

***Short Summer Training Program for Students between
UESTC&UEC***

On 16th July to 11th August 2010 in UEC

Period: 4 weeks from 16th July to 11th August 2010.

Location: Department of Mechanical Engineering and Intelligent Systems of UEC.

1-5-1 Chofugaoka, Chofu-shi, Tokyo 182-8585, JAPAN

UEC Supervisory staff:

Professor Hisayuki Aoyama (aoyama@mce.uec.ac.jp)

Associate Professor Amigo Ming (ming@mce.uec.ac.jp)

Doctor Chunquan Xu (xu@rm.mce.uec.ac.jp)

UESTC Leader

Mr. Ren Yuzuo (Engineer of Institute of Astronautics and Aeronautics of UESTC)

Numbers of students for the training program:

Three students from UESTC (Institute of Astronautics and Aeronautics) were invited to live on UEC campus and they accepted some training assignments about robot mechanotronics from Professor Aoyama.

Program agenda:

In this training program, students from UESTC should assemble a robot arm at first, and then they should use a kind of special software to make the robot arm to write some beautiful Chinese characters with a writing brush. At last, they discussed with Japanese students about underwater robot in Assistant Professor Ming's Lab.

1st week:

- Adapting the life style in Japan and UEC/Lab.
- To connect PC with the Internet of the campus.
- Attending Opening-Campus Ceremony.

2nd week:

- Assembling the robot arm in the lab of UEC.
- Be invited to attend a symposium by Professor Kajitani, President of UEC, and Professor Fukuda, Director of International Exchange of UEC.

3rd week:

- Using the software to control the robot arm to write some Chinese characters.
- Visiting Associate Professor Ming's Lab and discussing with Japanese students about underwater robot.

4th week:

- Finished the report with photographs and videos.
- Attending Graduation Ceremony and Visiting the City of Tokyo.

Summary

During this one month's studies in UEC, students from UESTC have done some specific practice in the field of robot mechanotronics controlling which are not available in Chinese Universities and grasped some theories that applied to the underwater robot.



From the right side to the left side

Mr. Li Anjing

Institute of Astronautics and Aeronautics of UESTC

Mr. Wu Yingzhe

Institute of Astronautics and Aeronautics of UESTC

Mr. Ren Yuzuo

Engineer of Institute of Astronautics and Aeronautics of UESTC

Mr. Xu Ning

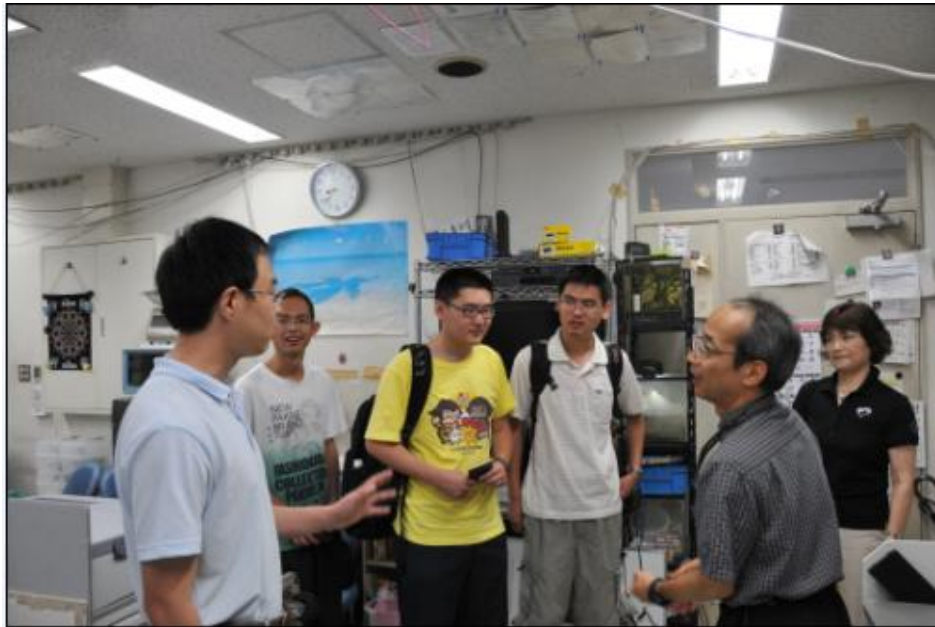
Institute of Astronautics and Aeronautics of UESTC



Communicating with Japanese students on Opening-Campus Ceremony of UEC



On the campus of UEC



Discussing with Professor. Aoyama, Department of Mechanical Engineering and Intelligent Systems of UEC.



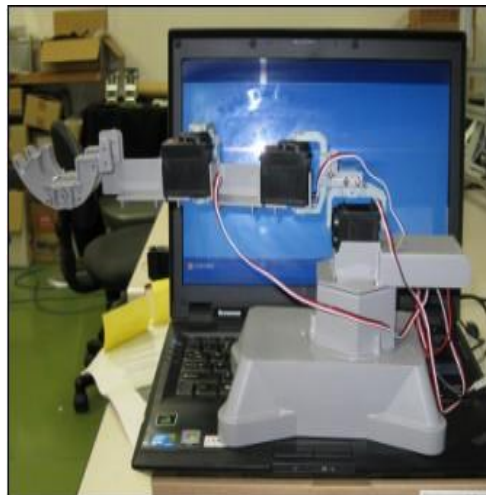
Communicating with Professor. Kajitani, President of UEC.



Three students from UESTC for the short summer training program and their group leader Mr. Ren had a photograph with Professor. Kajitani, President of UEC, Professor. Fukuda, Director of International Exchange of UEC, Associate Professor. Ming, Department of Mechanical Engineering and Intelligent Systems of UEC, and Doctor. Xu, Department of Mechanical Engineering and Intelligent Systems of UEC.

(1) Assembling the robot arm

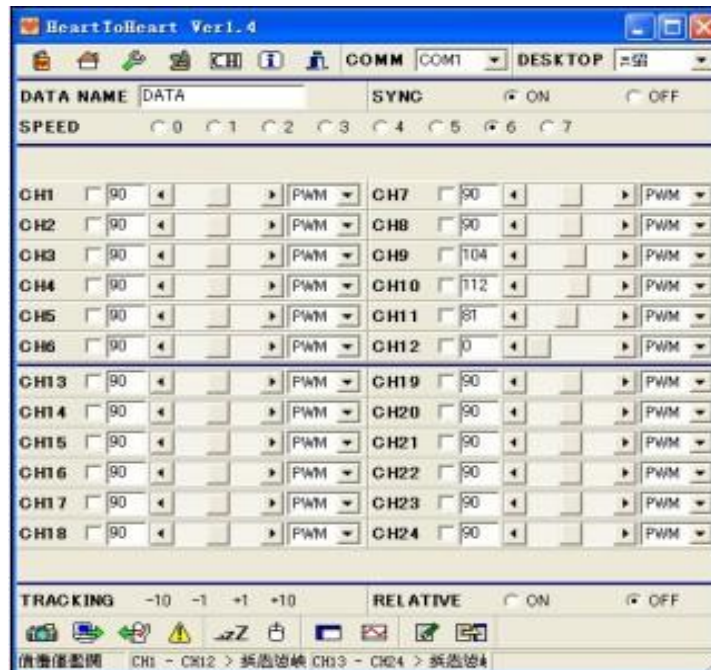
The robot arm should be assembled by the students at first.



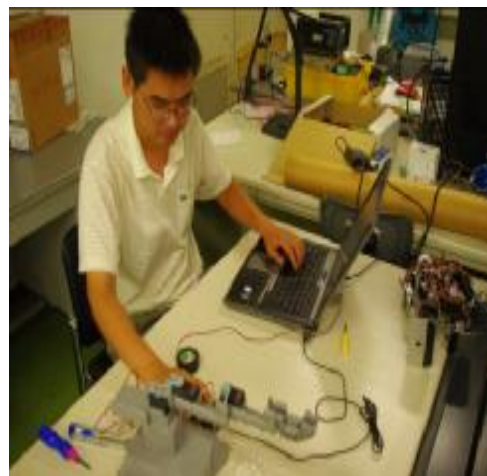
The students are assembling the robot arm in the lab of UEC.

(2) Using the software to control the robot arm

A special kind of software that can adjust the dutyfactor of PWM wave should be utilized for controlling the movement of the robot arm. And thus, it can make the Rudder to whirl an expected angle. So it is possible to write some beautiful Chinese characters with the robot arm.

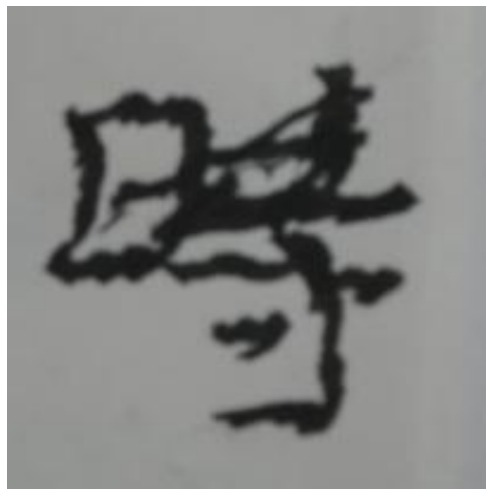


The software that is used to control the movement of the robot arm



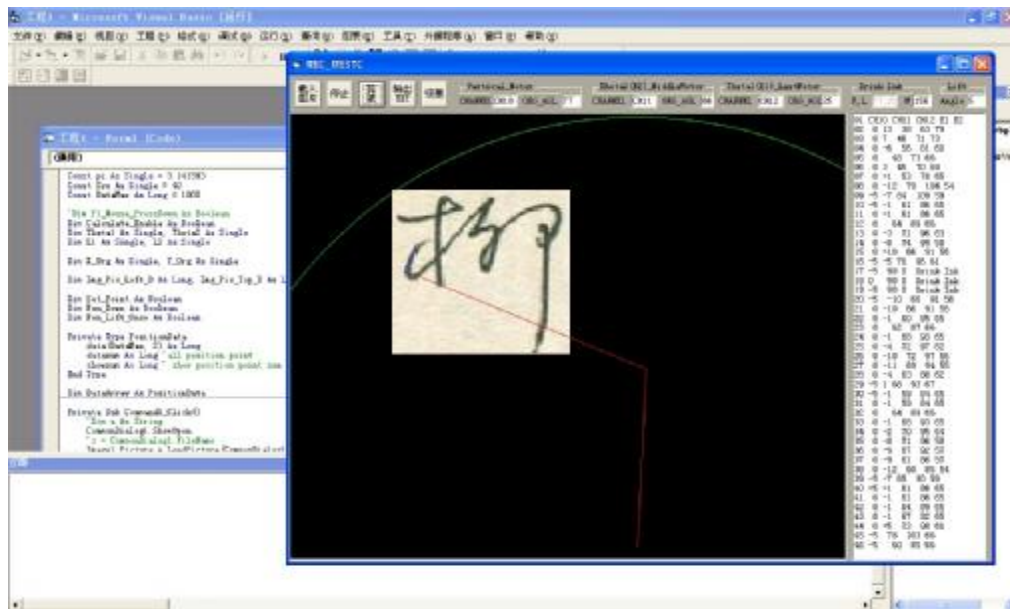
Using the software to control the robot arm.

Firstly, they tried to trace and describe the points of a Chinese word by controlling the robot arm. But the result seemed not very well.

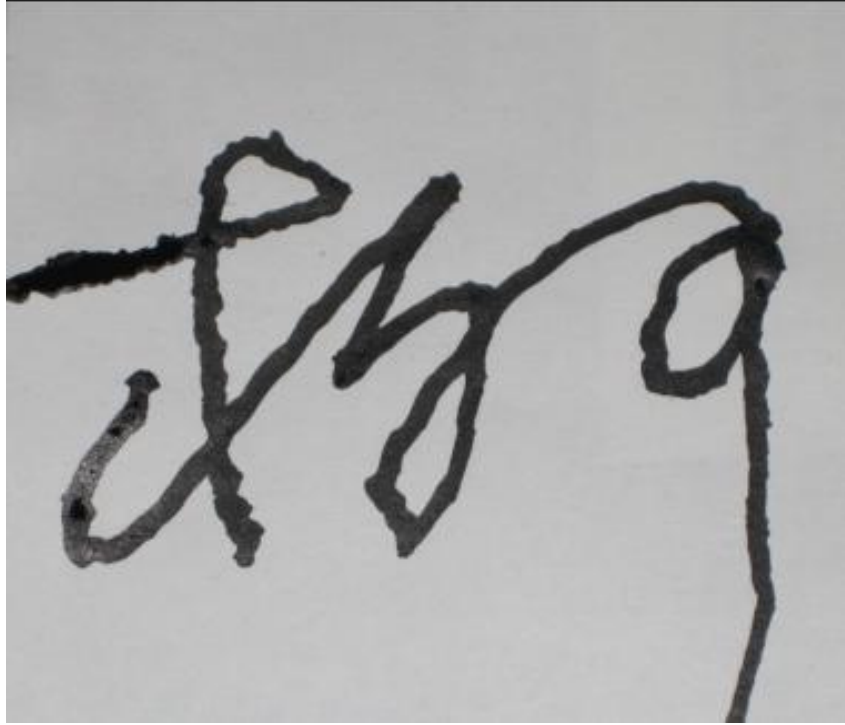


A Chinese character written through the method described above by robot arm.

In order to write beautiful Chinese characters, the students programmed a kind of software which has the function of building a mathematic model at first and then simulating the movement of the handwriting of a Chinese word with Visual Basic 6.0. So it could make the task easily. The following pictures are the software programmed by the students and a Chinese character written through the method described above by the robot arm.

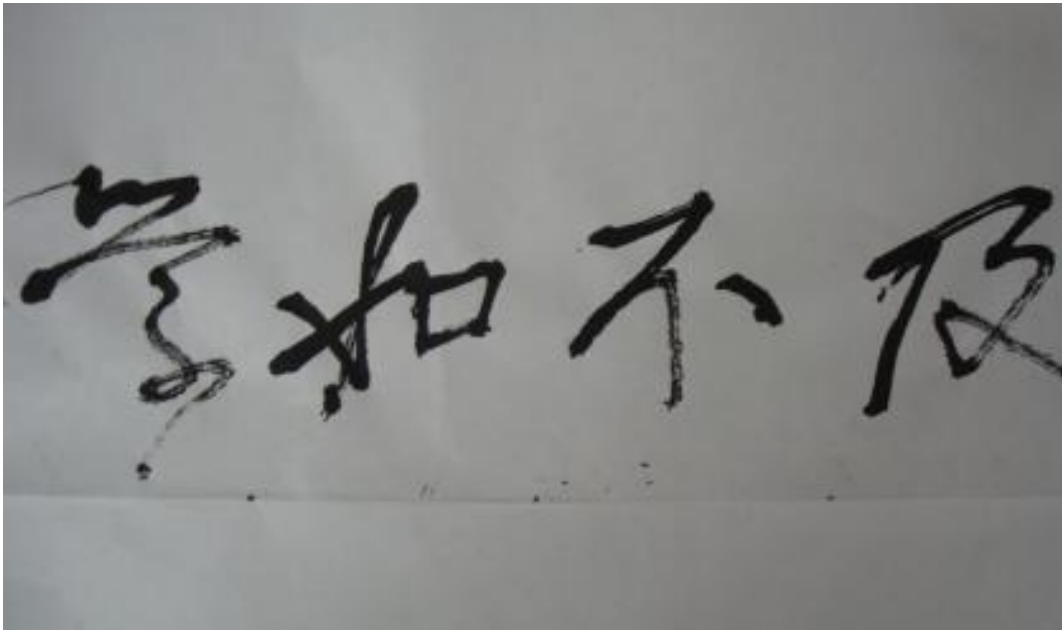


The software programmed by the students.



A Chinese character written through the method described above by robot arm.

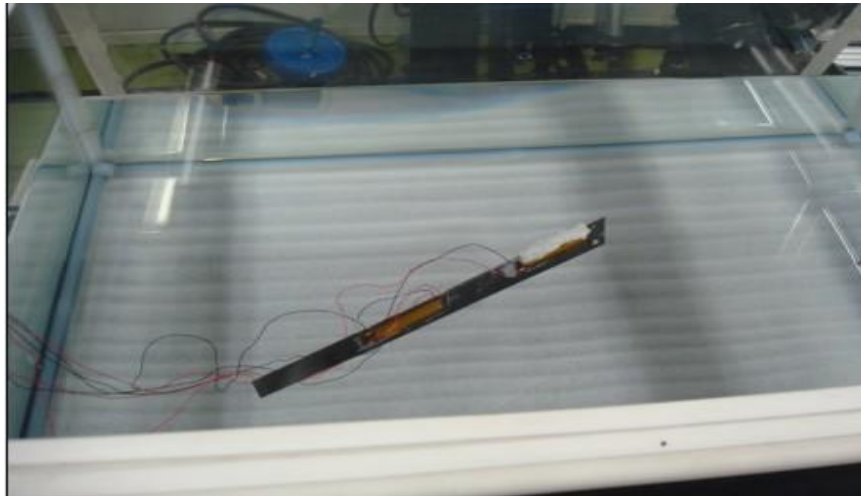
Finally, the students have finished their work.



Beautiful Chinese characters written with a writing brush.

(3) Visiting Associate Professor. Ming's Lab

The students from UESTC are very interested in the research of underwater robot, so they went to Associate Professor. Ming's lab and discussed with Japanese students about underwater robot. At last, they made a simple underwater robot. The following picture is the underwater robot made by students of UESTC.



The underwater robot made by MFC (Macro Fiber Composite)



Discussing with Japanese students about underwater robot.

(4) Attending Graduation Ceremony hold by UEC

At the last week, students from UESTC attended a graduation ceremony hold by UEC.



Students from UESTC have finished their studies in UEC.



Three students from UESTC had a photograph with Professor. Fukuda, Director of International Exchange of UEC, Professor. Aoyama, Department of Mechanical Engineering and Intelligent Systems of UEC, Associate Professor. Ming, Department of Mechanical Engineering and Intelligent Systems of UEC at the graduation ceremony.



Mr. Xu's Comment:

I'm honored to take part in the Short Summer Training Program for Students between UESTC and UEC in the most passionate season of Japan.

The clean and quiet campus, the patient and kind Japanese friends surprised us when we first arrived in UEC. Besides, we are grateful for the so comfortable accommodation and good service UEC offered.

In the earlier period, we controlled the arm-robot which was assembled by ourselves firstly to write beautiful Chinese characters successfully with the directions of Professor Hisayuki Aoyama. Later, a simple experiment about underwater robots was done with the directions of Professor Aiguo Ming and the help of Shintake. During this program, Doctor Xu, Department of Mechanical Engineering and Intelligent Systems of UEC, Herosa and Jimbo, graduate students of UEC, showed us around many wonderful places including the bank of Tamagawa River where a wonderful fireworks show was held, the lovely and scenic Odaiba, some world famous busy towns such as Shinjigu and Akihabara.

During the trip, the clean streets, the citizens with good manners and the humanization design gave me much impression. Although the streets are narrow, the traffic is good because everyone obeys traffic rules. We often see a road which is under construction in the night when the traffic is not so heavy is paved and covered with cars already in the morning. One side is the obedience of rules and the other is making regulations properly. Thus, a civilized and harmonious Japanese society is formed. That is worth studying.

At last, I want to express my gratitude again to both UEC and UESTC for giving me the chance to participate in this Short Summer Training Program for Students between UESTC and UEC.



徐宁的感想：

在日本最热情的七八月份，我有幸参加了电子科技大学和日本东京电气通信大学（UEC）的暑期交流活动。

初到东京电气通信大学（UEC），整洁幽静的校园，热情细心的日本朋友给我留下了深刻的印象。在此，特别要感谢电气通信大学（UEC）给我们提供了舒适的住宿和周到的服务，让我们能够在交流期间安心地完成活动任务。

在交流活动的前期，我们在青山教授的指导下完成了机械手的组装，并根据要求完成优美汉字的书写。后期，我们在明教授的指导和新竹同学的帮助下对他们正在进行研究的水下机器人进行了了解。期间，电气通信大学（UEC）教师许博士和日本同学神保，广濑陪我们观看了调布令人惊叹的烟花晚会，游览了风景优美的台场港湾，领略了繁华的新宿和秋叶原。

此次交流活动中给我留下深刻印象的是日本干净的街道，彬彬有礼的普通市民，细腻人性化的居住设计。街道虽然不宽，但是人人遵守规则，交通非常流畅。交通稀少的晚上，常常看到正在施工的道路。基本上是晚上道路挖开施工，早晨已经把那段路铺平通车了，如此高效和合理的建设步骤令人佩服。一方面是规章制度的严格执行，另一方面是规章制度的合理制定，如此，一个文明和谐的日本社会得以形成。这方面值得我们借鉴学习。

最后再次感谢学校能给我这样一次宝贵的机会参加与日本电气通信大学（UEC）的暑期交流活动。



Mr. Li's Comment:

One month's exchange learning activities will be over. It's my honor to be one member of this exchange project, to study in UEC of Tokyo. In this month, I have a good time which will be the most precious in my life.

On life aspect, the university has offered us comfortable accommodation apartment. The teachers and the students of UEC are very friendly. The students who come from Professor Aoyama's and Professor Ming's laboratories provided us a lot of help for adapting the life styles in Japan. We can't speak Japanese very well, so they took us visiting the view sight, going shopping, eating in the Japanese restaurant and so on. In this month, they invited us to take part in the fireworks of Chofu City. I think all of us had a wonderful night. And we also climbed the Mt. Fuji together. So many other things also gave us deep impression, and they will change my view of the world.

On learning aspect, the school has provided us many convenience conditions. In the project, Professor Aoyama gives each of us a set of arm robot. We must built it first, then use this robot to take the brush to write some Chinese words. After finished that, we went to Professor Ming's laboratory to study the underwater robots. In the lab, we used some piezoelectric materials (MFC) to make one underwater robot by ourselves. It's a good experience for us to take part in those projects.

In this month, I have received a lot of wonderful memories. Finally thanks again, it's my honor to have this chance to study in UEC of Tokyo.



李安静的感想:

在日本东京电气通信大学（UEC）一个月的交流学习活动将要结束，很荣幸作为暑期交换生的一员，能够到东京电气通信大学（UEC）交流学习。在电气通信大学（UEC）的一个月的生活，将成为我人生中最宝贵的回忆。

生活方面，学校提供了舒适的住宿环境。这边的老师和同学都很友善。青山教授和明教授实验室的学生在生活上给我们提供很多帮助，使我们迅速的适应了在日本的生活。周末带我们观看了调布市的烟火晚会，去秋叶原购物，去富士山爬山...在日本的生活需要多听、多看、多想，虽然只有短短的一个月，但是却让我体验了一下留学生的生活。时间虽短，但足够我从个人的角度去感受，去体验了日本不一样的文化，也改变了我对很多事物的看法和观念。

学习方面，学校为我们提供了很多学习材料。青山教授给每人提供了一套手臂机器人。我们利用实验室现有设备完成写字机器人任务。之后，到明教授实验室学习水下机器人。用实验室提供的压电材料（MFC）自己动手制作了一个水下机器人。这些经历，我相信会对我以后的研究产生很多帮助。

在这一个月的学习生活经历，给我留下了很多美好的回忆。最后再次感谢学校能给我这样一次宝贵的机会参与与日本电气通信大学(UEC)的暑期交流活动。



Mr. Wu's Comment:

It is an honor for me to participate in this Short Summer Training Program for Students between UESTC and UEC as a graduate student of Institute of Astronautics and Aeronautics of UESTC. I think this one month's experience in Japan will become the precious wealth for me in the future.

Just only one month's life in Tokyo, I have been deeply impressed by Japanese people, such as abiding by the social rules, hard working and infinite passion for their lives.

During the time in UEC, I have learned something valuable. Firstly, I had the chance to attend the Opening-Campus Ceremony of UEC 2010. From this opening-campus ceremony I have observed the way of choosing colleges and the major subjects for high school students in Japan. And more and more high school students could accumulate lots of information about the college which they would expect to join in, such as the number of major subjects offered by the college, the specific research about each major subject, related courses of each major subject and employment rate of each major subject. Then, the volunteers of UEC accompanied with the students to visit each lab of the college and the students could learn more about the major subject they are interested before get into the college. Secondly, with the directions offered by Professor. Aoyama, we have assembled a robot arm and programmed a kind of controlling software to make the robot arm to write some beautiful Chinese characters. Finally, we visited Professor. Ming's underwater-robot lab with Japanese students and made a simple underwater robot with MFC offered by the lab.

UEC has offered us comfortable apartment. The room is decorated with water heater, air conditioning, refrigerator, micro-wave oven, induction cooker, water bottle and automatic washer. It has brought us lots of benefits during the lives in Japan. Meanwhile, Professor. Aoyama, Professor Ming, Doctor. Xu and the students of UEC offered us much assistance. With their help, we had visited Odaiba, Asakusa, Mount

Fuji and Tokyo University, the best university of the whole Asia. And we also went shopping in Ginza, Akihabara and Shinjigu on our free time with our Japanese friends. We were invited to participate in the fireworks of Chofu City near Tamagawa River on the weekend. Although the time in Japan was limited, it could let me to appreciate the long history and the traditional culture of Japan. As I suppose, it will be helpful in my later study and work.

At last, I want to express my gratitude again to both UEC and UESTC for giving me the chance to participate in this Short Summer Training Program for Students between UESTC and UEC.



吴瀛喆感想：

作为电子科技大学空天科学技术研究院的一名研究生，我非常荣幸地参加了电子科技大学与日本东京电气通信大学（UEC）的暑期交流活动。在日本一个月的所见所闻势必会成为今后人身的一大宝贵财富。

短暂的东京生活期间，我看到了普通日本人民对规章制度的严格遵守，看到了普通日本人民对工作的认真负责，看到了普通日本人民对生活的极高热情。

在电气通信大学（UEC）学习交流的一个月中，本人收获颇丰。首先，有幸参加了电气通信大学（UEC）平成 22 年度校园开放日活动，在该活动中，我了解到日本高中生是如何选择自己将来所要报考的大学及专业。通过校园开放日活动，更多的中学生可以了解到该大学的专业设置，研究方向，课程配置以及就业方向等诸多实质性内容。随后，中学生们在学校志愿者的陪同下参观学校的各个实验室，了解各个实验室的研究方向以及相关的研究成果，让自己能够充分了解该学校的各个专业，为以后的报考做好充分完善的准备。其次，在青山教授的指导下完成了机械手臂的组装并通过编制相应的控制软件程序使机械手臂写出漂亮的中文汉字。最后，在日本同学的陪同下，参观了明教授的水下机器人实验室。并利用实验室提供的压电材料（MFC）自己动手制作了一个简易的水下机器人。

生活方面，电气通信大学（UEC）提供了舒适的留学生公寓。室内配有热水器，空调，冰箱，微波炉，电磁炉，电热水壶以及全自动洗衣机，这给短暂的异国生活带来了极大的方便。与此同时，电气通信大学（UEC）的青山教授，明教授，许博士以及实验室的日本同学在生活上给予了我们大量的帮助。在他们的陪同下，我们利用业余时间参观游览了台场港湾，浅草寺，富士山等旅游景点；瞻仰了亚太地区排名第一的东京大学；去银座，秋叶原，新宿的大型商业中心购物；观看了调布市一年一度的烟火晚会。时间虽短，但足以让我从个人的角度去体验日本悠久的历史文化，这些对我今后的学习和工作都是很有帮助的。

最后再次感谢学校能够给予我参加与日本电气通信大学（UEC）暑期交流活动的宝贵机会。