3-a. Reports on JUACEP Program

1: Learning outcomes
2: Experiences in Japan
3: Program contents
4: Influence of the career stage
5: Other contents

Ambarish Krishnanand Desai

1: Linear optimal control for stabilization of rotary single and double inverted pendulum. Hardware implementation of the closed loop feedback law for single and double rotary inverted pendulum.
Nonlinear optimal control for swing up and stabilization of rotary single inverted pendulum. Simulations in SimMechanics and Matlab.

2: Observed public life in Japan and appreciate the friendliness of people here. Visited lots of places nearby and the beautiful tourist spots. The best thing I liked here is the absence of crime. There was absolutely no fear in going to any place even without the knowledge of local language.

3: The program looks well balanced.

4: This program has given me an opportunity with actual hardware implementation of control laws. In addition it has allowed me to study and expose myself to the Nonlinear control domain, wherein I had no previous knowledge or experience. This will definitely benefit my profile whether I am going for a professional job or a PhD.

Zhenyu Gan

1: As an exchanging student of Nagoya University, in this three months I learn a lot. In the laboratory of Prof. YAMADA I have learned the basic concepts such like PMEID, HMEID and its applications in all kinds of situations. I have designed the MEID horizontal cart model and made experiments to verify my assumptions and tried to analyse and find optimal parameters. Actually the topics here are quite similar with my research in University of Michigan. The method and framework I used previously could directly be applied to the research here. Besides the different method we used, we got similar results. So we have the opportunity to compare the pros and cons of our own ways of solution then make an improvement.

2: Not only in the laboratory of Prof. YAMADA I have learned the basic concepts such like PMEID, HMEID , but also learn the ordinary life in Japan. Every Friday afternoon in Prof. YAMADA 's Lab we have a seminar, a lot of presentations on various topics will be delivered. Each student in our laboratory shows their recent research, sometime we have a debate but I believe this kind of discussions helps us have a better understanding of our own research. Besides of the research in the Laboratory I travel around Japan to see the daily life of Japanese people and the beautiful scenery here. Even though sometimes we have a hard time to communicate with each other, I can feel their kindness and friendly.

3: There are lots of activities in this program. We have been visited the company of Toyota and the museum of JR train. We also have been to Gifu to see the cormorant fishing. Besides this kind of visiting we also involved in some real hand experiment such like the assembling internal combust engine. Also, there are all kinds of lectures we could attend. Just yesterday I attend a public lecture talked about the electrical vehicles which impressed me a lot.

4: In this period, I have to research on something I'm not familiar with at the very beginning. Everything seems quite strange to me, even simple equipment such like the encoder and accelerometer because of the language and differed software they use, which makes me very difficult for me to get used to. But a lot of my laboratory members are very friendly, they give me a lot of help and after a while I could apply my previous experience very fast. So I have more confidence in myself to a strange place. I think all these experiences could help me in the future works.

5: To be host, I really like this place, just like I told my lapidary members, if I have opportunity I will come back again with my family to travel around here and visit all my Japanese friends.

Hao Wang

1: I have already completed my research topic which is related to realizing self-sensing magnetic levitation using hall signal. In my research, estimated position of the levitated block is constructed by a nonlinear relationship between hall signal and current signal. By doing this, we can reduce the expense and spare more space in the physical device compared to the conventional magnetic levitation using position sensor. Furthermore, this methodology can be extended from 1DOF to

higher degree of freedom situation.

2: During this three months, I have experienced the Japanese culture from many aspects. Japanese people are friendly and nice to me. Japanese cuisine is delicious. I have learned Japanese culture and history both from my lab members and my travel to Tokyo, Kyoto, Osaka, Nara and Hiroshima.

3: Basically, I need to do the research independently which is assigned by my advisor. Every week, I have a chance to discuss my research with my advisor and get some useful idea from him. Self-motivation is very important, we need to learn by ourselves and try to collaborate with lab members by overcoming the obstacle on communication. JUACEP also provides other optional courses, lectures for enriching our lives here.

4: Since I have planned to apply for doctoral degree after I graduated from University of Michigan, this program provides me a great chance to do a project by myself. And it's also great to live in another country for 3 months. I will benefit from this experience for life long!

Michael Bigang Ding

1: For the JUACEP program, I stayed at Prof. Ju's lab and did research on non-contact atomic force microscopy. I learned about classical AFM and also microwave-based AFM techniques.

2: I really enjoyed my stay in Japan. Japanese culture and language is very fascinating. Also, the restaurants, tourist attractions, and shopping centers in Japan gave me a really good overall experience of life in Nagoya.

3: (1) Laboratory experience.
(2) Working with Japanese students and professors.
(3) Learning Japanese culture and language.
(4) Living independently in a foreign country.

4: In the future, I will be more willing to study and work in a foreign country. My experience in Prof. Ju's laboratory taught me many new ideas and techniques in research.

5: Overall, it was a great experience and I will recommend the JUACEP program to other graduate students in the United States.

Nishant Mayur Narechania

1: I worked under the guidance of Professor Kitamura in the Department of Aerospace Engineering. My research was based on numerical modeling of space physics phenomena. This is something I had never tried before though always had a strange fascination towards it. I believe I have successfully completed my research and gained valuable expertise through it. I have decided to pursue this field further and now also intend to do a PhD in it.

2: During my stay in Japan, I had the opportunity to visit many places here. I visited Tokyo, Kyoto, Hiroshima, Nara to name a few. I saw many temples and shrines which comprise the rich history of Japan. I climbed Mount Fuji which is Japan's highest mountain and also a volcano. The greatest experience for me was to live like a Buddhist monk for one day at a temple in Mount Koya. I had shojin-ryori for meals and also joined the monks in the early morning prayers. Also, the hot springs (onsen) in Gero was a first of its kind experience which I may not get anywhere else. I would also like to point out the helpfulness and courteous nature of the Japanese people which I have never seen in any other country I have visited so far.

3: The program was essentially centered on research with a faculty. It also contained add-ons like the lecture sessions. The part which I liked the most was the disassembly and reassembly of a micro-model of the internal combustion engine. Although this is not my area of research, it was a huge learning experience. I had always known the theory about I.C. engines from the courses during my Bachelors but had never encountered them hands-on. This was the first hands-on session of its kind for me which gave a thorough idea of its working. The program also arranged an industry visit to the Toyota assembly line which gave me great insight into the manufacturing of a car. The traditional cormorant-fishing was something I had no knowledge of prior to Japan.

4: Conducting research in a foreign country is always a valuable asset to the CV. It indicates experience in working in a new unfamiliar environment and adapting to the university culture of another country. This goes a long way in increasing your job

prospects and chances for further higher studies. The international experience also helped me as a great confidence-builder. Also, as a result of interacting with people from all over the world gathered here for their research/degree made me better equipped socially for interacting with the international crowd. I am pretty sure this will help me in future when working a multinational organization.

Sriram Ganesan

1: I was introduced to the theory of dislocations and performed Monte Carlo simulations of poly-crystal plasticity using this approach. The JUACEP program helped me augment my research at University of Michigan by exposing me to the research in this field here. The Japanese language classes helped me to get a grasp of this beautiful language. The lectures in Production Engineering and the Toyota Motor Factory trip helped us to get an insight into the advanced manufacturing practices in Japan.

2: The first thing that strikes about Japan is the politeness and humility of every person that one meets. The arrangements at International Residence at Nagoya University made us feel at home. Through this internship, I was also fortunate to visit places such as Tokyo, Kyoto, Nara and Mt. Fuji and I throughly enjoyed the culture and hospitality everywhere. There were many instances where people came a long way to help us out. I would definitely recommend Japan to my friends and colleagues.

3: The program contents were ideal and helped me to delve deep into research topic while at the same time helping me in appreciating the language and culture. The Toyota Motor Factory Trip along with visit to Nagara River to watch Gifu fishing, organized by the JUACEP team was one of the most enjoyable experiences. The Japanese language classes helped me to get a grasp of the language. In my opinion, a few more Japanese classes would help in conversing better.

4: I am entering the 2nd year in my PhD program and this internship gave me an important exposure to the research in my field in Japan. The lectures in Production Engineering helped me to comprehend the applications of research in industry. I hope this experience will help me to excel better in my research endeavors at the University of Michigan.

5: The entire experience in Japan was very exciting and satisfying. I would like to express my sincere gratitude to the JUACEP Program team, JASSO and my research advisors at University of Michigan and Nagoya University for providing me with this wonderful opportunity.

Weiyu Cao

1: My research topic during the JUACEP Program is Loop Heat Pipe (LHP). I have built a mathematical model of LHP, which could predict the characteristics of a LHP working under steady state. With the assistance of the mathematical model, I have designed and built up an experimental-use LHP. Data like the operating temperature and condenser temperature distribution were collected by thermal couple measurements. Then the mathematical model was revised according to the experimental data.

2: The experience in Japan was great. During the first month, I took several Japanese language courses, which helped me a lot during my life in Japan. During the weeks, I stayed in the Lab to do my research work. At the weekends, I went out for sightseeing. I have visited a lot of famous places in Japan, Such as Nagoya Cho, Osaka, Gifu and Hokkaido. I have also experienced all kinds of gourmet in Japan.

3: 1, Build a mathematical model for LHP
2, Parametric study by the mathematical model
3, Design and build up an experimental-use LHP
4, Test the LHP, collect data for operating characteristic and revise the model

4: The experience in JUACEP Program has given me access to the Japanese working culture, which might help me a lot if I would work in a Japanese company in the future. What's more, the research project also trained my ability to design and build up an experiment.

Yan Zhang

1: During the three-month research and study in Suzuki Lab of the Mechanical Department, I have been working on the application of a collision avoidance control system on a small electrical vehicle. From reading papers, I have learned the theory behind this control system. I have used the knowledge in my vehicle dynamics and control systems classes, and applied them to the real world situation. I have

developed a control program in C# to assist the steering of a small electric vehicle for obstacle avoidance. I have also built a simulation program in MATLAB. Then I have tested this program on the real vehicle and tuned parameters for more desirable results. Besides the research in the lab, I have also attended Japanese classes, from which I learned the basics of Japanese language for daily uses.

2: The experience in Japan was very unique to me. Although I was born and raised in China which is very close to Japan, the
Japanese culture still attracted me deeply because of its combination of eastern and western cultures. During the stay in Japan, I was also impressed by the fact that how Japanese people converse energy and protect the environment, comparing to USA and China, two countries which I am very familiar with. For example, in the dorm I have stayed, most of the light bulbs are LED and have automatic switch function to save energy. I have also traveled to a few places on weekends and holidays, for example Kyoto, Hokkaido, etc, where I met different people in Japan and saw both the beautiful natural scenery and traditional culture of Japan.

3: The program contains lab research work, Japanese language classes, automotive related lectures, Toyota factory field trip and train park visit. My lab research work involves building a control program for the steering assist system of an electrical vehicle. Software simulations and experiments are also involved in the program.

4: The research experience in the steering control system has made me realised the importance of control system in automobile nowadays, and given me the interests in control systems in automobiles. I have also learned about the PLC (Programmable Logic Controller) device and how to code the control program in C#, which would be very helpful for starting a career in vehicle control systems. The whole experience with Japanese automotive industries, including the lectures and plant visiting, has given me new knowledge about how car companies work and how vehicles are designed in a company.

Yihao Zheng

1: Firstly, a type of bone mimicking material was fabricated by soaking epoxy into 3D printed plaster, and its mechanical properties including friction coefficient with steel and Rockwell hardness were tested and compared with those of bovine femur specimen. The experiments results approved the similarity of friction coefficients of

created material and the bovine bone, though the hardness of the bone mimicking material turned out to be lower. Secondly, 3 types of common 3D printable polymer, ULTEM, PC, PC-ISO, were investigated with respect their friction induced wear resistant properties. Friction coefficients with steel and wear rates were compared. For individual polymer, the effect on friction coefficient of printed orientations was also studied. Additionally, via 10 Japanese courses, some basic daily used Japanese was mastered.

2: Regarding to study and research, two topics, bone simulation, and friction induced wear resistant property of 3D printed polymer were studied; 10 courses of Japanese language and a special lecture on engine assembly were attended. In daily life, I met a number of new friends including Japanese students in Nagoya University who helped me and made me reaped a lot in Japanese culture, as well as other US students in the same program. I traveled some major cities around Japan including Tokyo, Osaka, and Kyoto which helped me to gain a deeper understanding in Japanese society and culture.

3: JUACEP is a research-based educational program designed for graduate students who desire to study abroad. Scholarships are offered to both Nagoya and American university students. The program presents the perfect opportunity for students to gain engineering research experience as well as cultural experience in the USA or Japan. The program I am in is the three month JUACEP program from University of Michigan to Nagoya University. The major task for me is the research work in Umehara Lab in the Nagoya University relating to friction induced wear property of several types of material. As parts of the program, a field trip to Toyota, a special lecture on engine assembly and 10 courses of Japanese language were offered by the Nagoya University. A research report and a presentation will be given at the end of the program.

4: The program will greatly facilitate my future career. Firstly, the projects I researched were closely related to my future career path, advanced manufacturing of medical devices. Secondly, this program considerably extended my human networks. New friends in Nagoya and UCLA are great treasure for me. Thirdly, I gained a deep understanding in Japanese culture which helps me to act appropriately when I cooperate with Japanese people in the future. Last but not least, 10 courses of Japanese language enable me to make daily communication

with Japanese friends.

5: I wanted to express my heartfelt gratitude to the JUACEP program, and everyone who works for this great program, especially my advisor in Nagoya University, Prof. Umehara, and the staffs in Nagoya University JUACEP office, as well as my lab fellows who helped me a lot. I enjoyed my research and life in Japan very much and would look forward to the next chance to visit Japan.

Yi-Kai Wang

1: In the beginning, I chose to follow Prof. HAYAKAWA to do research about visual feedback control for table tennis robot because I would like to learn the technique of image processing. However, when I knew I have to do a lot of programming work and data analysis, I thought it was a really hard task for me. After a few discussions with professor and TA, I gradually understand the control process and principle of the whole system. Even though the program and data are complicated and all program notes and manual are in Japanese, I could follow the instruction and paper to rewrite the program finally. The most thing I learn in this lab in Nagoya University is that I could utilize my basic dynamics and signal processing knowledge on actual application, the robot manipulation. Although it's hard to reach original goal, the experiment experience is very beneficial and memorable for me.

2: The life in Japan is very different from the US. First, people are friendly at here; I nearly don't feel any racial discrimination, or maybe it's just because they are unable to distinguish me from other Japanese due to similar skin color. Although Nagoya University is in suburban area, taking subway to city center only costs me less than half hour. It's obvious that Japan is a well-ordered society. The most impressive thing is that Japan is relatively crowded compared with Western countries, but it gives me a quiet feeling. For example, I barely hear horn sound and loud gossip when I am walking on the pavement. However, this society is lacking in vitality. Just like when professors teach in the class, they only follow the power point or lecture note. The boring class makes a lot of students sleepy in the class.

3: I join the JUACEP in Nagoya University. Because the leader of this program is a professor in mechanical engineering department, there are plenty of mechanical lectures we can take. Many of them are interesting just like automobile market class told us how Toyota manages the balance between supply and demand. Actually, in Japan it's inconvenient for international students, especially for those who are not

good at Japanese. However, in our program, each student has a TA who can answer us any question about the research and daily life. For me, it's a very good opportunity to use sophisticated facility in Nagoya University. My research is to use an arm robot and two cameras to serve a ping pong.

4: I took a lot of dynamic-related classes before but I don't have any chance to use real arm robot to realize those theories. It's very possible I will enter into a robot company as a start of my career. Thus, the research provides me a very precious opportunity to know more about the robot manipulation. With the research experience in Nagoya University, it would be beneficial for my industry career.

5: I really appreciate Japan government could provide the scholarship to support us doing research at here. Even though our contribution is not important for the research development, the international interaction is good for both side students. Hope in the future, JUACEP could hold continuously that more students can have more communication.

Yu-Shiuan Chu

1: In the period of this three-month summer intern, I mainly did research in Prof. Kawaguchi's lab doing project of HASC (Human Activity Sensing Consortium). It's a database grabbed by mobile phone sensors on people's daily simple activities (like walk, running, going through stairs, etc.) and use Machine Learning techniques to classify those activities. The project is very useful to me through refining my knowledge of signal data processing and forcing me to use java code, which I was originally unfamiliar with. Discussing with group member is also an interesting experience. Through using Google translate or asking my teach assistant as a mediate role in discussions, I realize there are always good ways to overcome language barriers.

2: Life in Japan is fantastic, which can be observed in some small things. Since the first day I got into the campus apartment, I could've felt Japanese's opposite thinking way comparing with Americans, tiny but delicate. Room area is only half of my living room in Michigan, but contains everything inside. In addition, Public facilities in Japan are clean and function well. Bidet toilets are in widespread use in my apartment, lab building, subway station and any public restroom. Besides, Japanese people are very polite, even is the police. Once I was going home late and

was stopped by a police officer, he questioned me in a manner way that I didn't feel any uncomfortable. Through trip in Nagoya, Tokyo, Kyoto, Osaka, I can feel Japanese spirit to harmonically combine history and technology. Those small parts make Japan a lovely and charming nation.

3: The programs are helpful and inspiring. After finishing 10 basic Japanese classes, I can handle communications in daily activities like asking for route, ordering meals, etc. In the process of engine lecture, I practically dissembling/assembling/running a Diesel engine and realize that hand making is much better than brand thinking. Excursion to Toyota company plant and other scenic spots broaden my eyes to a company's seek for saving energy issue. Special lecture of "Electric Vehicle for the Future" lectured by Dr. Hiroshi Shimizu amazed me at its prospects and unlimited imagination. Each program is awesome and educative.

4: The experience of Japan summer program is definitely a great journey in my life. What signal processing skills and Java language I've learned in lab research is useful in my following studying in Michigan and the career. The culture shock in daily life and traveling in Japan broaden my eyes in the diverse globe world. It's a priceless treasure to me.

Christopher Charles Roberts

1: The solid-state laboratories at Nagoya University are famous for their work with III-nitride LED growth. I received training and was able to gain experience on numerous pieces of equipment that will benefit my future studies. My hosting professor allowed me to pursue a very ambitious research project, and with the help of his students I am now familiar with many of the processes necessary to fabricate high quality III-N LEDs.

2: I was able to explore much of Nagoya, Kyoto, and Osaka. Japan's specialty foods and drinks are delicious. The history and beauty of Japan is astounding. I especially appreciate the incorporation of nature into everyday life. The people of Japan are very respectful of each other and the environment. I greatly enjoyed my experiences while studying in Japan.

3: I highly enjoyed the events related to Japanese culture. The lectures and engineering programs gave me valuable insight into fields of engineering I was not

familiar with. The guest speakers offered valuable insight into the future of many important fields, such as the manufacturing of the electric vehicle. Touring the Toyota manufacturing plant increased my appreciation to the fine detail and great efficiency that can be achieved through proper consideration. The Japanese language course was sufficient to allow for full study of the language in a short amount of time. Overall, the program content was highly enjoyable.

4: The research I was able to perform has given me the invaluable, hands-on experience that will greatly benefit my future work. Having experienced another culture for a sufficient period of time has also improved my appreciation for subtle cultural differences, which I hope will benefit my career with regards to future international interactions.

Chung-Wen Chuang

1: My learning experience mainly includes two parts while studying in Nagoya University, and they are research- and Japanese-learning parts. For the research-learning part, under the instruction of the professor, the teaching assistant and lab mates, I performed mechanical and physical behavior of reinforced concrete (RC) structures, such as visual crack propagation, loading-displacement relation, prediction of the shear failure and/or flexural failure, etc., using a discrete-type numerical analysis modeling, namely Riding-Body-Spring Model (RBSM). For the Japanese-learning part, through several Japanese language classes associated with some field trips, e.g., Toyota Motor Factory visit and Ukai watching trip in Nagara River, I learned much knowledge about the Japanese language, culture and features, etc.

2: Through the instruction of the research theory, the introduction of the Japanese culture, and the share of the life experience from faculty, lab mates and friends, I gained invaluable professional knowledge, interacting skills and cultural experience at Nagoya University and in Japan. On the other hand, I also shared ideas and thoughts of my study and life in the US with them by means of several presentations and meetings at Nagoya University. In addition, I am very impressed by the Japanese working culture and spirit. They enjoy what they do and devoted their respectable energy and power to the work, even unstoppable during weekends.

3: The JUACEP summer program in 2013 primarily includes the following contents:

1) Research at individual laboratory; 2) Field trips and factory visits; 3) Additional lectures, e.g., lectures by the NUSIP program and Introduction to Production Engineering; 4) Handicraft exercise; 5) Japanese language classes; 6) Special events, such as the orientation for UCLA students, auditing the presentations by University of Michigan students, etc.

4: Not only intercommunicating diverse thoughts and backgrounds with faculty and peers but also experiencing Japanese cultural features and appearances is an exciting aspect of this JUACEP program provided to me. I am sure the JUACEP program offered by Nagoya University will allow me to thrive and further fulfill my life. To be specific, what I have learned from this program, even throughout the Japan, is to accept innovative and creative ideas and thoughts from distinct fields, to appreciate superior technologies in life, to respect experience and wisdom from elders, and to learn energetic and enthusiastic attitude in working. With all the experiences I have gained in Japan, I am more confident to face any uncertainty in the future.

5: Fortunately, during my stay at the Nagoya University, I have experienced some rare occasions happened in the Nagoya University and/or my laboratory, e.g., the annual convention by Japan Concrete Institute (JCI) and the job workshop by Civil Engineering and Architecture Department of Aichi-ken government. It is my honor to meet and intercommunicate with those people of great ability and profession.

Jonathan Timothy Quan

1: This was a great program for a number of learning experiences. First, I got to learn about the Japanese Culture: Lifestyle, habits, norms, food, language, everyday conversation, and cultural values. Second, I really enjoyed learning Japanese. Having a 5 week class was a lot of fun and very beneficial. Third, I really enjoyed my research and the opportunity to interact with my Japanese colleagues. It’s good to know that there are others who understand the same field as me.

2: Three experiences stand out to me. First, I really enjoyed how professional everyone was, especially the JUACEP program. Second, I really enjoyed the opportunity to work in a Japanese lab. Third, the public transportation in Nagoya and the rest of Japan is very fun and convenient.

3: I really enjoyed all of the opportunities that the Juacep program provided. I really enjoyed the field trip out to the Toyota plant. It was very inspirational for my work here in Nagoya. The engine building opportunity was also very fun and reward. Finally, I am still very amazed by the wonderful staff Juacep has employed. They are all very professional and nice.

4: I really enjoy the research I am doing and it was very fun working in a Japanese lab this summer. I believe it has opened my eyes and I am now very open in doing collaborations with Japan, especially Nagoya University, in the future. I also believe that the work here in Japan has also strengthened my skills as a materials scientist.

5: I really like our dormitory. It is close and convenient. The only complaint I have is that the gender rule from allowing visitors. However, I do understand that there is potential legal issue so it is something out of the Juacep control. Maybe it is also a cultural difference that I am not aware of.

Justin Wang

1: I've learned how to make carbon fiber plates using the VARTM method from my TA. The equipment in Nagoya University is newer and more numerous than what we have available at UCLA.

2: Exploring Japan was fun. I've been for Kyoto, Osaka, and Tokyo in addition to around Nagoya. While only a few days were spent outside of Nagoya, my friends and I saw a few festivals and many famous locations. We ate good food as well.

3: The engine assembly workshop was a great experience and I learned a lot. The Japanese language course was too short and unfortunately I couldn't learn as much as I wanted. It's better if students study Japanese before coming to Japan.

4: I am still set on obtaining work in the aerospace field after graduate school, as opposed to continuing study and research to obtain a PhD.

Le Nguyen Khoung Ninh

1: I have obtained consistent results with the previous study. I am analysing the data of the new study and will bring out the conclusion before the end of the study.

2: I really enjoy staying in Japan. Aside from studying, I have learned a lot about Japanese culture and visited some places here. I wish I can come back to Japan and stay for a longer time.

3: I have learned about the experimental methods in investigating the near-field liquid flow. I have used one of the methods developed by Prof. Kenji Fukuzawa's group to study the viscoelastic properties of liquid lubricant confined in nanoscale gaps.

4: Learning a new experimental technique and the background study of the research has broadened my knowledge and my skills in conducting researches. Everything I have learned during this program will certainly be helpful in obtaining a job in the near future.

Owen Suyuan Liang

1: During my research in Japan, I gained more SEM experience. One big benefit of Japanese universities is the amount of high quality equipment, such as SEM, and I took advantage of that. I also made STM tips to measure the resistivity of CNTs. While this will not affect my current research in the States, I believe knowledge of such a process may lead me to get trained to use a STM. Throughout my daily life in Japan, I got to improve my Japanese. I took Japanese classes before and to actually use it in a real-life setting was very rewarding.

2: Before coming to Japan, I was fascinated by the food and thus I geared my trips to taste the various local cuisines. The first few weekends, my group stayed in Nagoya and had local specialties such as hitsumabushi, misokatsu, tenmatsu, etc. Soon after, we went to Kyoto and Osaka to experience the shinkansen. Luckily, we went at the time of the Gion Festival in Kyoto and got to experience the multiple food stalls. We were amazed at the amount of people and the fact that a whole street had to be closed down for such an event. We saw historic sites such as Kyomizudera, Ryoanji, and Kinkakuji. Later on, we even went to the Nagoya Sumo Tournament, Osaka aquarium, various castles in Nagoya, Ueno-Iga, and Oogaki, etc. We also saw many firework shows that dwarf the American equivalent.

3: The main part of JUACEP was the research, but it also included some other events. The big event held by the JUACEP office was a tour to the Toyota factory, the JR Train

Museum, and in the evening, Ukai Fishing. I was amazed at the accuracy of the various welding robotic arms at the Toyota factory that actually spot welded various different models of Toyota. The JR Train Museum was uniquely interesting for me because I got to test out the shinkansen simulator which allowed me to test drive the newest model of the shinkansen (N700). The Ukai Fishing was interesting to see as I never had seen fishing quite like it. Ukai fishing is a method of using cormorant birds to swallow fish and regurgitate them out. The next event held by the program was disassembling and re-assembling a small gasoline-powered engine. This engine had one horsepower and originally was made to power a propeller for a RC plane. It was an interesting experience for me because I never took apart an engine before.

4: The SEM experience I gained will help in my future career and my current research back in the States. By future career, I can image many companies that value microscopy experience. For my research, as mentioned earlier, my Professor was thinking about training someone in my group for STM and perhaps this experience will allow me to get trained on such a machine. In addition, research topic on carbon nanotubes is closely related to my current research topic on graphene in the US. The reason I choose Saito Lab group in Nagoya University was for that purpose. I wanted to expand my knowledge base to beyond just graphene and in general, novel carbon materials.

5: I found this program very useful. A couple of things that could be improved upon: I really enjoyed the program events and wished there were more. I also found the payment date very inconvenient for my group. We leave the 23rd of August but will get paid on the 19th so money was tight up that point.

Yaodong Wang

1: Solution growth of single crystal 4H-SiC. Using Top Seeded Solution Growth method, nearly thermal equilibrium, to grow 4H-type silicon carbide, which is a promising wide bandgap semiconductor for future power devices. It is known that SiC is suffered with myriad of dislocations, which degrades the device performance significantly. By using solution growth methods, dislocations on the surface of SiC can be significantly reduced. Specifically, I study by adding third element into the solvent expecting to observe dislocation conversion on the surface.

2: First and foremost, the JUACEP program provides the excellent opportunity for

UCLA students to conduct research at Nagoya with sufficient funding to cover their living expenses. Also, during the stay at Nagoya, there are a series of organized field trip to Toyota etc. In addition, labmates from each individual lab are always very helpful and friendly to our summer research students. Their considerable help reduces our language barrier significantly. From my personal perspectives, I have learned and had experiences of a variety of experimental instruments and techniques including Nomarski Microscope, Confocal Laser Microscope, EBSD, X-ray rocking curve measurement and TEM. In all, this program has achieved my great personal satisfaction.

3: By adding the third element into the Si-C-X solution, it is expected to observe dislocation conversion on the carbon face. Samples have been prepared by using Top Seeded Solution Growth method (TSSG) and epilayer was grown on the 4H-type SiC seed crystal substrate. The epilayer thickness was measured and growth rate was calculated. Cross-sectional TEM samples were prepared by Ion Milling method to observe dislocation conversion. And surface etching was conducted to observe dislocation density.

4: The experience at Nagoya University shall help my job exploration in Japanese companies in U.S. I have intention to pursue a high-tech related job. And Japan has a variety of high-tech companies across the world. I hope that the summer internship I have at Nagoya will have positive effect on my job research of Japanese companies.

5: People at Nagoya University are always helpful and friendly to me. I have received considerable help from university wide to research lab. I have sincere appreciation that Nagoya University funds my tuition and living expenses for my stay in Japan. Along the way, I received considerable help from my lab mates. Without their help I could not able to conduct my own experiments. In all, I am truly grateful for this summer internship program.