



FGL Community NEWSLETTER



We have come full round to another hot and humid Summer! We present to you the second edition of our Summer Newsletter. This edition, like all other editions, brings you exclusive information about our FGL family, especially our senpais and alumni. Articles written by our very own members, current global and local situation of the pandemic right at your fingertips!

First and second round vaccines also have been going around to all our university students. Those taking it, please take care of your health and look out for side effects, and those who have chosen not, please stay safe and healthy all the same! We hope you enjoy reading this newsletter.

Written by Sarika

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Research From 4th year student

Aero-structural Design Optimization of Aircraft Main Wing

Interview by / *Written by Alfiyandy Hariansyah, IMAC-U 2017*

With its Mitsubishi Heavy Industry, Japan has sought to produce the first homegrown Japanese passenger plane under the SpaceJet project that was launched in 2008 as the Mitsubishi Regional Jet (MRJ). My lab has taken a part in the development of the new aircraft wing design used in this project. Unfortunately, the project was suspended earlier this year due to the COVID-19 pandemic crisis.

Most aircrafts produced today use design and technology from a generation ago. There is certainly room for improvement and the discovery of new high-performing designs. In my research, I am developing a new design optimization tool that is applied to explore new design configurations for aircraft main wings.

Design optimization is a numerical tool used in engineering design to find the optimal solution to a given design problem. In aircraft design, to find the optimal solutions, several disciplines are often involved: aerodynamics, structures, propulsion, stability, control, etc. However, it is very difficult to involve all disciplines together in one framework due to the fact that it is a highly coupled problem with every discipline interacting with each other. No wonder

most researchers today only involve one or two disciplines in their optimization tool (called multidisciplinary design optimization). Aerodynamics and structures are of interest in my research. So, I am developing a tool to explore new aircraft wing designs that correspond to the minimization of aerodynamic drag and structural weight at the same time.

With the advancement of computational power and technology, we are able to numerically simulate a flight with sufficient accuracy without actually having to build and fly the aircraft. However, highly complex problems that involve computational fluid dynamics (CFD) and structural analysis might take hours, days, or even weeks for evaluating a single design. Thus, the problem being tackled is how to discover optimal designs with a limited computational budget.

I am currently working on a research project as part of the Fugaku Supercomputer project to address the issues in the manufacturing industry, especially the aerospace industry. I hope that our novel optimization tool combined with the world's fastest supercomputer can have a huge impact on the aerospace industry, especially in the new aircraft design discovery stage.

Image source : <https://www.mhi.com/group/mitac/>



Fig. 1: Mitsubishi SpaceJet



Fig. 2: Fugaku Supercomputer

Ask Senpai

Dr. Indra Kusuma

Interview by Carlos, Ryan, and Jojo

For this summer's seasonal newsletter, the FGL Community invited Dr. Indra Kusuma for an interview regarding his job experience in Japan. Dr. Indra Kusuma is an alumni of Tohoku University from Indonesia in the IGPAS Program (Class of 2018). After his graduation, he started working as a research engineer in a pigment-producing company, DIC Corporation. Dr. Indra was able to find work in a big company in Japan in a span of less than two months, an incredible feat knowing the tough job hunting process in Japan! Find out more about his experience through the interview below.



In your opinion, what is the hardest part about job hunting in Japan?

The lengthy and rigorous process of it all. For corporate work, you usually have to start for looking for jobs about a year before you graduate. Knowing the tough academic responsibilities of university life, the early part of job hunting can even make you skip classes, which is undesirable, to say the least. The next thing you would have to do is start looking for job fairs and actually show your interest to the company(ies) present there to even have a chance of being considered. After that, there are usually a series of seminars and events where you will basically have to jump back-and-forth between your place and the company. For the selection process, there is usually a written test conducted in Japanese with problems related to your area of work. In this test, you can also expect to find planning and problem solving tests to measure how versatile you can be later. This is then followed by the dreaded interview, also conducted in Japanese. Usually, it is still okay if your Japanese is not perfect, as long as you can answer relevantly. The unique thing is that there may be more than one interview, even up to three! So from start to finish, you probably have to spend about 3 months until the first recruitment decision.



What are some common misconceptions that international students have regarding job hunting and experience?

Well, job hunting in Japan is indeed a nerve-wrecking process. A misconception I remember experiencing was about Japanese certification. Back then, I was nervous and worried as I did not have a JLPT certificate. However, there are some companies that do not require a Japanese language certificate to apply for jobs. Some companies check our Japanese proficiency through the interview process, so the necessity of a Japanese language certificate really depends on the company you are applying for. Moreover, the ability of international students to speak at least one or two other languages fluently can be seen as something valuable.

Ask Senpai

On another note, the overworking culture in Japan is still apparent. Although the government has established certain rules and regulations regarding working hours, this situation still occurs in some companies. Employees in large companies and small companies tend to have it rougher, as large companies have more expectations to increase work efficiency and small companies need to work harder to gain recognition or due to relatively poor management. Still, companies that do have good management can provide a better working environment. I suggest looking into the companies you want to apply to beforehand, such as information regarding 'black companies'. In addition, companies differentiate wages based on academic degree. A higher degree would mean a higher entry wage.



All over the world, the advantages of getting a PhD have been controversial with some not recommending getting the degree. What is your opinion on this?

For one, doctorates are needed and appreciated in a lot of companies, shown by the apparent higher entry salary of doctorates compared to master graduates. Although, I do have to admit that after you get in, your position in the job environment is basically the same as master graduates. For job availability, it really depends on the type of work that you would do. For example, having a PhD can be a really substantial advantage when you are looking for R&D jobs. Outside of R&D, I have to admit that I think companies are mainly looking for master graduates and would not compensate PhD graduates with a higher salary for the same position. As a general thing, I think PhD is worth it for the title and the slightly higher authority it will give you in R&D job environment. If you are considering a PhD, I would recommend to do it as soon as you can as the cost-benefit ratio worsens over time.



What is the most shocking thing for you about working in Japan?

I was pretty intrigued that many Japanese companies are aiming for globalization. That is to make their overall job environment more international, one way they strive for this is to recruit more and more international graduates. Although you would still have to use Japanese in most cases, it is slightly relieving that they are trying to be more and more open towards foreigners.

Another thing is that I expected that work would be very different from school. But as it turned out, my career life is not that different from the school life I came from previously. As an R&D employee, your work is basically just research with a bit of bureaucracy here and there. Extending from that, even the Nomikai culture does not feel different than the one I had in university life, which is comforting. This also holds true for work attire. I don't think the fields other than R&D are also like this, but I am just sharing my experience.

Ask Senpai



For international students that want to work in Japan after they graduate. What would you recommend to them?

I say go for it. Make sure to carefully look into the companies you are interested in, and check out the application details. Preparing the necessary documents is a given, and it would be better to master the companies' screening process beforehand. When I was job hunting, I did everything by myself and didn't ask for help from the career support office in TU. However, I do think that you should ask for help if you want to, so don't hesitate to do so.

Also, there are generally two ways to apply for a job: applying by yourself or through a Sensei's recommendation. When you opt for applying by yourself, you typically go through all the necessary screening procedures from start to finish, which is what I did. However, when you apply through a Sensei's recommendation, you can typically skip the first few steps and only go through the last stages of the screening process.

The last thing I'd like to say is that it's a good idea to be active while you are in university, specifically in volunteering. Although the actual level of significance is unknown to me, a lot of companies do ask whether the applicant has any volunteering experience. This becomes an additional value to your name in the screening process, so don't hesitate to take part in any volunteering activities whenever you feel like it.



Is there any other thing you would like to say to prospective graduates?

Really set your heart on what you want to do after graduating before your last year of school, whether it is to pursue another degree or go straight to work. Because as you have probably realized yourself, the overall time frame for job hunting is tight and it is crucial to plan ahead. Usually, you can start to look for job fairs around March, so if you miss it, you will be left with little to no suitable companies.

Another thing is also maybe pretty obvious, and that is to really work on your Japanese. It is practically impossible to get through the whole job hunting process without knowing how to converse in Japanese. It is a challenge, but you really can slip in bits of studying Japanese into your daily life and before you know it, you're already comfortable with the language. I really believe that if you really have the determination, you can do it, pretty realistically at that.

Summer in Sendai






Summer Christmas in Sendai ?!

Written by Carlos Baptista

What a better way to end a hot summer day with a breezy summer night. Cricket's sound, clear sky, cool yet warm temperature, sometimes I wonder what the nature at its most natural state felt like. Therefore, I found it very attractive to just sit by the beach alone at night, camping surrounded by mother nature, or even just sitting by the balcony for hours and hours during this season.

When I think of winter, I am always reminded by glittering lights around the city. The shining bright light make sense as cold is sometimes correlated with dark while warmth is depicted with yellow lights. In Japan, summer night is a particularly interesting time as you might be able to see the most natural Christmas light ever in a form of fireflies. Summer night is warm and firefly's lights are dim, what a balance combination.

The time period for firefly sightseeing is usually after dusk from around 7 pm to 9 pm. It is recommended to come before dusk as one of the best experiences is to embrace the slowly darkened sky. Before viewing this magical creature, you need to know some of the rules:

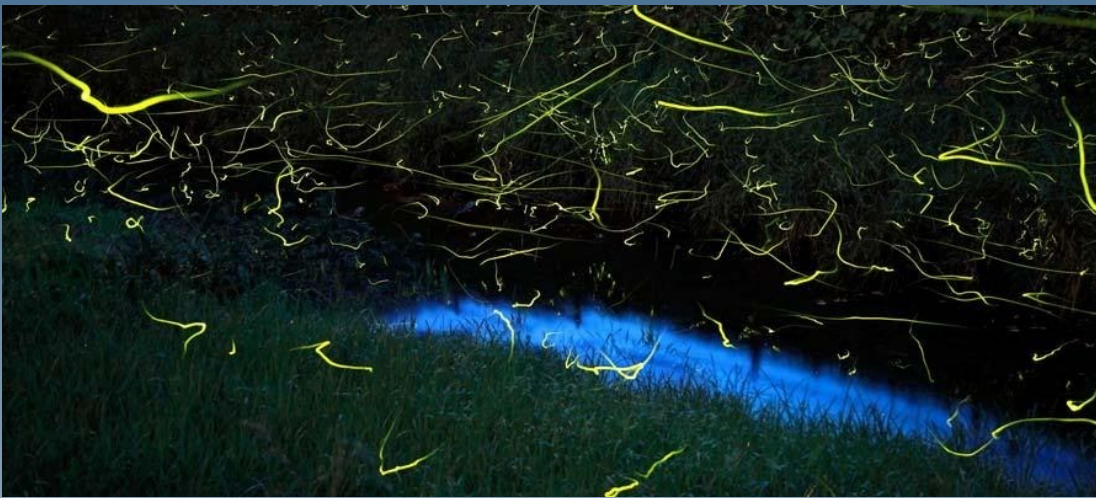
-  Lights are strictly prohibited. Light is the medium for them to communicate, therefore shining a bright light, torch, or flash light from camera would not be a good idea as it might scare them away.
-  No phone or camera. It has the same reason as before and also it would be very hard to capture it in a camera anyway. It is a good way to make yourself stay away from our phone for a couple hours.
-  No catching and keep habitats clean. This is particularly important as firefly is considered to be one of the endangered animals. Firefly has a short lifetime anyway. Firefly can only stay in clean places.
-  Be quiet. Most firefly sightseeing places is located in countryside. You don't want to disturb the locals that are sleeping.
-  Avoid wearing insect repellent. Surprise, surprise! Firefly is an insect, so you should know what would happen if you use this. Wear long sleeves.

Summer in Sendai

These are some good places to spot fireflies:

Masubuchi River area:

One of the most popular firefly sightseeing places in Japan. A good day will have 300 fireflies. Late June through early July, starting at approximately 9:00 pm (for detailed information, see the City of Tome's official website).



Osaki City: Minami-hara Firefly Village

Not only do they have amazing fireflies, this place is also famous for their Naruko Onsen. A pretty good destination for your next vacation.



Image source : <https://osakikoudo.jp/movie/>

Current Situation, Events, & News

The Coronavirus: Japan and Worldwide Written by Wu, Wei-Wei

A year and a half has passed since the outbreak of coronavirus. Over a hundred million cases have been confirmed worldwide. After experiencing the declaration of emergency on several occasions, the situation here in Japan has gradually come under control. Cases confirmed in the Miyagi prefecture have been reduced to ten cases daily. Additionally, the BCP level at the University has been reduced to 2- a good omen for all students.

22th August marks the day when the fourth declaration of emergency comes to an end. After this day, it is possible for foreigners to enter Japan. This is an important turning point for our first year students. Please follow the news from the University and the Japanese government!

Plum rain (tsuyu 梅雨) Written by Wu, Wei-Wei

About a month during June until July, the season of Plum Rain had passed. Plum Rain is known as Tsuyu(つゆ) in Japan. Traditionally in China, this season indicates the ripeness of plum. In this season, the rain continued for more than a month. It was mindful to prepare something that would be helpful for drying clothes and keeping them dry indoors. A dehumidifier is a highly recommended piece of item! Desiccants are also another product one can easily buy at any hundred stores in Japan to prevent mold. Be sure to look out for these products if you require them the next year when Plum Rain season comes again.

Info about Vaccinations for Coronavirus Written by Shin

Company	Type	Doses	Effectiveness
Pfizer-BioNTech	mRNA	2 (21 days apart)	95%
Moderna	mRNA	2 (28 days apart)	94.1%
Johnson&Johnson	Viral vector	1	66%
AstraZeneca	Viral vector	2 (4-12 weeks apart)	70%

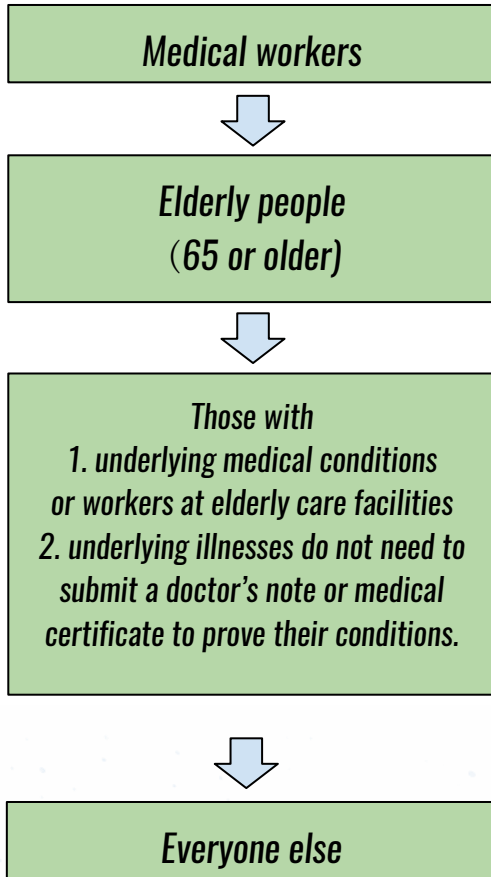
Sources: <https://www.bbc.com/news/world-europe-56242617>; <https://www.vejthani.com/2021/05/covid-19-vaccines/>

What should I prepare before getting vaccinations?

Firstly, you will receive a vaccination voucher in your mail along with a letter of notification from the municipality of your residence. Then, make your reservation online or by phone. Lastly, do not forget to check if your reservation has actually succeeded.

Current Situation, Events, & News

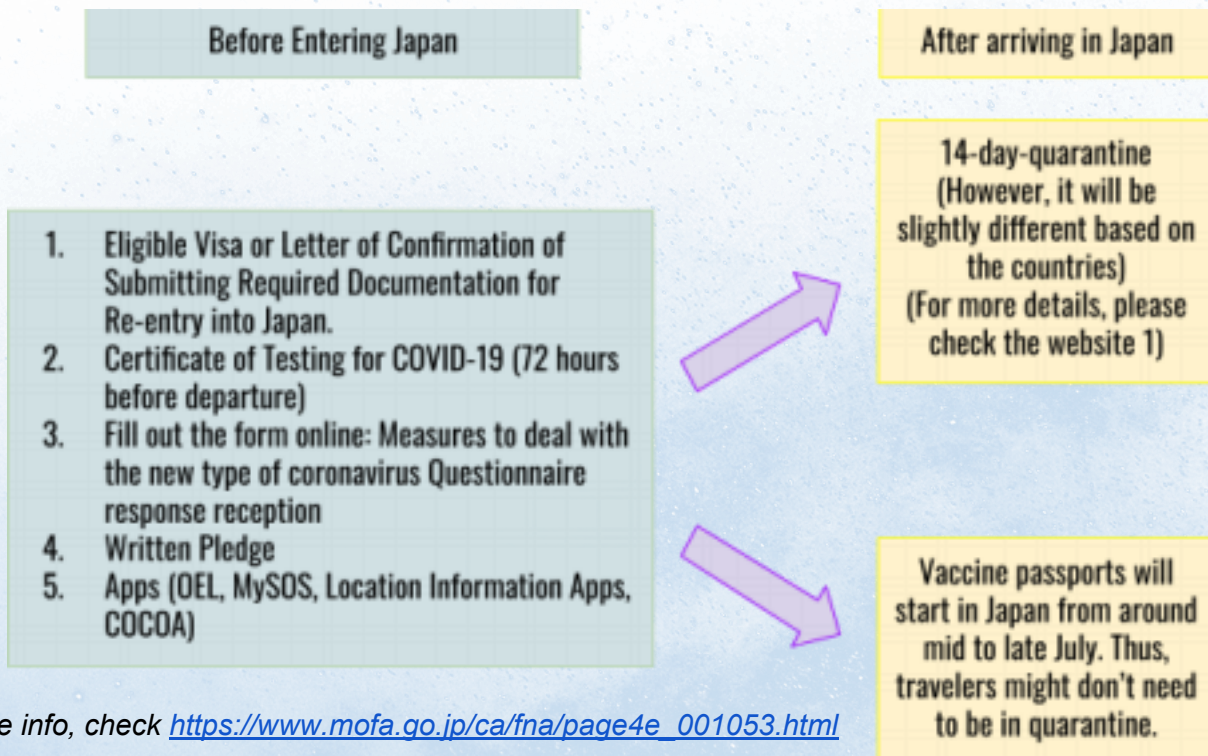
What is the order for getting vaccinations?



What should I do on the day before going to the vaccination venue?

In order to get vaccinated, you have to be healthy; thus, you have to make sure that you don't have a fever or other symptoms of illness. Also, bring your vaccination voucher, any one acceptable ID, and your vaccination questionnaire that you have filled. After all, please wear clothes that would make it easy to receive a shot.

What should I prepare before and after entering Japan?



For more info, check https://www.mofa.go.jp/ca/fna/page4e_001053.html