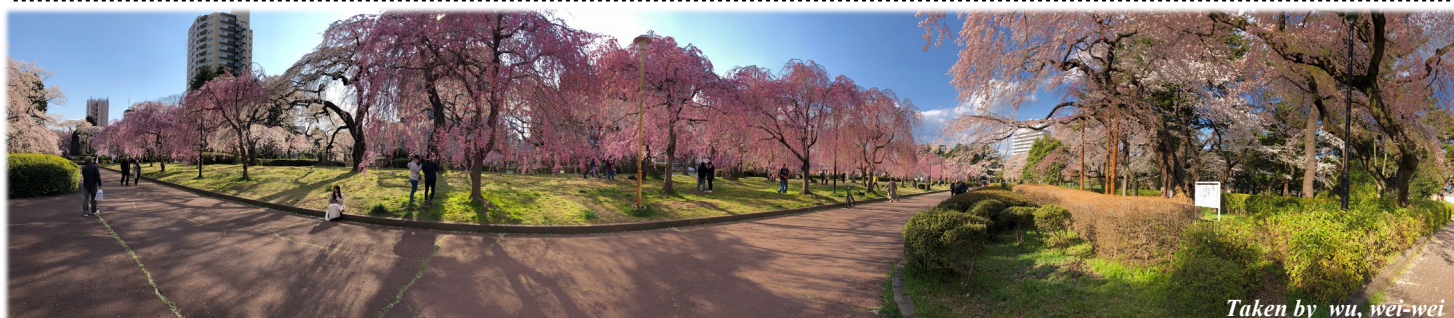


Spring 2021



# FGL community NEWSLETTER

## INTRODUCTION



Taken by wu, wei-wei

One of the most awaited seasons is just around the corner. Spring! And not just any Spring. It's Spring in Japan! Japan is particularly famous for its cherry blossoms and they never disappoint! In this edition, we will provide you information on what “Hanami” is and where the go-to spots are that you can visit to have a lovely experience of “Hanami”.

Also, with the publication of this Spring Newsletter Edition, our FGL Community becomes a year old. Hurray to the FGL community. We look forward to expanding and welcoming our new members and connecting to the ones who have left us. Let us continue to make this one big harmonious and warm family.

Written by Sarika

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TU FGL COMMUNITY



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For our recruitment!!





# Research From 4th year student

## Neural Network integrated Extended Kalman Filter for a Gyroscope Calibration application

Interview by Neo / Written by Supakit Wattanarungsan (Jom)

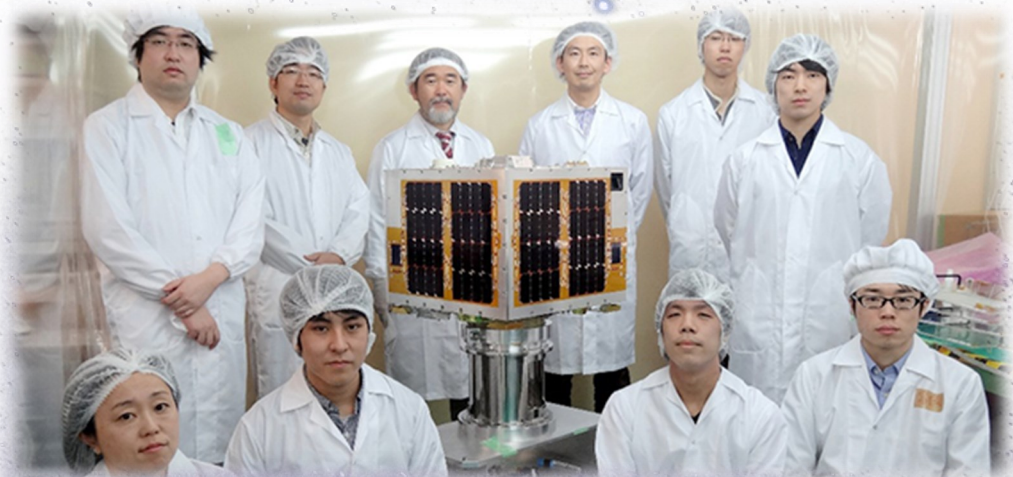
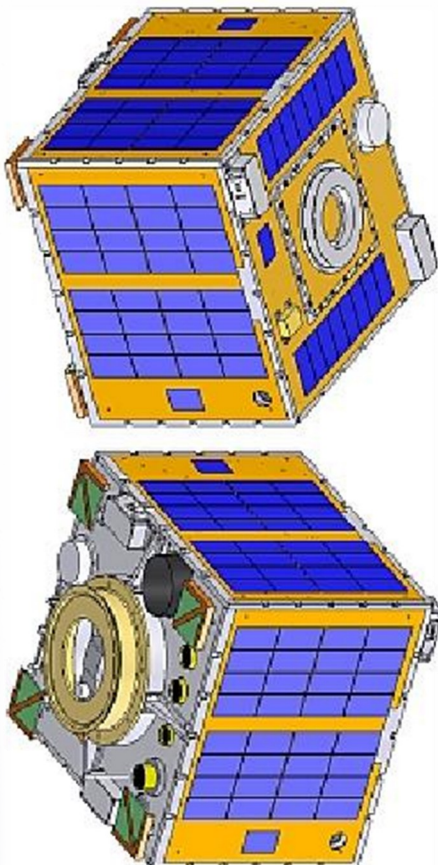
I was doing research about the satellite attitude determination method. The satellite has many sensors to determine its current states. It is simply like humans where we have organs to sense the environment around us. In a satellite's case, it needs to determine how high it is from the Earth surface, where the camera is pointing right now, the temperature inside the satellite, etc.

In my study, I was doing research about the development of gyroscope sensors calibration methods. This sensor has an important roll of realising the satellite rotation. In a real environment, there is some noise that may contribute to the measurement from the sensor. To eliminate that noise, the Extended Kalman filter is used for higher accurate measurement.



In the satellite system, since the system involves rotation, the system becomes nonlinear (we will have something look like a sine graph from the sensor). Due to this characteristic, there is a room to improve the accuracy of the calibration. I was trying to use the neural networks which is the basis of machine learning to improve the conventional method (the Extended Kalman filter) that is being used for the calibration of the gyroscope sensors.

Since, the neural networks have different mathematical models compared to the conventional method. I had a hypothesis that the performance of my new developed method will be better. So, I simulate the space environment to test my hypothesis and also design my new method to test together with the conventional one. My research still has a room to improve and there are many ways to tackle this problem. There are many parts in satellite development that can be improved which need collaboration from many researchers. So, not only individual aspects, but teamwork is also an important thing to archive the new technology.



Picture resource: <https://directory.eoportal.org/web/eoportal/satellite-missions/r/rising-2>



# Ask Senpai: IMAC early graduate

*Interview by Neo / Written by Supakit Wattanarungsan (Jom)*



Could you tell us a little bit about yourself? How are you doing? Hobbies?

Hello, my name is Supakit Wattanarungsan from Thailand. Normally, my friends call me Jom, which is my nickname (Every Thai person has this kind of name). I am starting the first year of a Master course about aerospace engineering in the Space Robotic Laboratory, conducting research about satellite development. My hobbies are playing music, dancing, and sports.



How would you describe your 3.5-year stay in Sendai? Any insights on what you have learned during your life here?

I really love Sendai city. I have a nice environment to enjoy my study life here. It has everything that I want while not being too crowded like other big cities. I can just cycle around and enjoy a nice sunny day surrounded by trees on the streets. It is a good place to live indeed. Unfortunately, I found that it is hard to find the jobs that are related to my study here.



Any advice/tips for current students on academics, and social aspects?

Just find your study method that suits you the most. Don't pressure yourself too hard, try to balance your study and your life here, and just don't make yourself regret after you graduate from here. For social aspects, try to make yourself comfortable. It is good to join many communities, but I sometimes find myself being tired of that too. You can ask your seniors or the FGL community if you're interested to join any communities or clubs.



Do you have any plans after graduating with a Master's degree here?

I am considering finding a job in Japan right now. Since my study is mainly about the aerospace industry, I want some experience working in such a world-leading country before I go back to Thailand. I am also thinking about continuing to study for a doctoral degree too, but I think I want to have working experience first and think again whether I really need to advance my study.





# Unique culture in Japan HANAMI



It is unfortunate to not be able to admire the beauty of the 2021 cherry blossom trees to the utmost due to the pandemic. Apparently, this year's Sakura blossoms early at a record-breaking pace with Southern cities already reached its peaked. This is the second consecutive year of spring ornamented with the corona virus.

To commemorate the full bloom Sakura, Japanese people loves to do "Hanami" 花見, literally translated to "flower viewing". They would gather and do picnic with family, friends, or colleagues under the breezy cherry blossom tree. A bunch of food and drinks usually are prepared, and youngsters bring their favorite toys such as frisbee etc.

If you are a good cook, you can always bring your home cooking special. But for those who are not experienced, some restaurants, like GUSTO, prepare special sets for Hanami. Ordering pizza is always a good choice for picnic food options. In a normal year, there are also food stalls Japanese street foods such as okonomiyaki, takoyaki, yakisoba, etc. in some spots.

Now you may ask, "where is a good place for Hanami sightseeing?" If you want to go all out once the pandemic is over, you can plan a Hana-mi road trip tour from Okinawa to Hokkaido. Other option is to enjoy the local beauty of Miyagi prefecture which is very underrated and more foreigners should now about. Here are some great options. ✨

❗ **If you have "Hanami" this year, please make sure to avoid 3Cs (Closed, Crowded, Close-contact space). Protect yourself and other people!**

## Shiroishi River Senbon Sakura (Ogawara Town)

The most popular spot for Hanami in Miyagi, described literally by its name, "Senbon Sakura" (A thousand cherry blossom trees). You got to walk along the river with Sakura trees all line up picturesquely. You will see a scenery that you could only see in postcards otherwise.



Did I tell you that Hanami can only be enjoyed from morning to afternoon? You are totally wrong because the night illumination should be the ultimate finisher for your Hanami itinerary. Enjoy the night surrounded by Sakura tree and glittering lamps.

*Written by Carlos*



## Tsutsujigaoka park

Let's start easy with somewhere close, 15-minute walk from Sendai station. You would be surprise that in the middle of the city crowd, you could find a forest of Sakura tree. Then, you will start to believe that Sendai is "The City of Trees".





# CURRENT SITUATION

## About COVID-19



Resource: Sendai city website

Since the middle of March, positive cases in the Miyagi prefecture (specifically Sendai) has risen rapidly to about 100 people daily. This is considered very dangerous for the city of Sendai. The infection rate as of March 22<sup>nd</sup> is 0.3%, meaning that one in every 333 persons will be or is infected. Please take care of yourself. In addition, please refer to the latest information from Tohoku University [here](#).



Resource: NHK YouTube

## EARTHQUAKE NEWS

At around 6 P.M. on a peaceful Saturday, March 20<sup>th</sup>, an earthquake of magnitude 6.9 caused an upheaval in the Miyagi prefecture, followed by a 1-meter-high tsunami. There have been several reports of many being injured and of damages across the prefecture. We hope that everyone stays safe, and please be prepared for all situations as advised by the National Earthquake Survey Institute.



Check the latest Earthquake in Japan!

## EVENT AHEADS...

Right now, the Japanese government decided to extend the suspension on the entry of newly issued visa holders; constituting most of the freshmen and some of the students abroad without the re-entry visa. We will not be able to have a gathering party for now. Please stay tuned for the new events by us!

## WE NEED YOU! Leader Recruitment

For the upcoming spring semester, we will transition into the new fiscal year. We are looking forward to having more creative, ambitious individuals to join us in building the FGL Community as a great big family. You can find the details by scanning the QR code in this poster. See you soon!



Or click [here!](#)

Written by Neo