and the complex but efficient system running the whole factory are what I really appreciate. As a highly developed industrial country, Japan has a lot of things that are worth learning. The advanced technology, the in-depth of fundamental research and attention to details make Toyota a great company, and also make Japan an admirable country in the world.

Life in Nagoya is enjoyable and I really appreciate this opportunity to have a nice summer here.



## Findings through JUACEP

**Name:** Xu Li

**Affiliation (Dept & Univ):** Mechanical and Aerospace Engineering

**Participated program:** Summer 2015



**Research theme:** Design of magnetically driven microfluidic chip

**Advisor at Nagoya Univ:** Prof. Fumihito Arai

**Affiliation (Dept.):** Micro-nano systems engineering

At this moment I'm typing, there is only one week left before the end of the program. I have to say, this is the most amazing summer I ever had, which is definitely a valuable memory in my life. I have always been seeking for a chance to come to Japan. Not only because I'm a big fan of manga, sushi and kendo, I also would like to live in Japan for a period of time so that I could truly enjoy the culture of this country. The first impression I had on Japan is that people here are so friendly. When I got off the plane and had to manage to go to Nagoya University by myself, I was actually a little worried for being lost, since I don't speak Japanese and not all Japanese people speak English. But still what surprised me is that when I asked a lady for help, though she may not fully understand what I was saying. But when she figured out my destination, she guided me in person to the subway station and also led me inside to the right platform. Later on I found she is not the only one for being so kind. All the Japanese people are very friendly and willing to help others, which made my life in Japan much easier.

During this period I visited some famous places, such as Osaka, Kyoto and Nara. I love the architecture in Kyoto, which remained the old fashion of Japanese style. I fed the deer in Nara and visited todai-ji. I like Osaka most, because takoyaki and okonomiyaki in Dōtonbori are so delicious, the best in the world. I also went to Tokyo and Hakone. But I think the most unforgettable trip is to Mt.Fuji. Hiking is my favorite sport, so one of the main purposes of coming to Japan is to see the sunrise on the top of Mt.Fuji. It took me about 4.5 hours from Mt.Fuji 5<sup>th</sup> station to the top. Unfortunately it was very cloudy that day. We couldn't see the sunrise. But still it was such a great view when you were overlooking from the peak point.

I also enjoyed life in the lab very much. Our lab is like a big family with almost 30 members. When I first joined the lab, they threw a welcome party for me. Before the party we spent the whole afternoon to prepare the 手巻き寿司, sashimi and soba ourselves. It was really fun and I finally found out why my seaweed was too sticky to the rice to be cut perfectly when I made 巻き寿司 in Los Angeles. I have to COOL THE RICE DOWN first. We are going to have a lab tour to 高取山ふれあい公園 the day after tomorrow. I'm so looking forward to it.

I'm glad I joined JUACEP program. I will never forget this wonderful summer.



## Findings through JUACEP

**Name:** Antonio Martinez

**Affiliation (Dept & Univ):** Electrical Engineering, UCLA

**Participated program:** Summer 2015

**Research theme:** Algorithm For Estimation Of Elevator Travel Distance Using Smartphone

**Advisor at Nagoya Univ:** Prof. Nobuo Kawaguchi

**Affiliation (Dept.):** Department of Computational Science and Engineering



As my second time participating in JUACEP, I have again most enjoyed from this program the research lectures. Researchers from well-known companies and institutions come to the Nagoya University campus to offer a research lecture about the work they are currently engaged on. For instance, I enjoyed the research lecture of Professor Akihiro Iiyama, from Yamanashi University, who talked about technological innovations in fuel-cell for future automobiles. Another part of the program that I appreciated was the engine assembly/disassembly. This hands-on activity was not only fun, but also very interesting as we were able to closely learn the basic engineering principles seen on an engine.

I found my lab a bit crowded this second time. It has about fifteen members and two professors. Most of my lab mates are master students, but there are also undergrad and PhD students. The lab has a good feeling of camaraderie, which is one of the aspects I like the most because this has a positive effect on teamwork, especially in a research setting like this.

I am glad that Nagoya University has a beautiful and large campus, the Higashiyama campus that is, where the graduate school of engineering is located at. There are many facilities to serve the students, like cafeterias, convenience stores, coffee shops, etc. Also, there is a gym, which I've been using regularly. In general, the campus area is in a nice and quiet location of Nagoya.

Life in Nagoya has been enjoyable in many aspects, with the exception of the summer weather. It was a bit hotter and humid than last year, but the good thing was that there was always air conditioning on most places, including my lab, and my room. Nagoya is centrally located in Japan. That made it easy to travel not far distances to visit interesting places like Kyoto, Osaka, Tokyo, among others. Even within Nagoya there are many places to visit, like the Nagoya castle, several temples, and even the Nagoya zoo.

I believe having participated in the JUACEP program twice will not only have an impact on my future career as a researcher, but also, on my life. I have been able to observe the differences and similarities on how a research lab functions here in Japan compared to a lab back home in the US. This has definitely improved my own research practices and it will keep doing it in the future too. Similarly, the cultural differences I have experienced in Japan enriches the way I see life and will keep helping me appreciate contributions of other cultures to my own.

## Findings through JUACEP

**Name:** Jimmy Ng

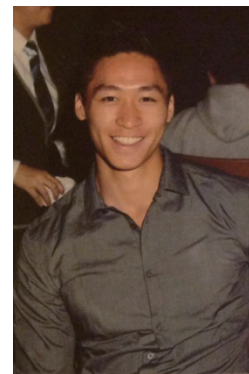
**Affiliation (Dept & Univ):** Materials Science and Engineering

**Participated program:** Summer 2015

**Research theme:** Electron field emission of graphene

**Advisor at Nagoya Univ:** Prof. Yahachi Saito

**Affiliation (Dept.):** Quantum Engineering



Being in Japan through the JUACEP program has been a truly amazing experience. When I first arrived in Japan, I had no idea what to expect. I couldn't speak the language at all, nor was I familiar with its culture and customs. My anxiousness was soon put to rest when I met my advisor, Yahachi Saito. A very intelligent and wise man with a friendly happy-go-lucky attitude, I could tell he really cared about his students. I was no exception and he made a huge effort to make me feel welcome.

Professor Saito also assigned me a project that was interesting and challenging but doable in the 10 weeks I was in Japan. Working on my research project, I was able to learn new material and become familiar with equipment that I did not have an opportunity to learn while I was at UCLA. Furthermore, doing research here challenged me to work and communicate with people in an unfamiliar setting. In the process, my interpersonal skills with people of different cultures grew. In the globalized world that we live in today, these soft skills are invaluable and I cannot thank the JUACEP program enough for allowing me the opportunity to cultivate them.

Luckily, Nagoya University had many extracurricular activity clubs. To de-stress from a busy day in the lab, I joined the campus' boxing club and participated in their practices. Having some kickboxing background, I had no problems keeping up with the practices despite there being a communication barrier at times. Doing boxing, I was able to meet many cool people outside my major and keep healthy during my stay at Nagoya University! I would recommend everyone participating in this program to seek out a club that sparks their interest and put themselves out there to meet people.

During the weekdays, I stayed around the university focusing on my research efforts and going out nearby some nights. But on the weekends, I got the chance to explore the city of Nagoya and also venture off to other cities in Japan. Being one of Japan's major cities, Nagoya has many tourist attractions to visit as well as a lively nightlife. Weekend excursions to farther cities were also planned with other JUACEP students. I partied in Osaka, learned about traditional Japanese culture in Nara and Kyoto, went to a summer fireworks festival in Gifu, visited Japan's most sacred shrine in Ise, had many adventures in Tokyo, and climbed to the summit of Mt Fuji!

However, the most memorable part of my time in Japan were the people that I met in my lab. All of the lab mates from the Saito lab were very friendly and made a genuine effort to make me feel welcome. When we were not working and studying hard inside the lab, we were outside the lab having fun. I will never forget the times we went out eating out, drinking, partying, watching movies, playing sports, karaoke-ing, and even to a music festival in Tokyo together! And when we were stressed out or when we had issues in our lives, we supported each other. Through them, I not only learned about Japanese people, life, and culture, I got to experience it. I consider this the most important experience I gained during my stay in Japan. I feel truly blessed that I was able to make such good friends during my short stay and am eternally grateful!

The JUACEP program not only had an impact on my future career as a scientist, but also on my life. Living and working in Japan made me greatly appreciate Japanese people and culture. Because of this experience, I am no longer hesitant to apply to jobs that involve travel to Japan, or even engineering companies in Japan. I am very glad I got the opportunity to come to Japan and would recommend this to anyone who wants to gain useful skills while delving into a new country and culture.

## Findings through JUACEP

**Name:** Lindsey Perry

**Affiliation (Dept & Univ):** Materials Engineering, UCLA

**Participated program:** Summer 2015

**Research theme:** Polyolefin Catalytic Cracking for Fuel Consumption

**Advisor at Nagoya Univ:** Prof. Hirasawa

**Affiliation (Dept.):** Molecular Design and Engineering



Even though I was excited to apply for JUACEP, I was still nervous to actually travel to Japan. I had never been outside of North America or away from home for longer than a week - 3 months in Asia sounded crazy in comparison! I am so glad I did not let that stop me from coming because this was a once in a lifetime experience. I traveled around a new country, learned a new language, ate new foods, and experienced a completely new culture! In addition, I gained research experience and now feel much more confident in a lab setting.

To start with the reason we were all here: research. With one of my friends and labmates from UCLA, Haroula Kyriacou, we accomplished more than I could have imagined in 3 short months. We researched polymer recycling in Professor Hirasawa's lab, going into lab almost daily, performing experiments and doing several forms of analysis, including GC, SEM, XRD, XRF, and ICP-MS. We were also taken to a nearby university to perform NMR analysis on some samples. Overall, we gained valuable experience and were able to put into action the skills we had learned in our classes at UCLA. I feel much more confident in my ability to run my own experiments and perform independent research.

While I will always appreciate the experience I gained as an engineer through JUACEP, I think what I will remember most from this trip is exploring Japan. We visited many of the sites in our own city of Nagoya, such as the Higashiyama Zoo, Nagoya Castle, Atsuta shrine, and Nagoya Aquarium, among others. We also went exploring in the downtown area of Sakae and had a lot of fun with the night life! With JUACEP we went to Seto and made some traditional Setomono, or pottery – you can see my beautiful cat in the picture above. On our own we visited several other cities and places, including Osaka, Nara, Kyoto, Gifu, Gujo, Tokyo, Chiba, Seki, and Mt. Fuji! In Chiba we went to the huge music festival Summer Sonic and rocked out to some of our favorite American bands, like Imagine Dragons! Even though we were in lab during the week, 3 months has been plenty of time to venture out of the University. My personal favorite place was Gujo, where we went white water rafting, ate delicious chanko nabe, danced the night away at an Odori festival, and jumped into their famously clean river off a 30 foot bridge! That trip was completely due to the kindness of new Japanese friends, for which I am eternally grateful. I have made so many friends in Japan, all of whom I hope to stay in touch with and see again!

I can't believe my time in Japan has come to an end! I will always remember this trip and the experiences I have had (and the pounds of matcha I consumed). I am so grateful to JUACEP for this opportunity. I learned so much, not only in lab, but about an entire culture. Not to mention my skills with hashi (chopsticks) are going to be the envy of all of my friends back in the U.S. the next time we get sushi!

## Findings through JUACEP

**Name:** Jake Stremfel

**Affiliation:** Materials Science & Engineering / University of California, Los Angeles

**Participated Program:** Summer 2015

**Research Theme:** Fatigue Crack Healing via High-Density Electropulsing

**Advisor at Nagoya:** Prof. Yang Ju

**Affiliation:** Mechanical Engineering



My time in Nagoya, and Japan in general, has been one of my most rewarding experiences. When I first arrived in Japan, I thought that ten weeks was a rather long time and enough time to fully experience Japan and its culture. However, having now almost finished the program, I wish I had more time. There is so much to experience in Japan, and I feel that I have just scratched the surface.

My research under Prof. Yang Ju at Nagoya was the study of fatigue crack healing via the application of high-density electropulsing. Being able to conduct research outside of my own area of research at UCLA was extremely useful. Due to the limited amount of time in Japan, my research was somewhat restricted but still fruitful. My time in lab was sometimes slow due to the inability to read/operate some of the pieces of equipment, but all of my labmates were extremely patient and helpful with anything I needed.

Outside of my time spent on campus, I did quite a bit of traveling. Besides traveling in and around Nagoya, I spent two weekends in Kyoto, almost a full week in Tokyo, and a harrowing two nights in Fuji. On both of my round trips to Kyoto I took the Shinkansen. The Shinkansen trains were very impressive and just taking them was an experience in itself. However, after two round-trip tickets, I quickly knew I would have to find an alternative way to travel as a one-way ticket was about 50 USD.

The most memorable and intense experience of my trip is by far Mt. Fuji. Climbing Mt. Fuji tested me both physically and mentally. There was nothing inherently difficult about the terrain of the mountain that made it difficult to hike, but the altitude, temperature, wind, and sheer distance made the climb relentless. I reached the summit about 15 minutes before the sunrise which unfortunately was largely masked by clouds, but it was beautiful nonetheless. Once I experienced the sunrise, I quickly made my way into one of the buildings and passed out on a bench along with other weary climbers before I faced the arduous journey back down the mountain.

I wish I could write at more length about all my experiences in Japan, but doing so would require significantly more than one page. While I do miss home back in Los Angeles, I am quite sad to leave Japan and all the new friends that I have made. I honestly hope that I will some day return to Japan so that I can explore more of the country and get to know more of the culture and people.

