

GCL NEWSLETTER

Special Compilation Issue 2

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- **GCL Summer Camp**
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- **Introducing the JPHACKS Award-winning Team (Including GCL Students)**

(This issue of the GCL Newsletter comprises revised content from past issues. Students' affiliated schools and other such information shown in this issue are current as of the time of original publication.)

(Articles in this issue is originally written in Japanese. This issue is a translated English version.)

GCL Summer Camp



The overnight-stay GCL Summer Camp was held from September 7 to 8 (Sunday–Monday). The following report on this program was provided by Emi Yamamoto (Graduate School of Education, second-year master's student).

(The following text was written by Emi Yamamoto.)

For two days from September 7 to 8 (Sunday–Monday), GCL Summer Camp 2014 was held at The University of Tokyo's Kemigawa Seminar House. The purpose of this program was to identify social issues present in ongoing government discussions via the Japanese Earning Capabilities Cultivation Committee (Nihon no Kaseguchikara Soshutsu Inkai) and others, and propose ICT-centered solutions. In addition to GCL students, RAs, persons in charge of the program both inside and outside the University, specially appointed GCL teaching faculty, and advising teachers took part, resulting in heated, enthusiastic discussions.

1. Lectures

Senior Fellow Kumi Okuwada of the Research Institute of Science and Technology for Society (RISTEX) gave a lecture on "the fourth scientific and industrial revolutions brought about by big data," and Minister of Economy, Trade and Industry (METI) Deputy Director-General Akira Matsunaga provide a lecture on "the cultivation of earning capabilities in Japan." These talks pointed out that our contemporary society, which is in the midst of a transformation into a knowledge-centered society, requires

of people the abilities to search out value; explored which goals should be pursued in the medium and long term through collaborative industry–government–academia efforts; and offered other such insights.

2. Group Activities

Following the lectures, students attending the course and RAs were divided into four groups, and each group focused on a specific social issue and discussed possible solutions that make use of ICT. Based on issues and solution proposals developed individually prior to the program, each group member made use of their specialized field or fields of knowledge during group work.

3. Social Gathering and Short Presentations

For the evening meal, participants took part in a standing, buffet-style dinner party, which provided valuable opportunities for exchange between teachers, students from differing academic years, and others, and at the end a commendation ceremony was held for winners of the July–August presentation competition. Following this social gathering, all GCL students and RAs present gave one-minute presentations on their own research topics. Through calls for additional research partners/participants and other such efforts, this presentation session provided to be highly meaningful, in line with the Summer Camp goal of "cultivating new foundations for collaboration."

4. Group Presentations

After final preparations on the night of the first day and in

the morning of the second, each group summarized their discussions on a single slide and presented it to the others. The result was a plethora of richly individualistic ideas, including economic-activity matching services for persons with disabilities through use of Ability Tank services, attraction of foreign travelers through the use of existing facilities and so forth to communicate tourist information combined with utilization of wearable devices for health management, support for improved communication with non-Japanese laborers via translation/interpretation tools that take into account factors such as context and emotions, provision of vicarious experiences encompassing emotions

and the five senses through the use of virtual reality technology, and more. Ms. Okuwada and GCL advising teachers answered participants' questions, and numerous profound ideas and opinions were expressed.

Following group presentations, Ministry of Economy, Trade and Industry (METI) Industrial Revitalization Director Yasuyuki Kawanishi honored us with a few words. I feel that this two-day program involving students from various fields fostered new and even greater possibilities for the future.



This article was originally published in the September 2014 issue (no. 12).

■ "Redesign of Society" Participation Reports

In 2014 from September 9 to 28, seven first-year master's students in the GCL program traveled to Finland and took part in the "Redesign of Society" intensive course held in the Aalto ARTS Media Lab at Aalto University.

Aalto ARTS Media Lab is an important center of design study in Europe, and the Redesign of Society intensive course was designed with the participation of GCL students as a prerequisite. The following are revised extracts from participants' reports.

● Kensuke Ito (1st-year Interdisciplinary Information Studies master's student)

Aalto University, the school we visited, is located in Helsinki near the seacoast at the southern tip of Finland, and during our bus commute we had to cut across several small islands. Finland's September weather is similar to that of October or November in Japan: The cold mornings made for a somewhat difficult commute, but the crisp air and gorgeous autumn leaves created a relaxing atmosphere. It differed greatly from the initial impression I had of Finland before visiting, which was based on the world inhabited by the fictional Moomin characters—the real Finland was even more stunning.

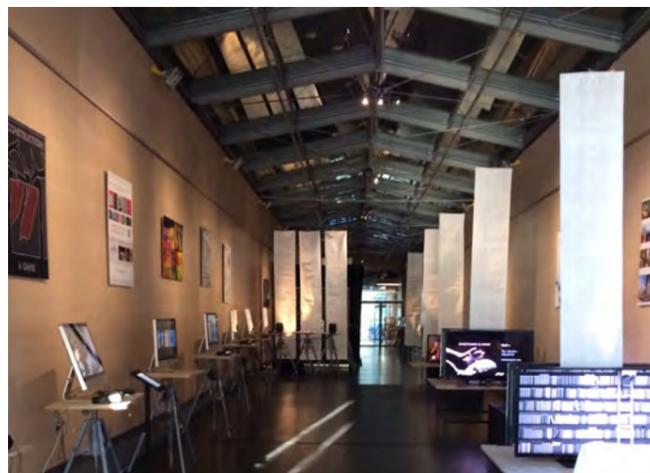
The Redesign of Society program was held mostly on the main campus. Aalto University's name comes from a distinguished Finnish architect and designer of the same name, and several of the university's buildings were built by Aalto himself. Other buildings on campus are also made of brick that matches in color with those built by Aalto, and these reds contrast with the greens of the forests and blues of the sea to form a beautiful campus. I was particularly impressed by the diversity in terms of age and nationality among program participants. Overall, Helsinki was far more internationalized than I had imagined—this was particularly invigorating for someone like me with little experience traveling abroad.

Compared with Tokyo, Helsinki is much smaller in size

and less populous. Public safety levels are very high, and I did not feel in danger or worried at all even when I stayed out drinking with friends and returned home late at night. Public transportation operates precisely according to schedule, and dedicated rider cards for buses and streetcars facilitate seamless transfers, making for a highly convenient transportation system. However, an employee strike brought all the streetcars to a halt on one occasion, which was a new experience for me. Even though I was aware of it beforehand, I was surprised to find that all working people throughout the city were highly proficient in English, which left me feeling impressed at the effectiveness of the Finnish education system.

Final program results were announced and the twentieth anniversary of the Media Lab's establishment celebrated during an event at the Aalto Media Factory, which is located off-campus. This facility was integrated into a commercial building, and although it was not very spacious, the elegantly designed interior was filled with 3D printers and other state-of-the-art equipment, making it seem like an IT company office. At first I was baffled by this seemingly extravagant facility design, but I suppose it's only fitting for a deeply technology- and art-focused school such as Aalto University. This series of events at the Media Factory were truly novel and precious experiences for me.

My visit made me realize that there are probably only a handful of universities in Japan that possess such a rich culture, even if we consider comprehensive educational institutions, art schools and technical schools all over the country.



Left: Aalto University's buildings were built with a unified red-brick style. Top: The beautiful interior of the Aalto Media Factory, which is filled with the latest 3D modeling equipments, looks just like an IT company office. (Photographs by Kensuke Ito)



Participants wrote down problems in contemporary society and posted them on the whiteboard, after which they split up into groups according to topic. (Photograph by Yichia Chan)

● Yichia Chan (1st-year Interdisciplinary Information Studies master's student)

In general, activities were divided into guest lectures in the morning and group activities in the afternoon. Morning lectures were based on various topics, including law and copyright, environmental protection, technology and the future, and others. Aside from final reports, afternoon group work included about four different presentations, each of which included predictions regarding the state of society in the year 2040, summaries of current social problems, discussions on dystopian societies and so forth.

To start with, groups envisioned a future society in 2040 and presented their ideas. My team predicted that robots would more actively support people's lives in the future; other teams put forth philosophical predictions, and some of their future societal visions were a bit hard to picture.

Overall, my favorite parts of these activities were the afternoon discussion sessions. All of the participants came from differing backgrounds, and I noticed on many occasions the differences between Asian and European ways of thinking. Amid such differences, I had to make a strong effort to convey my opinions and explain them in ways that others were able to understand, making the discussions very challenging.

Through this program, I made friends with Aalto University students and we often ate lunch together. During our



This article was originally published in the January 2015 issue (no. 16).

lunchtime chats, we talked about the differences between our countries and cultures and expressed our thoughts regarding the morning lectures. I was surprised by some of the things the other students had to say.

● Tingting Lian (1st-year Interdisciplinary Information Studies master's student)

(This report was submitted in personal journal format. Select entries are shown here.)

September 11: During the morning section, Jack Whalen gave a lecture on the democracy movement and also the fishing industry. I ate lunch at the cafeteria, and afterward we engaged in group-based, open discussions on various predetermined topics. My group discussed "the direction of politics from the perspective of sources and layers of authority." The most striking thing to me was the deep attachment Finnish university students had to their own opinions, so much so that they were not easily influenced by the opinions of others. At night we had dinner at a family-style Italian restaurant.

September 24: Because meeting places were different for each group today, people departed from Toolo Tower separately, and I headed toward a new destination: Aalto University's Arabia Campus. In preparation for final presentations, each group worked continuously until 1:00 p.m. on presentation slides, posters and so forth. The Arabia Campus' cafeteria, a highly transparent and pleasant space, was attached to the library.

The final presentations started after lunch at the cafeteria. Each group explained their utopia concept in different ways based on the five themes of freedom, commons, employment, transparency and redesign criteria. I was deeply impressed by each group's bold and novel ideas.



Fascinating scenes as seen by course participants. (Photographs by Tomoya Kikuchi (left) and Yohei Yamaguchi (right))

■ Introducing the Award-winning Team (Including GCL Students)

JPHACKS, Japan's most prominent hackathon, was held over three days on December 13, 14 and 20, 2014. The event was hosted by The University of Tokyo, co-hosted by the GCL program and the Graduate School of Information Science and Technology, and run by Givery, Inc. Participants included 110 students in 32 teams, and the event's theme was "making skillful use of technology to develop something that dramatically changes people's daily lives." Students made full use of their creative and technical abilities as they competed for a chance to be in the grand prix.



(Photographs by Givery)

Questions for team members:

- (1) What inspired you to take part in JPHACKS?
- (2) What is the overview and which are the characteristics of your idea or product?
- (3) How do plan to develop your product further in the future? Or do you plan to pursue other products instead?
- (4) What thoughts and impressions do you have after participation in JPHACKS?
- (5) How have your GCL activities influenced your JPHACKS and efforts?

Sight

Team: 200 OK

Respondent: Naoki Wake (Graduate School of Information Science and Technology, first-year master's student)

(1) I told Fushimi, one of the team members, that I wanted to do something interesting and fun, and Fushimi recommended JPHACKS. I was able to ask Suzuki because he was a mutual acquaintance of ours. Fushimi invited Munakata to join.

(2) "Sight" is a sensory enhancement device that offers new ways of perceiving the world. By using this device, which transforms visual information into auditory information, users can experience the world in a new way through the sounds provided. The idea was based on scientific knowledge which tells us that the human brain is able to adapt on a cellular level in response to various sensory inputs in order to process information.

Ambient sounds can, of course, still be heard as usual. It's easiest to think of our product as device that adds a new auditory background layer to these standard sounds. In addition to use for entertainment purposes, possible applications of Sight include medical use as an auditory-based visual aid, industrial applications to provide operational assistance for people working in dangerous areas, and others. This product also represents a very

challenging pursuit in which we strive test the limits of the human brain's capabilities.

The initial concept for Sight came from Suzuki's idea of "creating something that people can enjoy using while they walk." Sensory enhancement enables richer perceptions of the world; we thought that this would surely make for a fun product to use while walking around.

(3) We plan to continue developing Sight. Although the product's audio conversion algorithm and numerous other aspects still need improvement, our current focus is on concrete improvements with an eye toward application of Sight as a visual aid tool. Our team also wants to develop new products in the future, but we have not yet decided on anything specifically.

(4) It was truly enjoyable for the four of us to come together build what we wanted to make. Furthermore, because we were able to complete Sight as a product, we felt that this was a fulfilling project.

(5) Because it provides opportunities for collaboration with students from various research backgrounds, I believe that my participation in the GCL program has helped to cultivate the ability to effectively share ideas. That experience makes it possible for me to communicate my concept's worth to people with a diverse range of differing personal values. It also helped during our Sight presentation.



(Photographs by Givery)

Heart Cloud

Team: Cyberia

Respondent: Ryo Soga (School of Engineering, fourth-year undergraduate student)

(1) We are successors to the company TeamCyberia. Rather than trying to be the first in terms of new technologies, we utilize advanced technologies in the fields of robot design, machine learning and programming for product development so that we can be the first in terms of providing solutions to problems, with the aim of solving problems in fields where technologies are not sufficiently integrated.

Because responsibility for TeamCyberia operations is being passed down to us, we chose to participate with an eye toward strengthening team cohesiveness and cultivating a rough model of future company services as we move forward.

(2) When it comes to human healthcare, many people believe that we have come to understand which things to fix and which ought to be improved based on standard, individual lifestyle improvements in areas such as going to bed and waking up early, getting regular exercise and maintaining a healthy diet.

But is that all there is to good health?

Human health encompasses not only physical health, but mental health as well. Among those who suffer from depression and other mental disorders, many claim that they never realized or thought they might be afflicted by a mental illness such as depression, or believe that claiming one has a mental disorder is an escape or excuse. Furthermore, most of the afflicted wait until they are no longer able to understand and solve their problems on their own before seeking medical treatment. We view this as a sign that people are unable to properly maintain mental

health on their own.

We strive to achieve preventive healing through the use of our product, which monitors the state of people's mental health within families, companies and other groups where individuals are in close contact.

Product Characteristics:

In addition to mental healthcare group support, this product is unique in its use of brain waves to achieve a shift from a subjective to an objective approach to mental health assessment. Up until now, persons suffering from mental disorders have widely been viewed as weak, and as a result people tend to view visiting a counselor as taboo.

(3) Various problems are encountered when attempting to measure one's level of mental health based on brain waves.

- Electroencephalographs are not fashionable
- Electroencephalographs measurements are impeded by noise

- Insufficient information is available on relations between the psychological and long-term brain wave measurements

In consideration of the above problems, we are thinking of setting up counseling services led by clinical psychologists in order to secure clients, and then actualizing our Heart Cloud product based on the data collected from those clients.

(4) JPHACKS provided us with the opportunity to have our product viewed by Mr. Dairiki and other such established adult participants, thus helping us widen our perspectives regarding of business and technology. Moving forward, we will continue to contribute through our humble efforts toward the further growth and development of JPHACKS.

(5) As the operators of the Tea Time Hackathon (a hackathon for female students at The University of Tokyo), we were presented with opportunities to help participating students polish their ideas, resulting in a truly invigorating experience.

Through participation in the Utoxyo Innovation Summer Program (TISP) "i.school" summer program, we learned over the course of a month about topics such as design thinking as well as ways of thinking that generate innovation and fascinating ideas. Based on these, we thoroughly explored in an objective manner the types of problems that are present in ideas generated by other people and ways to make improvements to such ideas. The things we learned from this short summer program have taken root inside each of us, and I believe they are what inspired us to come up with our latest product idea.

■ Event Notices

◆ May 12, 2015 Global Design Seminar: "Finance from the Perspective of Account Settlement"

This seminar will be co-hosted by GCL Project Incubation Machinery (PIM), the NPO Global Business Research Center (GBRC) and The University of Tokyo Manufacturing Management Research Center (MMRC).

Participation is free of charge for students of The University of Tokyo. Application in advance is required and will be closed once the specified number of participants has been reached. Please visit the GCL website for application instructions.

Nobuyuki Kinoshita, a senior adviser of Aflac, will offer a lecture on "Finance From the Perspective of Account Settlement."

- Date and Time

Time/date: 6:30–9:00 p.m. on May 12 (Tue.), 2015 (lecture will begin at 7:00 p.m.)

- Topic

Finance from the perspective of account settlement

- Presenter

Nobuyuki Kinoshita
Senior adviser of Aflac

- Venue

Manufacturing Management Research Center (MMRC), The University of Tokyo

Address: Academic Exchange Bldg. (Kojima Hall) 5th floor, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113-0033 (The University of Tokyo Graduate School of Economics)

Phone: 03-5841-0687

(Located 6 min. on foot from Hongo-sancho Stn. on the Tokyo Metro Marunouchi Line, or 3 min. on foot from exit 4 of Hongo-sancho Stn. on the Toei Oedo Line. Enter The University of Tokyo campus using the Kaitoku Gate.)

- Co-hosts

GCL Project Incubation Machinery (PIM) and The University of Tokyo Manufacturing Management Research Center (MMRC)

- Cost

- ¥2,000 standard, ¥100 for students
- Free for GBRC members (as a membership privilege)
- Free for teaching faculty involved with the MMRC and IST GCL program
- Free for students enrolled at The University of Tokyo

- Contact Point

GCL Project Incubation Machinery (PIM)
pim[at]gcl.i.u-tokyo.ac.jp
(replace [at] with @ when sending e-mail)

◆ May 13, 2015 Global Design Seminar: "Roadmap to 5G: What Potential for Cloud Computing?"

This seminar introduces current thinking regarding fifth-generation mobile telecommunication technology to be deployed around 2020 and its standardization. Discussions will center primarily on standardization efforts in Europe.

Time/date: 2:00–4:00 p.m. on May 13 (Wed.)

Venue: The University of Tokyo Faculty of Engineering Bldg. No. 2, Electrical Engineering Lecture Room 4 (12th floor, room #121B1)

Title: Roadmap to 5G: What Potential for Cloud Computing?
Presenter: Dr. Tarik Taleb from Aalto University

Language: English (no interpreter)

Contact point: GCL Project Incubation Machinery (PIM)
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Editing and publication: GCL PR Planning

Yusuke Mori (1st-year Information Science and Technology doctoral student), Taku Arakawa (2nd-year Interdisciplinary Information Studies master's student), Yuya Shibuya (1st-year Interdisciplinary Information Studies master's student), Shojiro Shibayama (4th-year Engineering undergraduate student), Ryo Soga (4th-year Engineering undergraduate student), Nami Ogawa (4th-year Literature undergraduate student) (note: student academic affiliations are current as of the 2014 academic year)

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Cover photograph: participants in the JPHACKS event
(photograph by Yusuke Mori)