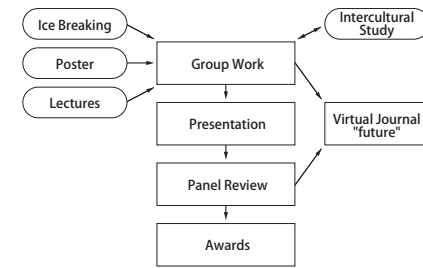
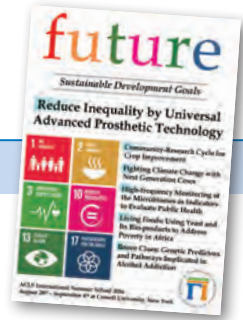


## Overview of Group Work



Flowchart of group work

The theme of group work this year was “Science to solve global healthcare issues”. Based on the knowledge learned at the United Nations Headquarters on the 29<sup>th</sup> of August, each group chose a topic among “Sustainable Development Goals (SDGs)” and wrote an article predicting the situation of 2030 and the technical development up to that point. This year, 5 to 6 students formed a group and there were 6 groups, from group A to group F. Although the working time was limited, each group finished not only writing an article of 4 pages but also preparing for a presentation of 7 minutes and subsequent Q&A of 3 minutes. Their performance and achievement was discussed in Panel Review for 120 minutes and evaluated by the invited 7 judges.



Articles written by each group will be bundled in a fictitious magazine “future” published by ACLS.

### Presentation titles under the theme of " Science to solve global healthcare issues "

- Group A : Community-Research Cycle for Crop Improvement (2<sup>nd</sup> place)
- Group B : Booze Clues: Genetic Predictors and Pathways Implicated in Alcohol Addiction
- Group C : Reduce Inequality by Universal Advanced Prosthetic Technology (1<sup>st</sup> place)
- Group D : Living Foods: Using Yeast and Its Bio-products to Address Poverty in Africa
- Group E : High-frequency Monitoring of the Microbiomes as Indicators to Evaluate Public Health
- Group F : Fighting Climate Change with Next Generation Cows (3<sup>rd</sup> place)

### Invited speakers and their lecture titles (in lecturing order)

Invited speaker	Lecture title
Nadrian C. Seeman (New York University)	DNA: Not Merely the Secret of Life
Jef D. Boeke (New York University)	Synthesizing Genomes
Leslie B. Vosshall (The Rockefeller University)	Building a Mosquito Sensory System to Hunt Humans
Christopher E. Mason (Cornell University)	Single Cells, City-scale, and Space Station Genomics
Scott Keeney (Memorial Sloan Kettering Cancer Center)	Breaking and Chewing DNA in Meiosis
Harris H. Wang (Columbia University)	Engineering the Human Microbiome
Shotaro Ayukawa (Tokyo Tech)	Design, Modeling, and Construction of Synthetic Gene Circuits
Yuri Matsuzaki (Tokyo Tech)	Protein-protein Interaction Prediction by Exhaustive Rigid Docking
Shuli C. Shwartz (Cornell Tech)	Cornell and Technion: Pushing Academic Boundaries for the Digital Age

## Summer School Experience



**Wei Ming Lim** Chairperson  
Graduate School of  
Bioscience and Biotechnology,  
Doctoral student (D2)

It would have been almost unthinkable – some 6 months ago – that I would be tasked to lead and coordinate 22 outstanding students in organizing this year’s summer school at Cornell University. With such diverse academic backgrounds and myriad personalities, it was both a challenging yet exhilarating experience to work together in planning this event down to the finest details. Nevertheless, with the continuous support, encouragement and guidance from the ACLS faculty members, we have managed to pull off this event with great satisfaction. I would like to thank all the faculty members for giving me their utmost trust and for the abundance of tutelage in leading this summer school. I would like to also extend my gratitude to my academic supervisors for their ever-encouraging support. Last but not least, my appreciation to my committee members for their dedication in making this summer school a fulfilling and rewarding experience for all.

### 2016 Student Committee Members (9 students)

\*The academic year is as of Summer School

Wei Ming Lim	Graduate School of Bioscience and Biotechnology, D2 Chairperson
Hitoyoshi Yamashita	Graduate School of Bioscience and Biotechnology, M2 Vice-chairperson
Aleksandar Zdravković	Graduate School of Bioscience and Biotechnology, D1 Group Work Session
Shohei Kitano	Graduate School of Bioscience and Biotechnology, D3 Poster Session
Kei Hanafusa	School of Life Science and Technology, D1 Booklet
Yuichi Yokochi	Graduate School of Bioscience and Biotechnology, M2 Lecture Session
Iou Ven Chang	Graduate School of Bioscience and Biotechnology, D2 Overseas Communication
Maierdan Pallihati	Graduate School of Bioscience and Biotechnology, D1 Facility Tour
Alfredo Esquivel Chavez	School of Life Science and Technology, D1 Cultural Exchange



# ACLS NEWS

● Honorary Professor Yoshinori Ohsumi of Institute of Innovative Research has been awarded the Nobel Prize in Physiology or Medicine 2016 for his discoveries of mechanisms for autophagy (more information at <http://www.titech.ac.jp/english/nobel/>).



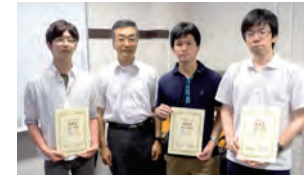
● Professor Hiroshi Iwasaki of Institute of Innovative Research has been awarded the 2016 Kihara Prize by the Genetics Society of Japan for his research on “Molecular Mechanism of Homologous Recombination”. The Kihara Prize is awarded to researchers who make seminal contributions to the field of genetics.

● Nobuaki Yasuo, Doctoral student (D1), School of Computing, has received the 2015 SIGBIO Best Student Presentation Award from Bioinformatics and Genomics group, Information Processing Society of Japan, for his presentation at the 44<sup>th</sup> research conference. (The thesis title: Improvement of virtual screening accuracy by postprocess based on interaction energy)

● Digital Health Symposium was held at Ookayama Campus on the 24<sup>th</sup> of June. Actual cases of academic-industrial collaboration were taken and the outlook for pharmaceutical industry and drug creation was discussed in the symposium.

● The 3<sup>rd</sup> Computational Life Sciences Proposal Contest was held. Students wrote “proposal” documents describing

logical consistency of their experiment plans and scope for execution. Those documents were evaluated from a point of appropriateness of communication, and here are the winners.



1 <sup>st</sup> place	Keisuke Yanagisawa (right) School of Computing, D1
2 <sup>nd</sup> place	Hikaru Watanabe (second from right) School of Life Science and Technology, D1
3 <sup>rd</sup> place	Yuya Nakamura (left) Graduate School of Bioscience and Biotechnology, M2

● Program for Leading Graduate Schools Forum 2016 was held at Odaiba on the 11<sup>th</sup> and 12<sup>th</sup> of November. Staff and students from 62 programs of 30 universities gathered at the forum and discussed doctoral education and its role in society.

● The 5<sup>th</sup> Bioscience and Biotechnology International Symposium is held on the 11<sup>th</sup> of January at Suzukake Hall. The theme is “Sense, Sensor, Sensation”, and world-renowned scientists are invited as speakers. The report of the symposium will be featured in the next newsletter.

## Personnel Changes

### Resignation

2016.9.30 Shotaro Ayukawa  
Specially Appointed Assistant Professor

## Global Communication Contest 2016

The 4<sup>th</sup> Global Communication Contest was held at Suzukakedai Campus on the 10<sup>th</sup> of August. Among those who took global communication classes, there were 12 presenters in the contest this year. The audience enjoyed the presenters’ free speech and lively Q&A with judges. Here are the 3 winners.



Judges and presenters (at Suzukake Hall)



3 winners and Prof Yamaguchi at Award Ceremony

### Winners

**The 1<sup>st</sup> Prize and Audience Award**  
Takashi Imada (second from left)  
School of Life Science and Technology, M1

**The 2<sup>nd</sup> Prize**  
Kazuhiro Hiratsuka (left)  
School of Computing, M1

**The 3<sup>rd</sup> Prize**  
Norwich Mungkalaton (right)  
Interdisciplinary Graduate School of Science and Engineering, M1 (as of)

### From Editor

This edition features ACLS Summer School 2016. There are so many photos and articles to put on that this edition has 2 more pages. How do you like it? It has been the 4<sup>th</sup> summer school held overseas, and ACLS landed in New York at last. Such a hot summer was over and now it’s winter. Yet the preparation for next has begun. Next summer should be hotter. (YK)



### ACLS Newsletter No. 13 (published on the 27<sup>th</sup> of December 2016)

Tokyo Institute of Technology Education Academy of Computational Life Sciences (ACLS)  
The Ministry of Education, Culture, Sports& Technology in Japan Program for Leading Graduate Schools

### Suzukakedai Office

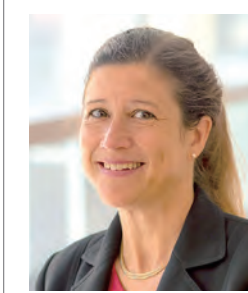
J3-141 (building J3, room 407) 2459 Nagatsuta-cho, Midori-ku, Yokohama, Kanagawa, 226-8501 JAPAN  
Tel:+81-(0)45-924-5827 Fax:+81-(0)45-924-5930  
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This is a translated version of Newsletter No.13 (Dec. 2016). Printed and published on the 31<sup>th</sup> of January 2017.



## Opening Essay

# A Recipe for Success



### Susi Sturzenegger Varvayanis

External Program Staff  
International Cooperation Committee  
ACLS Program  
Tokyo Institute of Technology

Senior Director  
BEST Program  
Cornell University (USA)

so everyone could get to know them a little better. With their international colleagues, they fit right in at the United Nations where they toured exhibits and gained more background from experts on the Global Sustainable Development Goals.

So what is the recipe to create experts who can attack large global problems using their science backgrounds? Start with a solid foundation in basic research and poster session exchanges; sift in multiple nationalities, perspectives and cultural norms. Add some lofty inspiration from the United Nations, then mix it with inspirational and engaging faculty talks from well-known researchers from The Rockefeller University, Columbia University, Memorial Sloan Kettering Cancer Center, New York University, and the host institutions. Stir in intense group work and place under time and output pressure to write an article. Sprinkle heavily with entrepreneurship and expose to the Runway Postdoc Program at CornellTech. Release steam periodically with facility tours, good food, and NY entertainment. Constrain throughout to student organizers, facilitators, group leaders and presenters, and add advisors to taste. Cook and stir for a week. This recipe is worth saving!

It was amazing to observe the groups as they, shyly at first, slowly increased their confidence and came around to agree on which United Nations sustainable development goal to address with their research. They then interwove elements from the student research posters and faculty speakers to develop a project and prediction for publication in ‘future’ magazine, each issue created annually since 2013 by the ACLS International Summer School collective. Whatever the outcome, the process was by far more important, as the groups learned to communicate, disagree, share ideas, listen with respect, and work with each other. The participants received not only measured peer feedback, but also suggestions from a panel of referees from academia and industry who provided key insight into the process of developing an argument and a message for your manuscript that closes any logic loopholes. They learned how to avoid the peril of basing predictions on a single assumption, how to convince listeners the topic addressed is important, and finally how to present the information in an entertaining way.

I was impressed by the leadership of the student organizers, and their thoughtful way to organize the event to increase communication between the participants. I was also rapt to see how the faculty were able to step aside and allow the students to truly lead the summer school activities, with full confidence that everything would turn out well. In short, I was honored to be a part of a very collaborative and successful undertaking and look forward to what next year has in store.

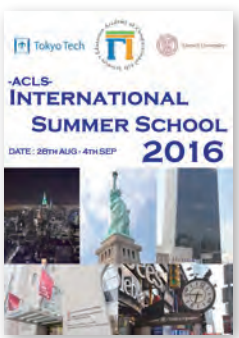


# ACLS International Summer School 2016 in New York



The ACLS International Summer School 2016 was held at Cornell University, New York City, USA, from the 28<sup>th</sup> of August to the 2<sup>nd</sup> of September. This year was the 5<sup>th</sup> ACLS International Summer School and, thanks to the support of Susi Varvayanis, Senior Director of Cornell University BEST Program, the majority of activities were held at Belfer Research Building of Cornell University. Various activities such as group work, poster presentation, lectures and facility tours, were planned, organized and deployed by the student committee. 57 participants attended which were comprised of 23 ACLS students, 12 overseas students (3 from Cornell University, 1 from Purdue University, 5 from UCLA, 3 from University of Strasbourg), 11 invited speakers and faculty members, and 11 ACLS administrative

members. The ACLS International Summer School is a yearly event run by each year's student committee, whose members take initiative in program planning and communication with overseas counterparts. The aim of ACLS International Summer School is not only to boost students' skills in presentation but also to foster leadership and global communication skills through working with students from different cultural or academic backgrounds. All the presentation and discussion is conducted in English, and therefore the ACLS International Summer School is regarded as a preliminary opportunity for ACLS students to experience different cultures, that may lead to a chance of overseas internship in the future.



ACLS International Summer School 2016 Booklet

Group photo at the Weill Cornell Medical College, Cornell University Belfer Research Building

- 1: Belfer Research Building, Cornell University
- 2: United Nations Headquarters
- 3: New York University
- 4: New York Genome Center
- 5: Rakuten Marketing
- 6: The Rockefeller University

(Visiting order)

	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
	28th Aug (Sun)	29th Aug (Mon)	30th Aug (Tue)	31st Aug (Wed)	1st Sep (Thu)	2nd Sep (Fri)	3rd Sep (Sat)
8:00 am	NRT Ketsudan-shiki	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast
9:00 am		Lecture & Facility tour (United Nations Headquarters)	Lecture session Dr. Leslie B. Vosshall Dr. Christopher E. Mason Dr. Scott Keeney	Group work	Group work	Facility tour (New York Genome Center) (Rakuten Marketing) (The Rockefeller University)	Bus to JFK
10:00 am	Departure						
11:00 am	Arrival at JFK						
12:00 pm	Bus to NYC						
1:00 pm	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	
2:00 pm			Poster Session	Lecture session Dr. Harris H. Wang Dr. Shotaro Ayukawa Dr. Yuri Matsuzaki Dr. Shuli C. Shwartz	Article perusal session		
3:00 pm		Lecture & Facility tour (New York University)		Group work presentation		Intercultural study	Departure
4:00 pm	Kick off	Dr. Nadrian C. Seeman Dr. Jef D. Boeke		Group Work	Panel review		
5:00 pm	Flash talk & Ice breaking		Group Work	Group Work			
6:00 pm			Dinner	Dinner		Dinner	4th Sep (Sun)
7:00 pm	Dinner	Dinner		Dinner			Arrival at NRT
8:00 pm		Poster session		Group Work	Cultural Exchange Dinner		
9:00 pm							

## ACLS International Summer School 2016 Photos

### Departure



Gathered at Narita

### Kick Off



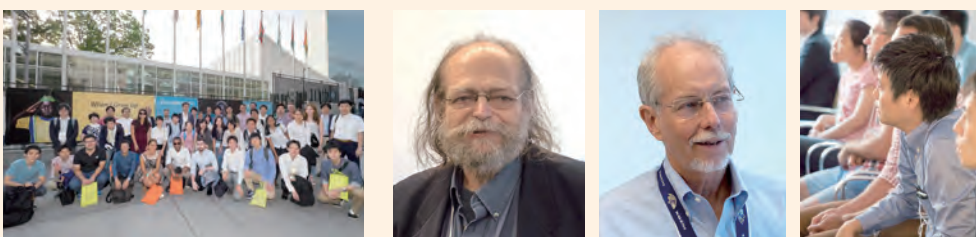
Chairperson Lim  
Introducing oneself

### Facility Tour (United Nations Headquarters)



Tour starts

### Facility Tour (New York University)



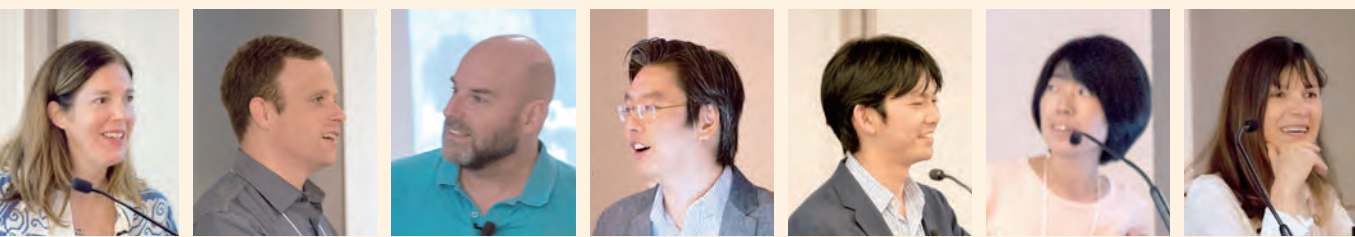
Group photo in front of the building  
Dr. Nadrian C. Seeman  
Dr. Jef D. Boeke  
Immersed in lecture

### Poster Session



It is not easy to describe one's research field concisely to someone whose field is different. Each student needs to be a skillful communicator.

### Lecture Session



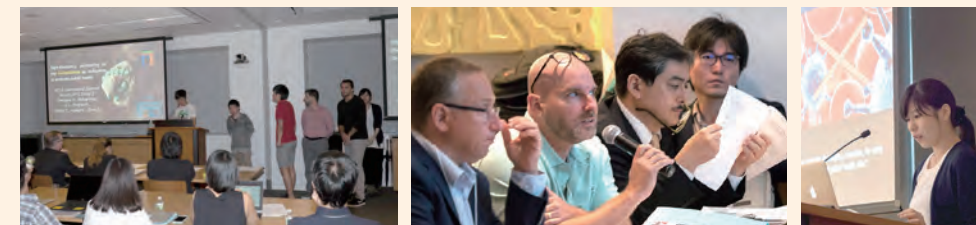
Dr. Leslie B. Vosshall  
Dr. Christopher E. Mason  
Dr. Scott Keeney  
Dr. Harris H. Wang  
Dr. Shotaro Ayukawa  
Dr. Yuri Matsuzaki  
Dr. Shuli C. Shwartz

### Group Work



Theme setting  
Hot discussion  
Scribbles turn into a super idea?  
Working on articles and slides  
Done, finally!

### Group Presentation



Presentation starts  
Judges are also serious  
Looks so confident

### Group Presentation



Questions from a judge  
Answers from students

### Panel Review



Under such pressure  
Waiting for the results

### Award Ceremony



Group F wins the 3<sup>rd</sup> place  
Group A wins the 2<sup>nd</sup> place and ...  
Group C wins the 1<sup>st</sup> place!

### Cultural Exchange Dinner



Introducing Japanese culture at the party  
Wow, Susi!

### Facility Tour



New York Genome Center  
Rakuten Marketing  
The Rockefeller University