

Saitama University  
Graduate School of Science & Engineering  
International Graduate Program on  
**Renewable Energy System Engineering**

## Greetings

Since RESE International Graduate Program (Doctoral Course) at Saitama University has been launched in 2019, we have received numerous inquiries from overseas students about the program. The admission with the MEXT Scholarship for 2020 has been highly competitive. After the tough selection process, we are expecting to receive new students in October 2020.

In this Spring 2020, due to the COVID-19 pandemic, SU has decided to postpone the start of the classes for two weeks and to conduct all lectures via remote learning for the time being. This situation has been the first time ever and all the faculty, students and other staff members had to find the way to keep the academic environment as much as possible. It is not easy for everybody but we are sure that, some day in future, this experience will guide us to create a better world.

This time, in RESE newsletter Vol 2, we would like to introduce students who are working hard on their research at SU. We are wishing their continuous success in their research and at the same time, this will encourage the students who wish to pursue higher education at SU in Japan in near future.



## What's new

### Institution Visit

On 4th December 2019, RESE Program Members visited SAITEC (Saitama Industrial Technology Center) and learned about the important role of this institution.

SAITEC is a public research organization for industries administrated by Saitama Prefecture. It was established in 2003 to promote the development of small and medium sized enterprises through industrial technology and contribute the quality of life in Saitama Area.

We have visited the facilities such as 'Color & Multi-Material 3D printer', Non-Contact 3D Scanner', Environmental Test Chamber' and 'Industrial X-Ray CT Scanner'. SU students can use SAITEC facilities for their research as well. Please ask your supervisor for the arrangement.



Saitama Industrial Technology Center  
3-12-18 Kamiaoki, Kawaguchi, Saitama  
Phone:048-265-1311  
<https://www.pref.saitama.lg.jp/saitec/index.html>



### New School Leaders

Since April 2020, **Dr. Takafumi Sakai** has been assigned as the 13<sup>th</sup> President of Saitama University. He was the former Dean of Graduate School of Science and Engineering at SU. **Dr. Hideki Kurokawa** has been assigned as the Dean of Graduate School of Science and Engineering.



# FEATURE of RESE STUDENTS

In this Newsletter Vol. 2, we would like to introduce our excellent members of RESE International Graduate Program. They are hard-working and diligent students, contributing themselves to their research in each lab everyday. And at the same time, we do hope they are enjoying living in Japan with many unforgettable good experiences. We wish their future success and happiness both in their school and private life.

‘Minasan Ganbatte Kudasai !’

(Wishing your success, everyone!)

\*The profile menu is as shown here. ⇒



## PROFILE DATA

### Abdul Kuddus

- 1) Bangladesh
- 2) University of Rajshahi
- 3) Prof. Hajime Shirai
- 4) Doctoral Course in Materials Science
- 5) Oct. 2019

## RESEARCH

### *Research Subject:*

Atomic Layer Deposition and Mist CVD of Metal Oxide Films for Solar Cell and Thin Film Transistor

### *Summary:*

The objective of this research is to develop the Metal Oxide Films by Atomic Layer Deposition and Mist CVD technique to be used as gate insulator for mist CVD deposited 2D material based Field Effect Transistor (FET). To achieve the TFT applications, Mist CVD-2D films are grown on high-dielectric-constant metal oxide film deposited using both ALD and mist CVD technique. Thereafter, comparative performance of the fabricated devices will be studied. Due to the thermal stability and flat surface of the substrates, Mist CVD deposited 2D material particularly MoS<sub>2</sub>/MoSe<sub>2</sub> deposited on SiO<sub>2</sub>/AlO<sub>x</sub> substrates.

## IMPRESSION of SU & JAPAN

Saitama University is one of the famous University in Japan with lot of international students. This University offers good facilities for all students such as library, cafeteria, and gymnasium along with excellent research environment. Japanese people particularly people in SU are so cordial to help in any manner; they are very polite, disciplined, helpful and hardworking. I am very thankful to all in SU, supervisors, office staffs, lab mates, technicians, neighbors of my international house and so forth. They always have maintained an amicable smile with every overseas student. Moreover, the life in Japan is highly secured and interesting.



## PROFILE DATA

### Hasan Mahmudul

- 1) Bangladesh
- 2) University of Rajshahi
- 3) Prof. Yoshinori Kobayashi
- 4) Doctoral Course in Informatics & Computer Sciences
- 5) Oct. 2019

## RESEARCH

### *Research Subject:*

Human Computer Interaction

### *Summary :*

To cope up with the considerations of privacy and low computational cost over video cameras we are trying to develop a sophisticated person tracking system based on LiDAR sensor.

We are planning to enhance this research to estimate persons' gender and height based on this sensor data. We are also working to develop our own algorithms for tracking and clustering to make the system more robust and effective.

Gait analysis based on LiDAR data will be our main goal and we will impose these techniques on a service robot.



Fig: LiDAR Based Person Tracking

## IMPRESSION of SU & JAPAN

Saitama University is a very green and colorful university with dignified faculties and notable alumnae. The university has a clear mission and vision. It has very good impact on society and nation. I am so happy to get the opportunity to start my PhD journey in this university. My life in Japan is going very smooth. Peoples are very helpful and kind I have ever seen. Japan is a place of natural and artistic beauty in its every prefecture. I believe every overseas student will enjoy the life of Japan.



#### PROFILE DATA

### Aie Su Su Kyi

- 1) Myanmar
- 2) University of Computer Studies, Mandalay
- 3) Prof. Tetsuya Shimamura
- 4) Doctoral Course in Informatics & Computer Sciences
- 5) Oct. 2019

#### RESEARCH

*Research Subject* : Speech Signal Processing

##### Summary:

My research area is related to signal processing. I am particularly interested in speech signal processing. Especially bone-conducted speech signal analyzing. My research goal is to obtain clear speech which is nearly the same as normal speech using bone-conducted speech.

I am currently studying about different analyzing methods for speech signal. I am also trying to test these methods by applying them to some speech signals. I hope to be successful someday and my research will be applied in the real world where it can make people's lives easier.

#### IMPRESSION of SU & JAPAN

The main reason I chose to come to Saitama University is because it has a great reputation for Engineering. I am really enjoying studying here. My supervisor has been very helpful and encouraging. The other teachers and students have also been kind and supportive. I can easily find what I need to do my research in the laboratory and the campus is convenient and comfortable.

I am thrilled to be furthering my education in Japan where the technology is of such a high standard. I am also looking forward to learning more about Japanese culture and improving my Japanese ability.



#### PROFILE DATA

### Shwe Yee Win

- 1) Myanmar
- 2) University of Computer Studies, Yangon
- 3) Prof. Takashi Komuro
- 4) Doctoral Course in Informatics & Computer Sciences
- 5) Oct. 2019

#### RESEARCH

*Research Subject* : Image Processing

##### Summary:

In our system, we reproduce appearance of real object by obtaining shape and reflection characteristics using handheld camera. This system consists of two markers, handheld camera and spherical camera. The target object is placed on turntable and shoot multiple viewpoints of image with handheld camera while rotating object.

In addition to, only a single light source is used for reflection characteristics and for environment map light source information is acquired by acquiring the surrounding environment using a spherical camera. Finally, the quality of shining by reflecting light of real object is reproduced by rendering object using reconstructed 3D shape and estimated reflection characteristics.

#### IMPRESSION of SU & JAPAN

I would like to describe my reasons why I choose Saitama University to study in Japan. Saitama University is a famous university in Japan and many foreign students are studying for their education. So I have the opportunity to not only receive high-quality education but also experience everything from traditional arts, crafts, sport and music. This university owns very clean and hygienic campus with good facilities for research environment. And, I believe safety should be one of the top considerations. Japan is considered one of safest countries in the world. Moreover, studying abroad in Japan is one of my dreams.



#### PROFILE DATA

### Su Wai Tun

- 1) Myanmar
- 2) University of Computer Studies, Yangon
- 3) Prof. Takashi Komuro
- 4) Doctoral Course in Informatics & Computer Sciences
- 5) Oct. 2019

#### RESEARCH

*Research Subject* : Augmented Reality for Surgery Assistance

##### Summary:

As we have known Augmented Reality (AR) has grown in many research areas. In medical AR field, medical imaging data and patient information on the operation area can be provided by AR technology during surgery. Visualization of medical data with AR has the advantages that registration can be automated and dynamic data can be displayed live. The research that I am conducting is 3D deformable medical image registration. The objective of the research is to visualize the 3D structure of organs including its surface and internal structure, which are obtained separately. The research can assist the surgeon for his or her surgery as surgery assistance.

#### IMPRESSION of SU & JAPAN

As the green color that represents Saitama University (SU), SU's campus is peaceful with lush greenery. And research themes of the faculties individually are not only sophisticated but also interesting. Moreover, teachers can guide and support in our research, and students including Japanese, international students, are kind and helpful to each other. In our lab, lab mates unite under our supervisor's smart and kind supervision. In this University, there are Japanese language classes that arrange for International students. In these classes, we can learn Japanese language and culture with the enjoyable and interesting teaching of our Japanese Language teachers. So, I am very glad about getting an opportunity not only to conduct my PhD course at this University but also to learn modern technologies and Japanese culture. I trust every international student will enjoy studying at Saitama University.





### PROFILE DATA

## Dinh Thai Bao

- 1) Vietnam
- 2) National Taipei University of Science & Technology
- 3) Prof. Tatsutoshi Shioda
- 4) Doctoral Course in Electrical & Electronic Systems
- 5) Oct. 2019

### RESEARCH

#### Research Subject:

Single Shot Interferometer for Profilometry and Tomography

#### Summary:

My main background is in optical metrology where I research and develop the optical system to detect the tiny samples in very high precision. My research view was widening when I joined the Shioda laboratory at Saitama University. The product made by the lab is really useful with high precision and stability. Currently, I am developing a new generation of a visible light source. It will be a new approach in the metrological tool.

### IMPRESSION of SU & JAPAN

I came to Saitama University last autumn which is the most beautiful season in Japan, in my opinion. My first impression about Saitama University is the green campus where the research buildings are surrounded by full of trees in blossom. My friendly Japanese friend took me to walk through the campus and went to my room in the dormitory. It is a comfortable room with full equipment which relieves all of my concerns when moving into a new country. After one year, I really made familiar with this place. Now, I can focus on my research in a professional environment. I will enjoy life here and try to more research achievements.



### PROFILE DATA

## Nguyen Xuan Cuong

- 1) Vietnam
- 2) National University of Civil Engineering, Vietnam
- 3) Prof. Yoshio Arai
- 4) Doctoral Course in Mechanical Engineering
- 5) Oct. 2019

### RESEARCH

#### Research Subject:

Predicting the Fatigue Damage in Type III Filament Wound Carbon Fiber – Reinforced Plastic Composite Pressure Vessel

#### Summary:

Composite pressure vessels have found widely use in industrial, commercial, research and defense applications because of their higher efficiency, better resistance and lighter. These vessels are designed to store gases and liquids in industries and transportations. The composite pressure vessels are often designed to be pressurized to above 1.5 times the maximum in – service pressure, any reason leading to the burst of the vessel must be prevented. Fatigue damage can occur due to the repetitive loading that may be smaller than the yield stress of material. The fatigue process begins with initial flaw where stresses are concentrated, then a crack is formed. Over the number of cyclic loads, the crack propagates rapidly as well as the accumulation of damage. As a result, the vessel would be failed by the fatigue damage. There is no technique available allows an evaluation of minimum residual lifetimes of composite pressure vessels to be made, so a method to predict the life – span of the vessel under repeated load is necessary.

### IMPRESSION of SU & JAPAN

When I was a student at National University of Civil Engineering, I was taught by many professors studied in Japan, I told myself that one day I will go to Japan and broaden my knowledge, not only the academic knowledge but also the culture and living manner of the Japanese. Furthermore, Japan is one of the countries having the strong mechanical field in the world. As a mechanical engineering, this possible become a very good chance for me to improve my competence and fulfill my dream.

Now, I am a PhD student at Saitama University, the biggest University at Saitama province and one of the famous universities in Japan. The first time I came to Saitama University, I was impressed by its symbol at the gate. This symbol is very special and memorable because of its shape and meaning. After nearly a year studying, I see that Saitama University has adequate facilities and offers a good environment for students who want to study and research in Japan.

## Admission Schedule for RESE International Graduate Program

### ● Regular Admission April 2021:

Application deadline: November 1, 2020  
Notification of result: December 21, 2020  
Program begins: April 6, 2021

### ● Regular Admission October 2021:

Application deadline: April 15, 2021  
Notification of result: June 22, 2021  
Program begins: September 27, 2021

### ● Admission with MEXT Scholarship October 2021:

Application deadline: November 20, 2020  
Notification of result: March 15, 2021  
Program begins: September 27, 2021

Please check our website for details.  
<http://park.saitama-u.ac.jp/~rese/>



### CONTACT ADDRESS:

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