東京大学
THE UNIVERSITY OF TOKYO

MGMSI GSDM WINGS CFS Q-STEP Designing Future Society Fellowship

2021 Summer Camp

August 10-12, 2021
The University of Tokyo
ONLINE

Graduate Program for Mechanical Systems Innovation

Global Leader Program for Social Design and Management

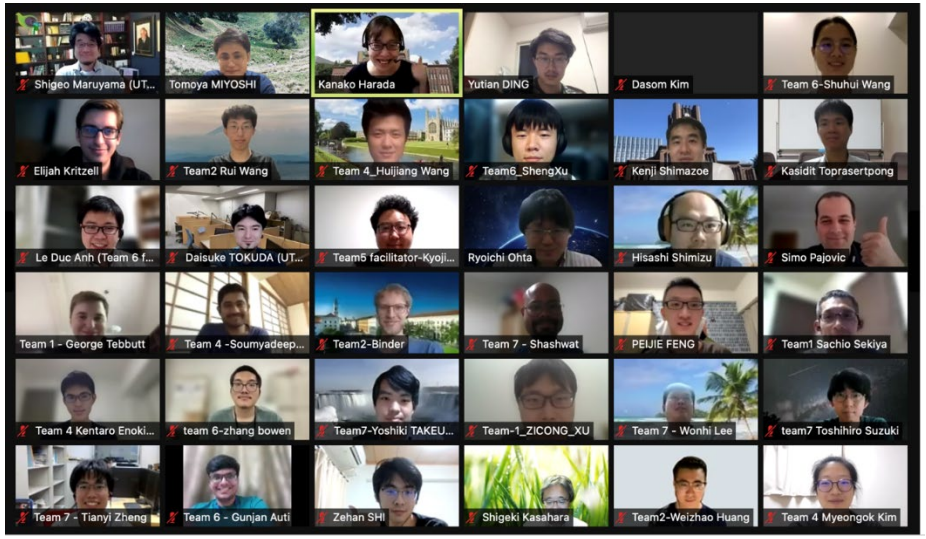
World-leading Innovative Graduate Study Program Co-designing Future Society

Quantum Science and Technology Fellowship Program

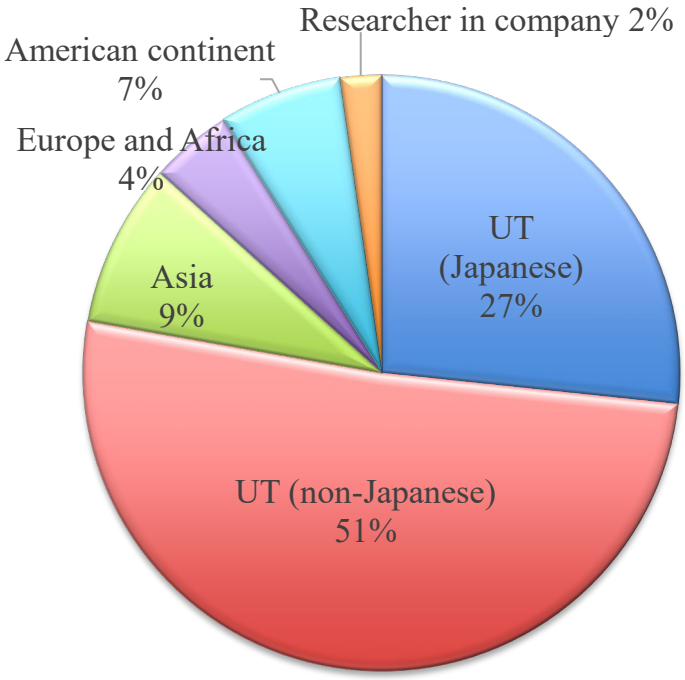
Designing Future Society Fellowship

2021 Summer Camp

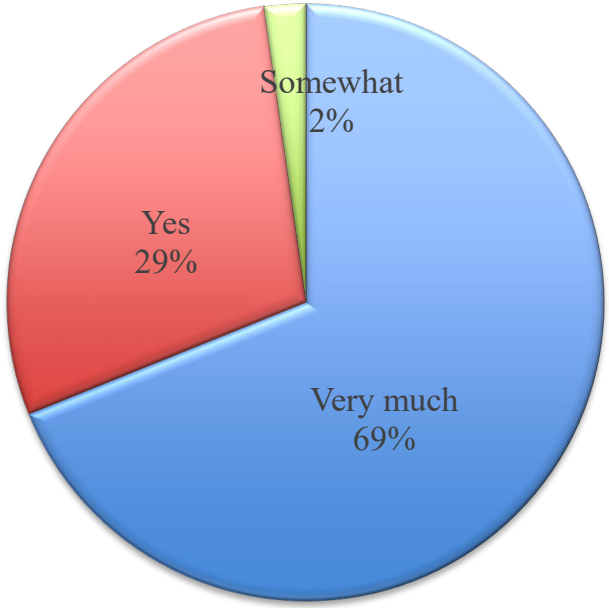
- UTokyo and world-leading universities Ph.D students discuss and exchange ideas to propose an international research project with your team members to develop an innovative device related to “New Normal” after COVID-19.
- 49 Participants from 9 universities of 7 countries & regions and 1 company



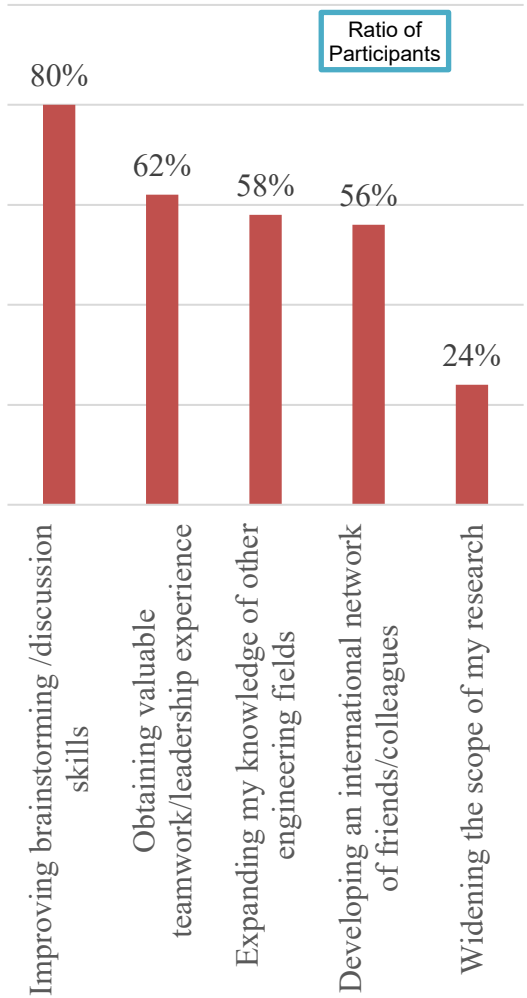
2021 Summer Camp



▲ Participants



▲ Satisfaction



▲ Which areas beneficial

Details of Participants

Affiliation	Major	Number
The University of Tokyo	Advanced Interdisciplinary Studies	1
	Aeronautics and Astronautics	3
	Applied Chemistry	1
	Architecture	2
	Bioengineering	1
	Complexity Science and Engineering	1
	Electrical engineering and Information Systems	1
	Environment Systems	1
	Materials Engineering	2
	Mechanical Engineering	19
	Precision Engineering	2
	Science-Chemistry	1
	Systems Innovation	1
	Urban Engineering	1
Korea University	Bioengineering	1
Ludwig-Maximilians-University Munich	Physics	1
Massachusetts Institute of Technology (MIT)	Mechanical Engineering	1
National Tsing Hua University, Taiwan	Institute of Nanoengineering and Microsystems	1
Peking University	College of Chemistry and Molecular Engineering	1
Rice University	Applied Physics	2
Tsinghua University	Electronic Engineering	2
University of Cambridge	Department of Engineering	1
University of Oxford	Department of Materials	1
Indian Institute of Science (TOSHIBA CORPORATION)	Civil Engineering	1
	Total	49

Slack # cultural exchange

Wonhi Lee 18:01

Hello, I'm Wonhi Lee from Daegu, South Korea. I used to live in Japan for primary school periods and went to New Zealand and returned to South Korea during my undergraduates and until now. I'm living in Seoul, the capital city of Korea. Daegu, my home town, is located in the southern part of Korea and famous for Gop-Chang. South Korea is worth visiting for combinations of historical and modern architectures and hope to see you after COVID-19 situation calms down!

2 個のファイル


Simo Pajovic 22:08

Hi everyone, my name is Simo Pajovic. I am a PhD candidate at MIT. My family is originally from Serbia 🇷🇸, but I was born in Buffalo, New York 🇺🇸 and grew up in a suburb of Toronto, Canada 🇨🇦. Since I started attending graduate school, I have been living in Boston. My cultural roots in Serbia are very important to me and I usually visit my extended family every year, although the pandemic has prohibited this for the past two years. Below are some pictures of Toronto, my family's summer home in Montenegro, and, more importantly, Serbian food. 🙂 The most notable one is Karageorge's schnitzel (Karađorđeva šnicla), which is a pork schnitzel stuffed with kajmak (a savory dairy product similar to sour cream or cream cheese) and typically served with tartar sauce, French fries, and/or lepinya (lepinja), a type of Serbian bread. It is my favourite food of all time. Also, Serbian BBQ is one of our most famous cuisines, but I could not find any of my own pictures of it. The likely reason is that I ate it too fast to take a picture... Fortunately, someone on Google Images had the resistance to photograph this mouthwatering food before diving in. 🤤

8 個のファイル



kou ko 22:54

Hello, everyone, I'm Hong HU, a first-year doctoral student from U-Tokyo. I come from the Hunan province of China. Hunan is a mountainous province in southern China, and it was the early home of the first Communist leader Mao Zedong. Hunan province is renowned for its beautiful landscapes of lakes and mountains and its sites of cultural and historic interest. Also, Hunan cuisine is one of the greatest eight cuisines of China and is well known for its hot and spicy flavours. Although travelling abroad during the COVID-19 epidemic becomes a luxury, the customs and cultures of other countries can still be experienced through self-media on the internet, and exotic cuisines are available by meal delivery services without leaving home. I highly recommend the Hunan cuisine in the pictures. Just try it and you will fall in love!

2 個のファイル


Huijiang Wang 21:32

Hello everyone, it is so nice to meet you here! I am Huijiang Wang, I am currently a first-year PhD candidate in Dept. of Engineering at the University of Cambridge. I was born in Chongqing, China, and for the past 7 years I have been living in Beijing and obtained my BSc and MSc degrees there. My hometown (Chongqing) is renowned for its diversity in landscape and authentic hotpot. Due to the unique climate here, it is also called "fog city" and the locals are particularly capable of eating something spicy. If you plan to visit China once the covid is settled, I strongly recommend that you pay a visit to my hometown and try the authentic Chinese Hotpot. You'll love it!

3 個のファイル



Hanzhi Wang 13:16

Hello everyone. Nice to meet you! I am Hanzhi Wang, a second year PhD candidate in the department of Mechanical Engineering at the University of Tokyo. I come from western Hunan, China. My hometown has very beautiful rivers and mountains, and our living environment is typically characterized with "near water near mountains". I hope all of you can have a chance to visit my hometown and to experience the peaceful life there.

3 個のファイル



Opening

Welcome messages :

Prof. Mitsuishi

Prof. Maruyama

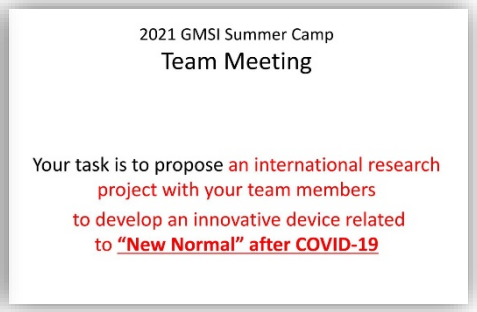
Introduction of program

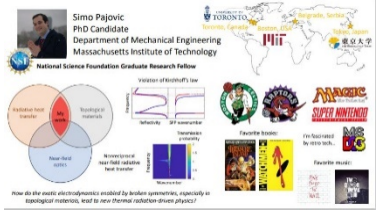
:Prof. Kasahara

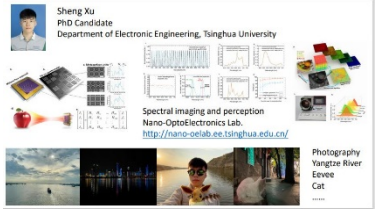
Guidance:

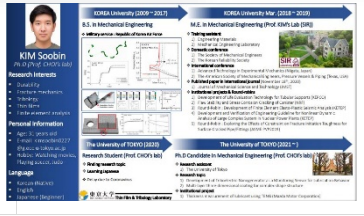
Prof. Harada

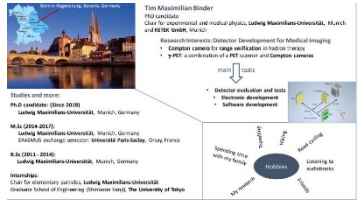
Self Introduction

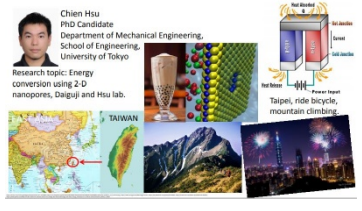


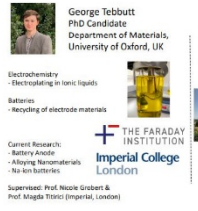


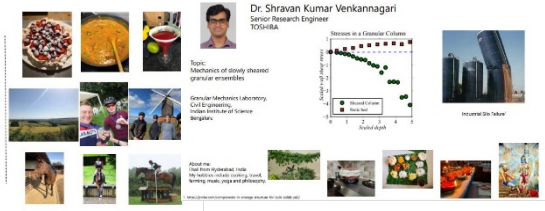


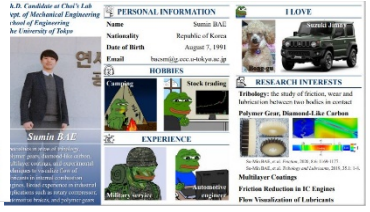










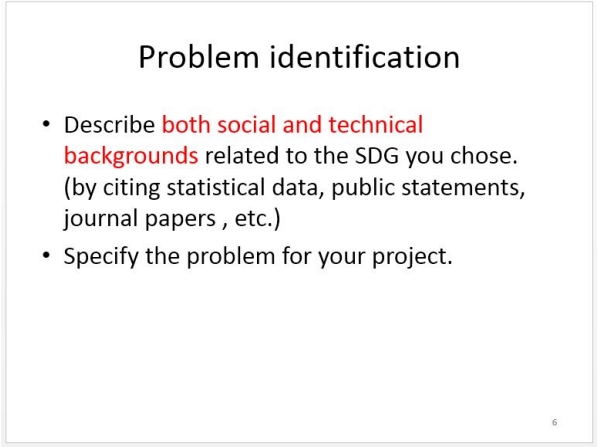


Team Meeting –task-

Your task is to propose an international research project with your team members to develop an innovative device related to **"New Normal" after COVID-19.**

Presentation template

- ✓ Problem identification
- ✓ Idea of New Device
- ✓ International research project
- ✓ Organization of international research team
- ✓ Potential impact
- ✓ Roadmap & Budget



- 7 teams (7 participants/team) were organized in advance.

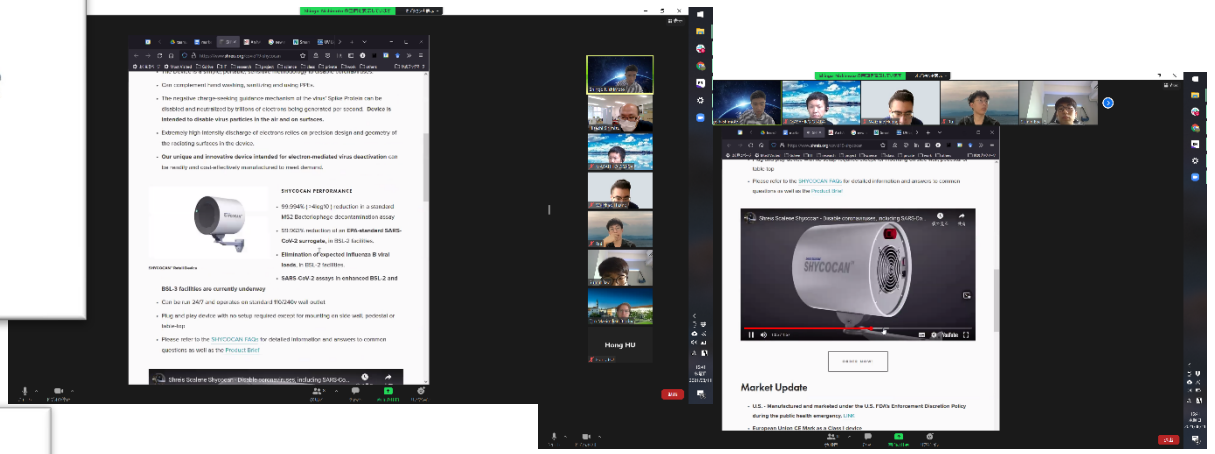
Final Presentations

Covextractor

An air **guiding extractor system** that uses **innovative filters with long lifespans** to filter air in restaurants, and allow to **detect high virus concentrations** in the air around restaurant guests

Team:

Sumin Bae (The University of Tokyo)
Masahiko Osada (The University of Tokyo)
Hong Hu(The University of Tokyo)
Weizhao Huang (The University of Tokyo)
Rui Wang (The University of Tokyo)
Shingo Nishimoto (The University of Tokyo)
Tim Binder (Ludwig-Maximilians Universität Munich)

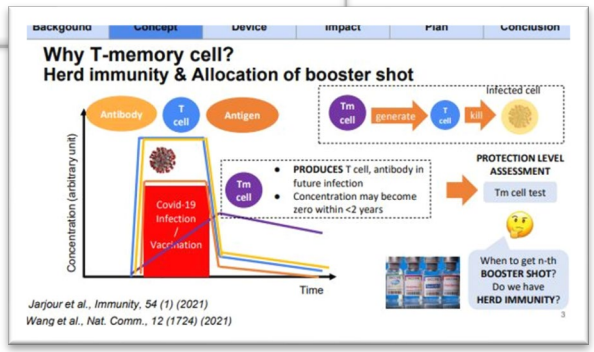


Tm-cell detection diagnostic kit:

Mapping immune status prior to booster shot using machine learning automation

CI Tech (Team 4)
Facilitator: Dr. Ryoichi Ohta

Myeongok Kim (Univ. of Tokyo)
Huijiang Wang (Univ. of Cambridge)
Kentaro Enokida (Univ. of Tokyo)
Masahiro OKAMOTO (Univ. of Tokyo)
Xiyang Qiu (Univ. of Tokyo)
Soumyadeep Paul (Univ. of Tokyo)
Yutian DING (Univ. of Tokyo)



Instant and Reusable Pathogen Detection

A pandemic world...

Team 1

Supawan Ngamprapawat, University of Tokyo
Sachio Sekiya, University of Tokyo
Soobin Kim, University of Tokyo
Zicong Xu, University of Tokyo
Gengyu Li, University of Tokyo
George Tebbutt, University of Oxford
Sida Sun, Peking University

What will the 'New Normal' look like?

The COVID-19 pandemic wasn't the first to devastate the world and it won't be the last.
-- the Global Alliance for Vaccines and Immunisation (GAVI)

- We think that people may not need to wear mask in low population density spaces and we may even move to a **maskless** future.
- We need to prepare for this kind of unknown pandemic:

Prevention (mask, disinfectant) *vs.* Tracking *vs.* **Cure (detecting,testing)**

❖ **Current limitation**: People could not know whether they are infected or not in close to real-time - are we infected currently?

'Infected people appear to be most infectious just before they develop symptoms'----- WHO

Our goal: improve the latency surrounding personal detection of pathogens, allowing individuals to make informed choices more conveniently.

Davies, N.G., Klepac, P., Liu, Y. *et al., Nat Med.*, **26**, 1205–1211 (2012)

Evaluation & Awards

Criteria	Points
Innovation, and potential impact	/ 5 points
Background survey, technical soundness, feasibility, and project management	/ 5 points
Teamwork, presentation	/ 5 points

Comments given to each team

Team 2 (Air guiding extractor)

It was excellent that…

- The technical seeds are explained by citing academic papers.
- The summary slide was very nice.

It can be better if you could …

✓Limit the amount of information per slide

✓Focus the research on a technically challenging part

Covextractor

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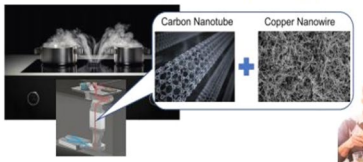
Summary

Not to stop the economy, restaurants have to open "normally" with the virus
To realize it, Innovative filter system needs to be installed
Combination of CNT for capturing & CuNW for killing the virus
3-year PRJ with Daikin etc. on a budget ¥15mil. can realize the tech.



Building original filter tech. with CuNW and CNT through PRJ, restaurants can open normally with the virus & people will have fun eating out again.

Best Innovation

Team 2 (Air guiding extractor)

Questionnaire Summary (1)

	Did you enjoy the Summer Camp ?	Self introduction	Virtual lab tour	Research presentation	Cultural exchange	Team meeting	Final presentations	Organization
All (2021)	4.5	4.6	4.2	4.5	4.4	4.7	4.6	4.6
Invited from universities	4.2	4.2	3.9	3.8	3.7	4.4	4.6	4.4
UT (non-Japanese)	4.6	4.7	4.2	4.7	4.6	4.7	4.7	4.7
UT (Japanese)	4.5	4.5	4.0	4.4	4.3	4.6	4.7	4.6
Invited from companies	4.0	4.0	3.0	4.0	3.0	5.0	5.0	4.0

- Basically, most of the participants enjoyed the camp very much.
- Scores vary depending on the affiliation.

Questionnaire Summary (2)

In which areas did you find the camp beneficial?

	Improving brainstorming/discussion skills	Obtaining valuable teamwork/leadership experience	Expanding my knowledge of other engineering fields	Developing an international network of friends/colleagues	Widening the scope of my research
Ratio					
2021	**80%**	**62%**	**58%**	**56%**	**24%**
2020	**68%**	**68%**	**72%**	**76%**	**36%**

- The camp surely enhanced the “competency” of the participants.

Comments from Participants

Invited from universities

- I think that having to work around time-zone differences added a unique aspect that I wouldn't normally have thought as much about. I do wish that I had been grouped with more people around my research subject area-- I believe our presentations could have been much more realistic if we had the benefit of common areas of study, and this would reinforce networking with people in our specific field
- "I think the biggest challenge was the time zone difference. Our team had the greatest time zone difference by far, which practically meant that we had much less time to work on our presentation compared to other teams. (When my teammates were awake, I was asleep, and vice versa.) The extra time the other groups had really showed in the quality of their presentations, in my opinion.I also had other obligations and deadlines besides this summer camp, and I felt bad that I could not make it a priority compared to the University of Tokyo students who are doing it for credit. I do not think it is completely fair to group someone like me with people who have a real stake in this summer camp.I also did not like that our projects had to have a technical seed related to our research. Everyone has such disparate research backgrounds, it is difficult to identify a technical seed that relates to at least one person's research AND COVID-19. In this sense, the scope of this topic is too broad from my point of view. In addition, I think there is an element of luck in that someone who studies a topic that is broadly applicable (like CNTs) is more likely to be able to extrapolate their research to COVID-19. Again,

Comments from Participants

- with more time this would have been less of an issue--this is related to my point above about the time zone difference.In spite of these challenges, I did feel like I gained a lot from this summer camp. The issues I outlined are not fundamental to the summer camp--they are problems that can be solved. I would certainly recommend this experience to others. My only regret is that I could not come to Japan to meet everyone and see your beautiful country!“
- Well organized. All the best for such future events.
- Loved this session, would be better if time is flexible
- Very enjoyable - good to gain understanding of different logically approach/thinking from across the world. Shame we couldn't meet in person, hopefully soon.

Invited from companies

- "I thank the organizers for their efforts to make this camp. Due to travel restrictions in Pandemic, personal interaction was inevitably minimized. I felt there could have been dedicated timeslots for all the team members to showcase their research presentations they prepared, and have informal discussion about various topics. In the slack channel, the individual interaction with other team members was rarely achieved due to busy preparation on proposals.Thank you very much. Looking forward to more in-person meetings in future. “

Comments from Participants

UT (Japanese)

- I think it is a very organized camp. It was very difficult to discuss with new members. I enjoyed this camp. But if it is not an online camp, I think we can discuss it more. But the online system is nice for making presentation file. I think it's the benefit. Thank you.
- It was perfect if we had a one more day for cultural exchange with all members before starting our task!
- "It was very valuable opportunity to work with people from various fields.If we had a kind of lecture regarding to the project management at the beginning of the course, the discussion could go more smoothly."
- Though I really enjoyed this summer camp, I think it might be better to have a longer summer camp (4days~1week), to discuss further our idea and to interact with other students. An ice-break session across the groups can be a good opportunity for us to create networks among researchers.
- It was a great experience to have discussions with students from various fields. In particular, we were able to discuss in detail the technical feasibility and the impact on society, which deepened our ideas. In addition, I thought the virtual lab tour was a good system. Through it, my technical knowledge was expanded so much.

Comments from Participants

- "I cannot imagine the situation of on-site camp, but I guess that we can communicate more each other, and we have chance to talk with people who are out of the team members. In the on line camp, it was very difficult because we cannot know the other member's status that whether they are busy or not. It can be better experience if we can have additional communication other than team meetings.However, it was the wonderful experience for me. Thank you very much!"
- I felt the suggestions were similar because the theme is a little bit biased. I think the theme should be more general such as "the idea that can improve the university life" or "the idea that can improve the cross-cultural understanding".
- It was a really pleasant time and we had a good work with teammates though it wan online. I would like to make more conversation with participants outside the team. In order to do so even in online, I suggest "Gather.town" app (perhaps some of you still know.). Anyway, it was an good opportunity for me to interact with people from various backgrounds. Thank you all for organizing this summer camp.

UT (non-Japanese)

- Memorable 2 days! Thank you all the professors, facilatators, and students!
- Thank you very much.

Comments from Participants

- Thank you for organizing the camp, it was overall a pleasant experience! The schedule was a little bit tight, so our group was really busy working on the project and we would have liked to spend a little bit more time just doing cultural exchange and networking together. At the end, we could spend around 1 hour on Wednesday evening and 1 hour on Thursday evening to do cultural exchange. But again, thank you for the camp!
- Time is so limited and we have meeting 8 hours per day which makes us tired. I suppose if the camp takes longer, it will be more enjoyable. And because of the time difference, I think an off-line could be truly better. Anyway, thank you for organizing.
- It is very glad to see lots of people from different research fields.This time I just noticed people from Mechanical Engineering is quiet a lot, so sometimes the project is more 'Mechanical'. I would like to work on project near to my field, but I hope people from more various research field is preferred from my personal option. Anyway thank you for holding the Summer Camp and I have a great time.
- I really like this summer camp because I can learn a lot from brainstorming with the team members who have different research backgrounds and cultures. Thank you so much for organizing this great camp!! :D

Comments from Participants

- Very nice camp! Thanks for the organization and also thanks to my teammate from team 6. One comment is that the interaction between different teams are very limited. If we can improve it, it will be very nice.
- self-introduction channel (slack) is ok but introduction time in the team will be more enjoyable than introducing each.