

Symposium on
the International
Student Education
Program

2021

Collaboration with
Indonesian Alumni

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Symposium on the International Student Education Program 2021

Collaboration with Indonesian Alumnus

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Preface

The International Student Association in Civil Engineering (ISACE) is an official student organization for international students at the University of Tokyo, Department of Civil Engineering. This was established on March 11, 2011, in the aftermath of the Great East Japan Earthquake, to promote togetherness and improve the safety of international students. This organization has been effective in bridging the gap between the department and students by organizing a variety of activities and events aimed at making students' lives easier and more fun. ISACE has hosted a variety of events, including a welcoming party for incoming students, field trips, and an international student conference. ISACE's international student symposium has remained a major event.

A symposium with a physical presence could not be organized this year due to the CoVID-19 pandemic. During this period, however, as people became more accustomed to online classes and gatherings, an online symposium entitled "Symposium on International Student Education Program 2021: Collaboration with Indonesian Alumnus" was successfully hosted on March 4, 2022. International students, including graduates from the civil department, took part in the discussion of the international student education program at UTokyo and shared their excellent experiences, including recent life and work experiences amidst the CoVID-19 pandemic. "FSO Update 10 (Symposium Booklet)" is a publication that contains the enlightening thoughts and experiences shared throughout the symposium.

We would like to express our sincere gratitude to Prof. Yoshimitsu Tajima, Head of the Department, for his opening remarks and Prof. Hironori Kato for introducing brief highlights of the International Student Education Program. We are grateful to Ms Yuriko Onishi from MEXT, Mr Hiroki Kasahara from ADB and Mr Masayuki Ohno from Shimizu Corporation for sharing their motivating thoughts and

expressing gratitude for the support these institutions provide for international students. We would like to extend our sincere thanks to Prof. Kenichi Soga for his valuable time and advice for international Student Programs from UC Berkeley Education. We were pleased to hear about the Indonesian alumni community from Dr Asih Sarli, and also to hear about the reflection of the International Student Program of the Department of Civil Engineering from Overseas by Dr Januarti Jaya Ekaputri and as working in Japanese Companies by Mr Masrur Ghani. We would also like to thank the participating students Kishor Timsina, Shi Ru Teng, Clint Chester Reyes and Alireza Tavana for sharing their study as well as research experience at UTokyo, during this pandemic.

We appreciate Asst. prof Daniel del Barrio Alvarez for leading the panel discussion titled "Expectations for the International Students Education Program in the Department of Civil Engineering." We express sincere thanks to Prof. Reiko Kuwano, Executive Committee Member, Department of Civil Engineering for the valuable closing remarks. We could not miss thanking Prof. Yoshihide Sekimoto for coordinating and facilitating the whole symposium from the beginning.

Finally, we'd like to express our gratitude to Civil FSO's Abe-ki-San and Tonegawa-San for their efforts, support, and continual direction, without which we would not have been able to publish this magazine.

With Sincere Regards,

Janak Prasad Kharel
Jiyue Guo
Zohaib Hassan
Zainab Farooq

From the Chair of Department

Prof. Yoshimitsu Tajima

Chair of Department



On behalf of all the faculty members of the Department of Civil Engineering, School of Engineering of the University of Tokyo, I would like to give brief remarks.

First of all, I would like to express our sincere gratitude to all the organizations and individuals who have supported our international student education program such as the Ministry of Education, culture, sports science and technology, Asian Development bank, Shimizu Corporation, Ueda Memorial foundation. Your supports in various aspects are essential to continue our successful international student education program. I would also like to thank invited guests, who will give lectures for this symposium.

Today, the first part of the symposium will focus on the review of our overall activities through the education program. I believe these reviews are essential not only to check and evaluate our activities but also to think about further modifications and improvements to the program. I also thank the invited lectures which must give us important insights, keys and ways forward for our future improvement of the program. After the reviews, short talks and lectures, I also hope that we can have good discussions for a better future.

Finally, I would also like to thank our colleagues and students who planned and organized this wonderful symposium. So, all the participants, let's enjoy the symposium.

Thank you again.

Part 1: Current Direction of International Student Education Program

Recent Status of International Student Education Program in the Department of Civil Engineering

Prof. Hironori Kato
 Foreign Student Officer



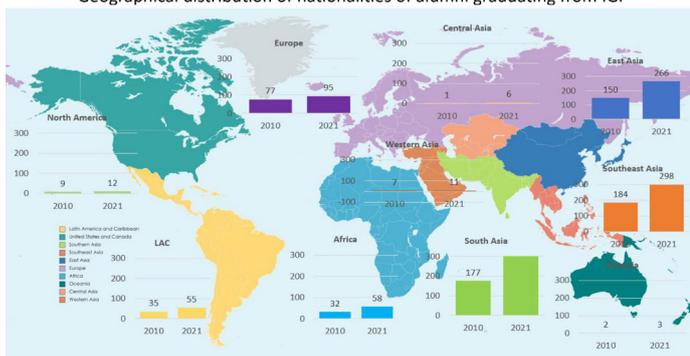
The International Graduate Program (IGP) of the Department of Civil Engineering, The University of Tokyo, is an integrated program covering both international and domestic students. It has a long history, which started from 1982, and over 1400 international students from over 70 countries have so far graduated from the program. As the IGP provides teaching courses fully in English, it has attracted many international students. Currently, over 30% of students in master's program and around 80% of students in doctoral program are international in our department.

The number of applications for the IGP during the past five years has shown an upward trajectory. Although the COVID-19 pandemic has influenced international applications, the competition is still high where only 7% of students won MEXT scholarship in the latest years in the IGP. Even if we include other scholarship programs, only 10% of applicants have successfully passed a screening process to join the IGP. Geographically, 42% of students are from South Asia, 23% are from East Asia, and 20% of students are from South-East Asia. Some students also joined from South/North America, Europe, and Africa.

are given by our professional teachers. They teach basic knowledge about language while they also give opportunities to learn the Japanese culture. Many international students joined these programs to learn and experience Japanese language and culture along with training for post-graduation job activities. As many international students may not come from native English-speaking countries, our English language courses also aid those international students to enhance their writing and speaking skills.

International students can also receive assistance from other native students, host families, and alumni associations. Personal issues of international students are mitigated by Japanese tutors. Regular contacts with host families help out international students in their daily life. Volunteer activities from student associations are also part of supports and a source of communication among international students. Social activities are held by alumni associations, however, under the COVID-19 pandemic, some of those activities were cancelled or changed from in-person activities into on-line ones in the past two years. We hope that we could revive them when the pandemic is over.

Geographical distribution of nationalities of alumni graduating from IGP



Uniqueness of the Program



The IGP has many unique characteristics.

First, our program is well-established with financial supports from many prestigious funding opportunities like MEXT, ADB, Shimizu Corporation, and UEDA Memorial Foundation. There are also other sponsors to support our program.

Next, contrary to many other institutes in Japan, there is no requirement for students to have the Japanese language proficiency to study at the IGP. Meanwhile, we provide opportunities of learning Japanese and English through intensive language courses, which

Another important characteristic of our program is a creative collaboration with industries and academics. The IGP has many opportunities for Japanese and international students to work with professionals in practice, for instance, internship programs provided by local companies in Japan or working with international organizations like Asian Development Bank. International summer seminar series are also held with the collaboration from Japanese private companies. This kind of practical experiences could give students a good exposure to understand actual happening in the field and teaches them how to deal with practical issues. Apart from that, the IGP further provides opportunities across the border by collaborating

with foreign universities and organizations. Recent examples are an international internship program collaborated with Vietnam Japan University since 2016 and a joint program with French University like *Ecole Nationale des ponts et chaussées, ENPC, one of Grande Écoles*.

Recently, more international students preferred to keep staying in Japan after their graduation for working in Japanese companies or international organizations in Japan. We make an effective career support to those students. Job forums are organized in which the Japanese companies are invited to introduce their work and provide some job opportunities and information to students.

Additional remarkable uniqueness of the IGP may be an efficient program management system. One of them is a sophisticated database for the application system. Many students from other countries can use this system for applying for the IGP without any paperwork. Note that, however, at the later stage of selection process, they are required to submit some documents by post. For recruiting international students, we are also using a global human network with the cooperation with our alumni. An organized alumni network has been developed, with which international students are recruited and recommended by our alumni. Faculty members and students working in various universities or organizations in other regions are sources of information to local students who are interested in working or studying at our university.

We are actively performing follow-ups of graduates using the online system with the support from alumni association. SNS has been set up to connect international alumni with the department, for example, Facebook platform is available for sharing news and contributions of any students and alumni. Moreover, the alumni association has developed a new platform of alumni network, ShakiNet, in which the latest news and special contents are provided from the department, managed by the host family manager. Many seminars have been also held with alumni worldwide. For example, last year, our department has introduced monthly seminars by inviting our alumni globally. From these seminars, our alumni shared their professional journeys with faculty members and current students. These talks attract students to visualize and frame their future based on rich experience of respected alumni.

I also report the latest information of our department. Since April 2020, due to COVID-19, all classes in post-graduate program have been provided online only and they will continue in 2022 according to the latest university policy. At the early period, we used to have

some difficulties in communication each other by using the online system, but both instructors and students have been gradually getting more familiar with virtual classes. We still cannot negate some negative aspects of these online classes while we have found some advantages in the online system as well. The online system enables us, for instance, to have joint classes with other international universities like Vietnam Japan University, which is located in Hanoi, Vietnam. We also have had many alumni seminars globally and even final defenses are implemented online. According to the international students' questionnaire survey, which was held during the last symposium in March 2021, many students shared satisfactory comments for lectures and project courses of our department even under the strong constraint of the COVID-19 pandemic.

We have made best efforts to perform a plan-do-check-act cycle in our graduate program. The performance of our program has been regularly monitored and evaluated by external reviewers including academics, professionals, and alumni. We are always open to any opinions and valuable suggestions from stakeholders. Through this type of communication between academics, alumni, staff, and industry, we would like to expand our program to be more inclusive with multiple players. We will keep making efforts for further development and upgrading our program. I am grateful to many people for their kind supports to our program. Thank you.

Message from Supporting Institutions

Ms. Yuriko Onishi

Specialist, Office for Student Exchange
Student Support and Exchange Division
International Strategy Team, Higher Education Bureau
Ministry of Education, Culture, Sports, Science and Technology (MEXT)



It has been 2 years since the very first COVID-19 case was confirmed in Japan, and no one expected that even today, we are still wearing masks and paying attention to the distance from other people. We cannot confirm how the situation is going to be next year either. However, we need to give the best of ourselves and keep having hope in order to move on. Under these circumstances, it is truly important to be together even if online to share our knowledge and experience.

The English chemist George Porter once said that there are two types of research, applied and not yet applied research. The usefulness of applied research comes only from basic research whose social applications are not yet self-evident. I think this not yet applied research will be the key to enriching our life in the future.

I would like to express my respect to the students who are here, for their passion on their research and gratitude for the professors and sponsors who have been supporting them under these difficult times. Thank you.

Mr. Masayuki Ohno

Manager of Sales Division Civil Engineering Kyushu Branch
Shimizu Corporation



On behalf of Shimizu Corporation, I would like to extend my sincere thanks to the Department of Civil Engineering at the University of Tokyo for inviting me to this symposium. I am delighted to say a few words because, as Prof. Kato mentioned, my company, Shimizu Corporation, has supported several students with scholarships and I would like to congratulate them.

I graduated from the University of Tokyo in 1994 as a civil engineer and joined Shimizu Corporation. I work in the sales department as a manager. I worked in Taiwan for high-speed rail and Dubai for the interchange project and went to Vietnam, Indonesia, China, and Malaysia. In those countries, many engineers were quite helpful to me. Alumni gatherings, in my opinion, are always meaningful. I have participated in various alumni gatherings, for example, university alumni, high school alumni and so on, sometimes on a large scale and sometimes on a small one. We also had presentations about each other's work on some occasions. At that time, I can get a lot of inspiration from our alumni and classmates. The most essential thing, in my opinion, is to keep these kinds of relationships. For this reason, I am hopeful that these gatherings will become more active in the future, and that this symposium will continue in the coming days. Thank you very much.

Message from Supporting Institutions

Mr. Hiroki Kasahara

Principal Financing Partnerships Specialist
Partner Funds Division
Sustainable Development and Climate Change Department
Asian Development Bank



Greetings

Thank you so much, Sekimoto sensei, Tajima sensei and Kato sensei. Itsumo Osewani Natteimasu. Good afternoon to all guests and participants. As the Asian Development Bank and Government of Japan's Scholarship Program Coordinator, it is my pleasure to be invited again to this Symposium organized by the Department of Civil Engineering, University of Tokyo.

For almost two years, we faced various significant challenges due to the prolonged Covid-19 pandemic. We are beginning to see the light at the end of the tunnel and I hope we will soon see the end of the pandemic and meet face to face.

Achievements of the ADB-JSP over the Last 30 Years and Partnership with University of Tokyo

In the last 34 years, the ADB-Japan Scholarship Program has given opportunities for more than 4,000 highly qualified youth, from 37 of ADB's developing member countries, to undertake graduate studies in areas covered by ADB's long term strategy and Japan's official development assistance.

It is worth mentioning that UOT has been one of our partner universities since 1989. Our long-standing cooperation produced 500 scholars, which is second to the highest among all our 25 partner universities in Japan and other Asia and the Pacific countries. We support five schools in University of Tokyo. Currently, we have 38 scholars pursuing their studies in UOT, of which 13 scholars are studying at the Department of Civil Engineering.

Our Expectations and Challenge to ADB-JSP Scholars

The ADB-Japan Scholarship Program scholars at UOT are privileged to be able to study alongside some of the best and brightest students, with some of the best professors, in one of the best universities in the region. I do hope that they will value this privilege and the connections and network that they will build. In a year or two, as they return to their home countries, I am convinced that they will be better prepared with new skills and knowledge to contribute to their country's post-pandemic recovery.

ADB-JSP's Indonesian Connection

Before I close, I would like to touch upon ADB-Japan Scholarship Program and the Indonesian alumni of the program. We have more than 3800 alumni of which 306, or 8 percent, from Indonesia, putting it among the top five participating developing member countries of ADB-Japan Scholarship Program. In March 2020, just before the covid-19 lockdown, our President Masatsugu Asakawa met with the selected Indonesian alumni of the ADB-Japan Scholarship Program. ADB President encouraged close relations among the alumni. We continue our efforts to strengthen our network with alumni from Indonesia as well as other countries by inviting them to ADB-Japan Scholarship Program's various knowledge activities and events to continue our relationship even after the graduation.

Appreciation to UOT as Partner Institution

Let me end my message by expressing our appreciation to UOT. As our long-standing partner, we thank you for your valuable cooperation. We are confident that, at UOT, ADB-Japan Scholarship Program scholars, together with the other students, have the best environment to nurture their potential and help achieve their personal and professional growth.

Thank you very much and have a good afternoon.

Message from ISACE Committee: ISACE's activities and the Situation and Innovations of the Student Life in Corona Disaster

Ms. Zainab Farooq

ISACE Representative (Bridge and Wind Engineering Lab)



It's a matter of great pride for us at International Student Association in Civil Engineering (ISACE) to be a part of this remarkable and informative symposium as well as its publication. I am honored to share the information about the International Students Association in Civil Engineering (ISACE) at the University of Tokyo at this auspicious occasion.

ISACE is the first official student group in the Civil Engineering Department which was established on the 11th of March 2011 after the Great East Japan earthquake with the main aim to unite and improve the international students' safety. The association was primarily meant to bridge the communication gap among the international students as well as the Japanese students. Thus, ISACE emerged as a platform to integrate international students and as a forum to discuss and share each other's' problems and achievements & problems. Furthermore, ISACE also connect international students and the department to smoothen their stay in department and make their journey more pleasing and enjoyable. We believe that the **ISACE** serves to **I**nform, **S**upplement, **A**ssess, **C**onnect, and **E**njoy the academic journey at U-Tokyo.

Before the pandemic, several events were organized by the ISACE Committee every year, including the symposium, field trips to some civil industry-related sites, various get-together events i.e., new year party, welcome party for the new international students, the alumni forum discussion party, etc. However, due to prevailing

Covid-19 condition, we had to arrange this symposium online this year. I am pleased to share that a series of Alumni talks are being organized often to connect the department students with the alumni so they can learn from their experiences. Hopefully, we seek to arrange other events as well as all the regular activities once the situation starts to be normal. For the ISACE events, the professor mainly proposes ideas, the Foreign Student Office (FSO) prepares the feasibility & proposal for organizing event and the ISACE committee is responsible for organizing these events & correspondence with the stakeholders including professors & students from the U-Tokyo, alumni, and occasionally, professor from other universities.

Life during the COVID-19 has been a mixed experience for all students. When we got to the state of emergency, we had to stay home, attend the classes online and even the meetings with friends and families were virtual. Entertainments were limited to sitting in front of the screen. The physical experiments of the research were affected. Many international students had to face trouble due to travel restrictions during this time.

At last, but not least, we wish this pandemic situation will get better soon and we can enjoy the wonderful life exploring all the splendors of studying at the University of Tokyo.

Best Wishes and Thank you!

Voice of Students: Research Life at UTokyo during the COVID Pandemic

Mr. Kishor Timisina

Student (D2 Meguro Lab, MEXT Scholar)



I'm Kishor Timsina from Nepal, MEXT Scholar-Doctoral Student, at Earthquake and Disaster Mitigation Engineering Lab under the supervision of Professor Kimiro Meguro. My research work is focused on data-driven model updating and material properties identification of RC frame buildings. There are a large number of existing RC frame building structures exposed to a high risk of seismic hazards in the real world with poor construction practice, and non-uniform materials. These buildings are subjected to numerous temporal changes after their construction. Past earthquakes have caused huge damage to these structures resulting in major human casualties and economic loss. So, it is very important to understand the structural condition of the existing buildings to mitigate the seismic risk prior to the disaster. Similarly, it is also necessary to study the damage that occurred in the structures after the disasters for the repair and reconstruction process.

However, it is very difficult to model and analyze real-world engineering problems as it is. So, generally, these structures are equivalently transformed into the theoretical world to easily replicate the behaviour as that of the real-world problems. In the theoretical world, these problems are defined in terms of geometric properties, material properties, structural capacities, and failure behaviour. These different parameters of the real-world structures are needed to be replicated to an analytical-numerical model accurately to understand the correct behavior of the structure for a real disaster.

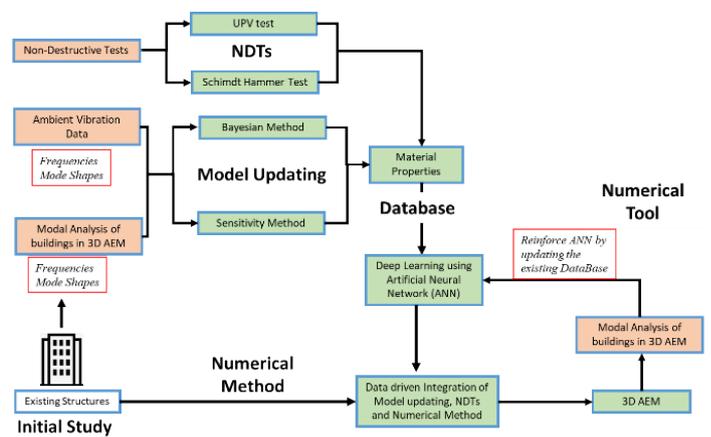
So, the objective of my research is to bridge that gap between the real-world and theoretical world by improving the ability, accuracy, and applicability of the numerical tools and ultimately improve the capacity of understanding the characteristics of the materials by making the use of a database consisting of NDT test results, vibration-based modal properties database and numerical analysis based modal properties database. I intend to help structural consultants, maintenance consultants and policymakers through this research.

In this research, for the existing building, three types of data are obtained: one is non-destructive test data (UPV and Schimdt Hammer test data), another is vibration data from the building and another one is a numerical model analysis of the data, from which frequency and mode shapes data are obtained. From the field data and modal analysis data, model updating through the Bayesian method and sensitivity method is done and get the corrected material properties. I am creating a database for those things, and that database is used for deep learning using an artificial neural network. That artificial neural network is incorporated into the numerical anal-

ysis tool, which is currently 3D applied element method. Afterwards, it can be used for the existing structure and do the modal analysis and get the real scenario of the real world. That modal analysis can be reinforced into the existing database and improve the numerical model with time. So, the use of machine learning using these databases can actually improve the accuracy and applicability of the model updating for the non-engineered structures.

Next, I would like to share my experience of life in Japan. I also did my master's, so I had the experience of pre-COVID. Before COVID, we had regular field trips through ISACE. There used to be interactions with other students through physical classes, especially in Nihongo Class. In the lab, there used to be a very lively environment. We had so many parties and interactions with everybody. So, I could enjoy the culture and life in Japan to the fullest before COVID.

But, after the COVID, everything is on Zoom, classes on Zoom, lab meetings on Zoom, seminars, symposiums, everything on Zoom. There is online socialization, but very less socialization and interaction in real life, and I have very few contacts with the current college students. That part is lacking during this period. Through the host family program, I got very fortunate to get Mr Tsuchida as my host. Monthly, we do hike to new places around Tokyo. During this difficult year, it was very helpful to me through the host family program. However, recently, the COVID is getting normal, and we are doing some outdoor activities from our lab, and we have started going to the lab. I hope we can be normal soon, and we can meet everyone in person. Thank you everyone for giving me this opportunity to share my experience.



Research Flow



ISACE Tour before COVID



Ski-trip with friends



Hiking with Host Family



Mochitsuki Party at Lab

Voice of Students: Research Life at UTokyo during the COVID Pandemic

Ms. Shi Ru Teng

Student (M2 Bridge and Wind Engineering Lab, SHIMIZU Scholar)



I will present my research and life in Japan, and I am thankful for this opportunity to study here under the scholarship by Shimizu Corporation. My study is regarding the numerical study of the correlation between rail vibration and wear, and effects due to different track stiffnesses.

In the background of this issue, the steel rail wear affects the railway performance and increases the maintenance costs of the tracks. There will be potential problems if not properly addressed, such as reduction of traffic safety, shortening of the operational life and affecting the comfort of passengers. In general, there are different types of wear like the nominal wear caused by lateral forces and the corrugation wear caused by vibration, which is what I will be focusing on in this study, which is shown here in the picture as the rough surface on top of the rail.

Moving on, the vertical resonance of the wheels and rails in low damping track systems is one important reason for short pitch rail corrugation. Track stiffness variation is another factor affecting railway performance. A plastic or rubber pad that separates between the rail and the sleepers provides the damping property, and the response of the rail which is modelled as a beam is dependent on the track stiffness. The resulting irregularities will induce vibrations in the train and the track, and the interaction is shown in the picture below, in which the vibration will influence the contact and wear in a cycle. The varying stiffness along the track is also shown in the picture on the right.

Some previous research has been done, such as for the input of the flexible body of the wheelset in SIMPACK to study the wear on the wheel, and on using the initial profile of the rail for input in SIMPACK, and this has been checked analytically. I didn't incorporate the other previous literature review due to time constraints, but this is a summary table of most of the research that was done using the final element model. The studies on wear are on the prediction of wear growth instead of the relationship between vibration and wear, which is why I'm targeting to study how the vibration will influence the wear, and touch on adjusting the properties such as rail pads later.

In short, the objective is to obtain the correlation between rail vibration and corrugation using the iterative methodology and a suitable wear model and to investigate the countermeasures of rail wear by varying the stiffnesses of the track with adjustment of the rail pad.

The proposed methodology will be like what was being done, by getting the initial profile but the input will be using the FlexTrack model from ABAQUS to SIMPACK, after which the wear depth will be calculated and repeated with a change for a fixed amount of wheelset passages. It will be repeated for different loads or irregularities and repeated for different stiffnesses of the rail pads. The figure below shows how the FlexTrack can be done in SIMPACK with the import.



The wear model implemented is Archard's law, which has several parameters such as the hardness, time step and wears coefficient. It has been commonly used in previous research, such as by Carlberger, and verified analytically.

As for my own ongoing research, initially, I tried modelling a simple model with bogie in SIMPACK and tried to import from ABAQUS to SIMPACK for the FlexTrack. Recently, some results have been obtained, which I will touch on briefly. For the model using linear FlexTrack and flat steel representation of the rail, this is the simulation setting involved. The profile here shows the axis used for the wear profiles in the next few slides. This is the result of the wheel wear after the import. This is the result without the irregularity imposed on the track. This is the result of the irregularity imposed on the track. There is some difference in the shape of the wear, which I will not be elaborating on further, and this is my proposed timeline.

Of course, life in Japan is not just researching, and other than doing research in my dorm, I also have engineering and Japanese lessons online. When I arrived after COVID started, I rarely went out but went out occasionally with host family and friends in Tokyo. I seldom step out of Tokyo, but it's a pleasure to be able to experience the four seasons here, which I can't experience back in my home country, Singapore. This is the tree in school near the engineering blocks, which is commonly featured in many students' photos. This is a photo of the scenery in autumn at the Inokashira Park near my dorm. This is a picture of the area in my dorm on the day when it snowed.

Other than that, I also managed to experience some interesting events such as the Hatsumode. This is the temple near my dorm, Jindai-Ji.



During the new year when I arrived in Japan, I was in quarantine, so I didn't experience New Year's Eve and the atmosphere here. Hence, I was glad to be able to experience this recently, and I hope that the pandemic situation will get better soon so that many students can enjoy life in Japan.

Thank you.

Voice of Students: Research Life at UTokyo during the COVID Pandemic

Mr. Clint Chester Reyes

Student (M2 Coastal Engineering Lab, ADB Scholar)



I am Clint Chester Reyes from the Coastal Engineering Laboratory. Today, I will discuss my research and daily life. I am an ADB scholarship recipient since September 2020, and I'm expected to complete my Master's degree by September 2022. I live in Mitaka City in a dormitory at the University of Tokyo. It is quite far from the Hongo campus, but the rent is cheap, so it is equally convenient. I take 15 minutes bike ride to the station and take the train to the Hongo campus. I usually go to school at noon to avoid the morning rush hour. Thus, I spend my mornings at home, doing a little work before going to school. I usually start my work at the lab after taking my lunch at the school cafeteria.

My master's research is on conducting a laboratory and numerical study on the nearshore deformation of the coral gravel beaches. My study focuses on the problem of coastal erosion in tropical regions where coral reefs are present and coral gravels are observed to be seen in the swash zone (this is the area near the shoreline where the wave changes shape and runs up the slope). They have porous property when the wave runs up the shoreline, infiltration and exfiltration occur inside the bed. This reduces the flow momentum causing more onshore transport of sediment and more accretion is observed. The goal of my research is to conduct laboratory experiments focusing on infiltration and exfiltration in the swash zone of porous beaches and to develop reliable numerical models that can accurately predict sediment movement.

For the experiment, I set up a coral gravel beach on a long 1-dimensional wave flume, where I apply regular waves. I first vary the wave period while keeping wave height constant, and this changes wave steepness and wavelength of incident waves. We observe infiltration during the run-up and exfiltration during the run down at the swash zone. This phenomenon is very fast since coral gravels, having relatively large sizes are porous and permeable. The infiltration into the bed reduces the returning offshore flow and is expected to cause more accretion. Results show that there are significant changes to berm buildup due to varying wave periods, and it may be related to the time lag induced by groundwater flow, during the swash wave event. Longer waves produce higher runup which could produce a higher berm, while also moving the berm further onshore. The equilibrium beach slope is observed to be the same for all cases. Although for the case of 2.5-second incident waves, although it showed fast development of the equilibrium profile, a lower berm crest, and less transport were observed. This might have been related to the generation of a reflected partial standing wave altering the nearshore wave climate. This generation is governed by the length of the incoming waves and could have impacted the height of incoming waves.



Fig. 1 Coral gravels at laboratory scale (Tajima and Fujikawa, 2016), left; and Coral gravel beach at Ballast Island (Fujikawa et al, 2015), right.



Fig. 2 Laboratory setup

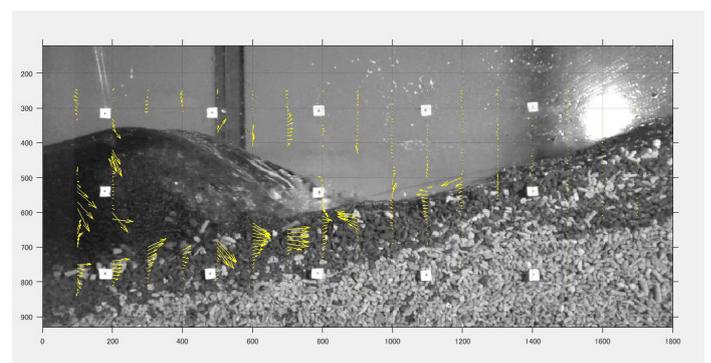
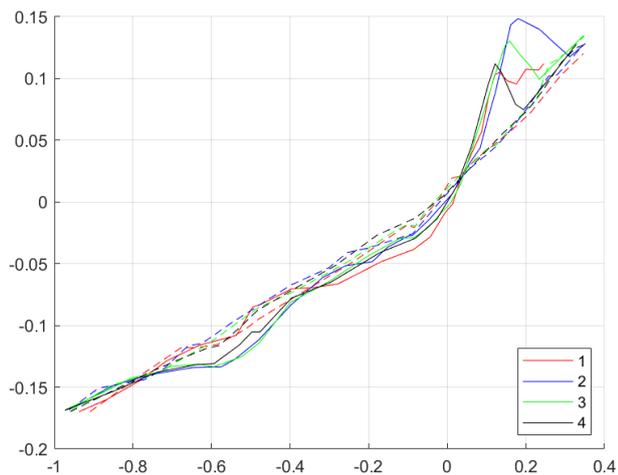


Fig. 3 Groundwater flow detection during bore runup in the swash zone



Case	Incident Wave Period
1	2.5s
2	2.0s
3	1.8s
4	1.5s

Fig. 4 Bed comparison for 4 varied incident wave period cases (units are in meters)

To further study this effect, I have conducted another experiment for a 1.8 second wave, and I am still currently doing the analysis. I will perform more experiments to modify groundwater flow, and then I shall proceed to numerical modelling to study further the relation of wave parameters and sediment movement in the swash zone of coral gravel beaches.

I also do other activities aside from working in the lab. I did some field surveys for my research. During the survey, I took photos of the sunrise on Iriomote island in Okinawa Prefecture where a coral gravel beach is observed. I also have started to try new sports, as a form of recreation. Some of which include bouldering at a local bouldering gym, and last winter I visited the mountains and went snowboarding with friends. I am also taking Japanese classes and currently participating in the host family program, hosted by the department (we recently visited Tokyo Skytree and went to the Asakusa shrine, and go out for lunch together sometimes). I think these activities are very helpful in my daily life as an international student and made me feel more at home during my stay in Tokyo. These are my experiences as an international student. Overall, my experience as an international student at the University of Tokyo, Department of Civil Engineering is truly enjoyable, unique, and worthwhile.

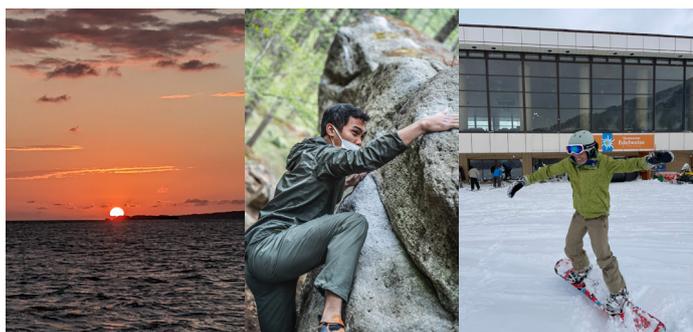


Fig. 5 Sunrise at Iriomote Island, Okinawa Japan (left); Bouldering (middle); Snowboarding (right)

Voice of Students: Research & Daily life in Corona Disaster

Mr. Alieza Tavana

Student (D1 Bridge & Wind Engineering Lab, UEDA Scholar)



The use of fossil fuels causes climate change, the urgency of this issue is evident given the commitment of many nations in the Paris agreement to attain net zero carbon emissions by 2050. Renewable Energies are not only sustainable but also can provide energy security. One of the most rapidly growing renewable energy types utilized is the wind energy. Although the rapid growth of this sector indicates a promising future, there are still several challenges on the way that needs to be resolved.

One of these challenges is the need to predict extreme wind speed with the recurrence period of 50 years when constructing or replacing wind farms, which is used for the calculation of ultimate load cases. In northern Japan, the extreme wind speed may be caused by extratropical cyclones and conventional tropical cyclone simulations cannot be applied. In Europe, mesoscale models have been used for the prediction of extreme wind speed. However, due to the limitation of spatial resolution, it is not directly applicable to Japan where terrain is more complex. Conventionally, computational fluid dynamics (CFD) models have been used to consider the effect of small-scale topography, but this approach fails to predict the relative wind speed in the wake of mountain. Moreover, in the mesoscale simulation, previously two different nudging schemes have been used for the wind speed prediction. With each of them outperforming the other depending on seasons, no selection criteria cur-

rently exist. Finally, following the Japanese guideline, the topographic multipliers must be predicted to calculate the extreme design wind speed, but no method has been proposed so far for extra-tropical cyclones.

In my research, I have used the wind speed data at Iwaya wind farm in northern Japan where extra-tropical cyclones cause the extreme wind events, and the topography is complex. First, the effect of local topography on extreme wind speed is considered by using an improved CFD model. Then, a model is developed to determine the nudging scheme for the extreme wind estimation in different seasons. Finally, a method is proposed to estimate topographic multipliers for areas where extratropical cyclones are dominant showing that the current value used is too conservative and it can be reduced, making the installation of new turbines more viable.

Regarding my life in Japan, it has been great and full of new and exciting experiences. Learning Japanese language has enabled me to develop a new understanding of a new culture and way of thinking. Despite the difficulties of the corona pandemic, I have tried hard to be able to travel in Japan and meet new people as much as possible. It has been a very fulfilling experience so far, but with the end of corona in perspective, I am hoping for a major change for better in my post-pandemic student life in Japan.



Part 2: Status of International Student Education Programs from the invited lecturers

Advices for the International Student Programs from UC Berkeley

Prof. Kenichi Soga

Department of Civil and Environmental Engineering, UC Berkeley



I am Kenichi Soga, and am a professor at the University of California, Berkeley. The university is located near San Francisco on the West Coast of the United States. Civil engineers, particularly those who reside in Tokyo, will be interested in earthquakes, and the California region is no exception. Although there hasn't been a major tremor recently, a big earthquake known as Loma Prieta Earthquake struck in 1989, and a tremor with a magnitude of seven or larger is likely in the near future. It also has large woodland areas, which was recently been ravaged by wildfires. As a result, this has been a crucial area of research in order to mitigate wildfires and manage evacuations, especially in terms of natural hazards and safety and also related to climate change.

At the University of California, Berkeley, the total number of international students, including undergraduate and graduate students, has been increasing over the last 15 years. The total number of students is 45,000, with approximately 7000-8000 international students accounting for approximately 17 percent of the total student. When only graduate students are considered, international students account for roughly one-third of all graduate students' number. The enrollment was relatively low in the last year due to the COVID, but as it has been normal, the number of international students increased significantly, accounting for around 28 percent of all students.

When it comes to programs that have drawn overseas students, the MBA and then the law school rank first and second, respectively, followed by a range of engineering-related candidates. On the other side, doctoral students are more engineering oriented. Industrial Engineering and Operations Research (IEOR) is a computer-related data analytics program that attracts a large number of students. Then there is mechanical engineering, electrical engineering, and computer science, and then there's civil engineering, which also has a large number of students, roughly 100 each year. What are their origins? China is number one, with a 36 percent share. Students from India, Korea, Canada, Taiwan, and Japan are among other international students. Japan is ranked sixth, followed by many people from Asian countries, Canada, and finally various European countries.

There are 383 undergraduate students and 484 graduate students in the civil engineering department. Around 40% of students are female. In addition, half of the 484 graduate students are overseas graduate students. The university has an international office to support international students, and this is very similar to what UToyo is offering. It also has some form of community, not only for

civil engineering. We have International House, which is one of the communities that many of our international students join in their first year as a dormitory. Through these communities, they can come together and start learning about life in Berkeley. The objective is to promote intercultural respect and understanding, as well as lifelong friendship and leadership skills, in order to create a more equitable and peaceful world.

On our university website, you can find information related to academics, under the student section of the homepage. The first clarifies the UC Berkeley Academic Systems and Norms. Coming from another nation, one wishes to learn about the American system and how it works. Another is admissions information, such as requirements and procedures. Another piece of information that is vital for students is Academic Integrity and Support. As a member of the UC Berkeley community, you should conduct yourself with honesty, integrity, and consideration for others. This integrity declaration must be signed by every student. There is also a research section containing information on various study fields, libraries, publications, and other things. There is also a section on campus life where students can learn how to make their daily lives easier

The international students might be concerned about what are the student's interests and, what types of programs are accessible. Leadership programs, volunteer opportunities, and workshops are among the top interests. As a result, it focuses on volunteer leadership and how to mentor others. And, in terms of the workshops, it is more focused on careers in the United States. What are the steps to getting a job in the United States, as well as the visa requirements. After completing your studies, you may apply for an OPT visa, which allows you to work in the industries. You have a few years to work with OPT before applying for an H1B visa to extend your stay in the United States.

The other topic on which we're focusing currently is diversity and inclusion. This is especially crucial nowadays because our cultures are so diverse, and we are trying to figure out how to work together and appreciate others' cultures. There are campus-wide resources, as well as student associations for various areas and other resources. We are working on inclusivity and equity, not only among our students but also within the community or wherever you live. This is not coming only in terms of understanding the culture. Because the US is very diverse in the backgrounds that people come from, this diversity and inclusion need to be considered in our civil engineering research as well. When we conduct a civil engineering work such as

constructing a bridge, we must consider whether it is contributed to diversity. We may consider that this bridge may be functioning well now, but in 10 or 20 years, it may begin to move people in a way that generates cultural disparities and attempts to build a societal gap that you do not want to happen. Civil engineering is about transformation not only in terms of engineering but also in terms of how it is approached to deal with diversity and inclusion.

In conclusion, I discussed the following topics: academic integrity, workforce development in connection to diversity, inclusiveness, community and equality, as well as how to develop your career in the United States. Thank you for listening.

A Reflection of an Indonesian Civil Engineer at the University of Tokyo

Dr. Asih/Prasanti. W Sarli

Assistant Professor at the Faculty of Civil and Environmental Engineering, Bandung Institute of Technology, Indonesia;
Elected Chair of the Future Leaders Committee of the Asian Civil Engineering Coordinating Council (ACECC)
and Former Ph.D student at the Bridge and Wind Engineering Laboratory



When I was a Ph.D student at the University of Tokyo from 2012 to 2015, I benefitted a lot from the many layers of support system we International Students had. At the Department level, we have the support of ISACE, which is the International Student Association of the Civil Engineering Department, at the university level we had the support of the Indonesian students Association and multi-national communities such as the Tokyo University Islamic Cultural Society. All these different communities were great support for the many challenges international students must face while studying. And even though I mentioned only communities related to the Indonesian community, I know that many other International Students have a similar experience with associations/communities from their home countries.

As an Indonesian, I was also pleasantly surprised that over the years Indonesia is the third-largest alumni community after China and Sri Lanka, with about 63 graduates from Indonesia. Although all these 63 people came from Indonesia, not all of them are working in Indonesia (see Map). We have some Indonesian alumni working in the UK, New Zealand, USA, Australia and Japan. Even though right now the Indonesian community doesn't have a formal structure, we are very much looking forward to being more active in the future—as a strong alumni network would surely benefit both the alumni themselves and Tokyo University.

Currently, I'm working at the Bandung Institute of Technology (ITB), which is located in my home country, Indonesia. After I graduated and started working, I realized that my education at the University of Tokyo really shaped my view on Civil Engineering. Before I

went to Todai, Civil Engineering to me is a professional engineering discipline that deals with the design, construction, and maintenance of the physical and naturally built environment, including public works such as roads, bridges, canals, dams, airports, sewerage systems, pipelines, structural components of buildings, and railways. Which is basically the Wikipedia description of civil engineering.

But my view had since changed.

The word Civil Engineering, if translated to Japanese becomes 土木工学 [do-boku kou-gaku], which is a word made of two Kanji's 土 soil and 木 tree. But when we enter our department, what is written on top of our building is not that, instead, we have 社会基盤学 [shakai ki-ban ga-ku], and when translated word by word it means the study of the base of society. It's very curious because when translated back into English, the two different kanji words, 土木工学 [doboku kougaku] and 社会基盤 [shakai kiban], mean the same, civil engineering. But the first focus more on the material, while the other focuses more on the purpose.

And this I think is one of the most transformative things that we learned in the Civil Engineering Department of the University of Tokyo, that civil engineering is more than just talking about a thing or a material. Civil engineering has a purpose, and that purpose is for society.

And for this transformative experience of understanding what this field is all about, I will forever be grateful for my education at the University of Tokyo. Thank you for having changed my worldview.



Fig. 1 Distribution of 27 Indonesian Alumni of the Civil Engineering Department of the University of Tokyo inside Indonesia and beyond

Thinking about the International Student Education Program of the Department of Civil Engineering from Overseas

Dr. Januarti Jaya Ekaputri

Associate Professor, Faculty of Civil, Planning and Geo-Engineering, Surabaya Institute of Technology, Indonesia
(Doctor of Engineering in 2010 Concrete Lab)



Konnichiwa, from Indonesia. I graduated from Concrete Laboratory under Professor Maekawa's supervision. I still remember everyone who graduated 12 years ago with me in 2010. I was helped by my beautiful Japanese sister, Yuka Kikuchi. I made it back then in front of the graduate students and their families. The title is "*anata no tame ni*" or in English "Because of You". The word "*anata*" here refers to the Civil Engineering Department of Todai. Some of you might come from very far away to study at Todai. For me, it took about 12 hours by aeroplane from Surabaya to Tokyo. After finishing our studies here, all of us are now alumni from different backgrounds, who are working for a university, or government, industries, non-government institutions, or doing research. Anyway, everybody here is so happy to see each other.

Let me introduce you to a bit about my university. ITS stands for Sepuluh Nopember Institute of Technology. It is in Surabaya, East Java and it is close to Bali Island, one of the most famous islands in Indonesia. We have seven faculties, and I am in the faculty of civil, planning and geoenvironmental engineering. The total student body is around 1000. We also have an international program for undergraduate students.

Some people wonder why I put my life on the line to study civil engineering in Todai. You may have different reasons, but the professor is the foremost for me. I was fortunate enough to be chosen as one of Maekawa-sensei's students. He is a wonderful and caring professor. Then I got further luckier because I received a Hitachi scholarship that continued to assist me even after my graduation. FSO has been really helpful in giving me clear information and encouraging me. Finally, the Indonesian Student Association was a huge help to me during my time at Todai, and I was elected President of this organization.

The academic DNA or your sensei gene was planted firmly in your brain, your heart, your blood, and your mind, and there is no way to escape it because you must accept and love it. It changed me a lot making me implement it in my research group. Back then, we had a very good environment in the concrete lab, and I am happy it is maintained until now. A welcome party and farewell party are something important for me as it is like a prayer for the students. Laboratory-based education is the core where your knowledge is coming. Work with your hand, sense it, see it and think more and more, then you will learn faster than only studying from the textbook. The weekly meeting is also important, I use it to keep the student improving and help them to solve the problems together especially when they need to focus on the target.

Anata no tameni あなたたちのために

私はあきらめたくなかった
私たちが幸せを感じる時
人生は神秘に満ちている
時に生きることは難しい
私はすべてをひとりではできない
あなたたちの愛がなければ夢に到達することもできなかった
その人生は想像できないほど美しい
その思い出は想像できないほど甘美だ
あなたたちの愛がなければ夢に到達することもできなかった
私を選んでくれてありがとうございます
私は永遠にあなたたちの愛を忘れない
私は常に努力しよう
誰よりも美しいメロディーを歌うために
あなたたちのために

BECAUSE OF YOU

I didn't want to give up
When we feel happy
Life is full of mysteries
Sometimes it's difficult to live
I can't do everything alone
I couldn't reach my dream without your love
That life is unimaginably beautiful
The memories are so sweet that I can't imagine
I couldn't reach my dream without your love
Thank you for choosing me
I will never forget your love
I will always try
To sing a melody that is more beautiful than anyone else
Because of you



As a winner of gold medal for the best invention from World Invention Intellectual Property Associations (WIIPA) in 2016 in Tokyo.

During my study, as it was so hard for me to do two topics together at the same time, I wrote a series of short novels in Bahasa Indonesia. The title is 'Senpai, I want to be a pilot.' This was because I had a situation when I was asked by my sensei to guide this interesting guy, a pilot from ANA Airways who later became a Nobita in the lab, and I was his Doraemon. The story was so famous, and it motivated some Indonesian students to study in the civil engineering department of Todai.

As an alumnus, I believe that you have a lot of benefits. People know you as a student of a famous professor. The alumni are scattered everywhere, very strong and very helpful. If you have trouble, your friends are ready to support you. I can invite my sensei to Indonesia, I can collaborate with alumni to perform an international event in Indonesia and easily make an MoU with Japanese universities and many others.

After coming back to Indonesia, I have to become a superwoman because the system here makes the lecturers teach and do research, serve the community and do much more administrative work at the same time. Another thing is sometimes I couldn't implement my own idea as I have to follow my seniors who have already made the roadmap. So, I need to compromise. This is a compromise between three things. My dreams, my hope, and my limitations. My solution here is that I must understand, and always chal-

lenge myself like a booster vaccine. I don't even think about staying in a comfort zone for too long. I believe I must keep moving. So, I made a small group of students and keep improving them. I even started my YouTube channel SIPIRU AISHITERU (means I LOVE CIVIL) to help civil engineering students in Indonesia to study online. We have more than 6000 subscribers. I keep in touch with my best friends and share the news with them, or even send my student to them. And this is very important, we cannot force people to ask them to return to their home country. Let them be happy with their choice then they will be happy to help us from abroad.

I arranged a survey about the University of Tokyo among my student I got from 146 students about Todai doboku. About 76% already know about Todai doboku. They got information from the lecturer (may be from me), from websites, YouTube, and from family. The rest are because of holidays in Japan, shinchuan cartoons and others.

When I asked them about their interest to study at Todai, more than 80% said yes. Mostly because Todai is the best university, or because they want to study more and visit Tokyo or are motivated by the supervisor, anyway there are many good reasons.

In conclusion, I believe that unity in diversity is a great motto for us to become stronger. It starts from the contributions of members from different backgrounds, but all we have to accept the differences.



Prof. Tetsuya Ishida (4 from left) and Dr. Luan Yao (right) came to ITS, Surabaya to deliver presentation at Seminar supported by JSCE on Feb 25, 2019.



Collaboration and deliver special lecture to Japan Coal Energy Center in Tokyo

Reflecting on International Student Education Programs from Working in Japanese Companies

Mr. Masrur Abdull Hamid Ghani

Chief Design Engineer, Shimizu Corporation



I entered the industry through a job fair at the University. Ever since my joining, I've worked on several MRT projects in different countries, and currently, I'm working as a chief design engineer in Jakarta MRT Project. At the time of graduation, I was fearful and anxious about the new environment of the industry, but at the same time, there was also a sense of excitement to gain new knowledge and have new experiences.

Japanese companies have a strong commitment to their clients. The work environment in these companies foster harmony. The internal quality checking system is very thorough and detailed. Although sometimes it takes a significant amount of time, in the end, the process produces a high-quality product.

There is no unused knowledge. The research process at the university has helped me to develop critical thinking, problem framing and a solution-seeking mindset. People are the key to a successful project. My experiences in Todai i.e., weekly lab seminars, English language class, Japanese language class etc. has taught me to effectively communicate, frame my thinking and connect with other people. Networking is also a very crucial skill because often we need to find the right person for the right advice or the right person for the right job.

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