



Visit with Japan's Ambassador Fujisaki (front center) during the intensive lecture in Washington D.C.

February 2011

## Message from the Director and Dean

This issue focuses on SDM's international relationships and the steps we are taking to further strengthen those connections. This year's exchange program between Technical University of Delft (TU Delft) has ended successfully; five TU Delft students in Japan went home after their final presentation about their stay and five SDM students visiting TU Delft safely returned. Their reports show that they learned a lot from their stay. I enjoyed reading the students' reports on their various activities; some focused on attending lectures, some were engaged in research, and they all made a lot of friends and enjoyed student life. Moreover, all students participating in a short-term visit to INSA Toulouse in France and in the intensive lectures on medical and pharmaceutical systems in Washington D.C. reported that they were fully satisfied with the trips. All returned home with a renewed sense of purpose in their studies and research. By enhancing international collaboration with top-ranking universities, we continue to encourage short-term or mid-term study abroad programs and train those who will be active on the front lines in the world.



Yoshiaki Ohkami  
Director, SDM Research Institute  
Dean, Graduate School of  
System Design and Management

## News

### TOPIC 1 "Medical and Pharmaceutical Research and Development Systems" intensive lectures in Washington D.C.

The SDM 3-day intensive class, "Medical and Pharmaceutical Research and Development Systems" was held January 20-22. Nine students participated – six from SDM, Yosuke Nakajima (SDM Research Institute researcher), Akihiro Sakaedani (SDM Research Institute researcher), Satoru Arakawa (M2), Shinichi Okano (M1), Tatsuya Shoji (M1), Tomoaki Sakurai (M1), two from the Graduate School of Medicine, Chisato Imai (M2) and Keisuke Izumi (Doctor, D2), and Takahiro Uchida, a SDM visiting researcher who joined from Boston.

Upon arrival at Washington Dulles International Airport on the afternoon of the 20th, the students headed directly to NIH to attend the first lecture the Vaccine Research Center at the National Institute of Health (NIH). The lectures continued all day for the following two days. The students got involved in deep discussions every night until late with other attendees who shared their new approaches of developing system designs for the medical and pharmaceutical fields. Pharmaceutical projects are global and require enormous funding because it takes 15 years to get products to market. The pharmaceutical industry is uniquely affected by limited-life intellectual property, various regulations, and the importance of clinical trials. The students really enjoyed working on the system design and management of such dynamic topics.

The lectures were based on the leading-edge research in the US and focused on multifaceted issues, including the differences in the medical and social systems and environment between the US and Japan. We will continue to share information. The students were also invited to a one-hour meeting and discussion with Japan's Ambassador to the United States at the Embassy of Japan in Washington D.C.

The four-day stay at the guest house was fulfilling; the full agenda of lectures, meals, and late night discussions left no time for jet lag. We are grateful to Professor Yuko Kuno and Dr. Ryuji Ueno, who worked hard to create this program, and Prof. Yoshiaki Ohkami, Prof. Ryuichi Teshima and the SDM office members and teaching assistants for making it such a success. We hope this valuable program is offered again in the future and continues to aid in students' research efforts.



At the lecture

## TOPIC 2

## Broadcasting of Beethoven Concert in 3D



Audience enjoying the Maestro's conduct in 3D images

The “Beethoven Internet Delivery Execution Committee” composed of SDM and several organizations in Keio, conducted an experiment

on New Year's Eve; the entire Beethoven Concert was broadcast live for 11 hours in 3D and 5.1 Channel Surround Sound in the Concurrent Design Facility (CDF), which boasts state-of-the-art display equipment for 4K 3D-imaging. This concert, “Great Beethoven, Concert for all Symphonies” was conducted by Maestro Lorin Maazel at the Tokyo Bunka Kaikan. At the CDF, about general 50 examinees watched the 3D live broadcast and Professor Tetsuro Ogi and Associate Professor Tetsuya Toma measured how realistic people felt it was. The event also featured a symposium by Professor Jun Murai (SFC), Professor Masahiko Inakage (KMD), Professor Yasuhiro Koike (Graduate School of Science and Technology) and Professor Tetsuro Ogi (SDM)

between music offerings.

After the final piece, the CDF filled with applause, proving that the CDF was realistic enough to be considered a live concert experience. It was a memorable New Year's Eve.



Prof. Ogi explaining how to measure realistic sensations

## TOPIC 3

## A group of British researchers visited SDM.

On January 13 a group of British manufacturing engineering researchers visited SDM. Eight people visited- five researchers (Cambridge University, Loughborough University, Cranfield University, Surrey University, the University of Liverpool) represented the Royal Academy of Engineering, one came from EPSRC (Engineering and Physical Sciences Research Council), which is equivalent to Japan's JST (Japan Science and Technology Agency), and two joined from the British Embassy in Tokyo. Their objectives were to learn about Japan's research trends in industrial sustainability (sustainable manufacturing or green manufacturing) for use in UK's science and technology policies, and to discuss possible joint research partners. At the

British Embassy's request to Prof. Nakano, eight researchers in SDM and the Graduate School of Science and Technology arranged the meeting, in which they held lively discussions and agreed to

explore collaboration through mutual visits and jointly hosted symposiums.



Discussion with British researchers

## TOPIC 4

## Presentation by exchange students from TU Delft

On January 14, exchange students from TU Delft made presentations on what they had learned during their stay at SDM to SDM students and faculty members. The visiting students from TU Delft's Faculty of Technology and Policy Management (TPM) were Fransien RUIJTER, Sander LUSTENHOUWER, Hao ZHANG, Qing Ye, and Thomas MULDER. Fransien enjoyed sightseeing throughout Japan, from Hokkaido to Okinawa. Sander's favorite memory is playing baseball with Japanese members in a baseball club. Hao was moved by the kindness of Japanese who helped him when he was lost, and

Qing enjoyed the good food he had in various regions in Japan.

Their common impression was that the close relationships that students and professors have are a great strength of SDM, as last year's exchange stu-

dents pointed out. SDM's appeal became even clear through these second consecutive year exchange programs. We wish all five exchange students much success in their studies and hope that this exchange program continues for many years.



TU Delft students with SDM students, professors

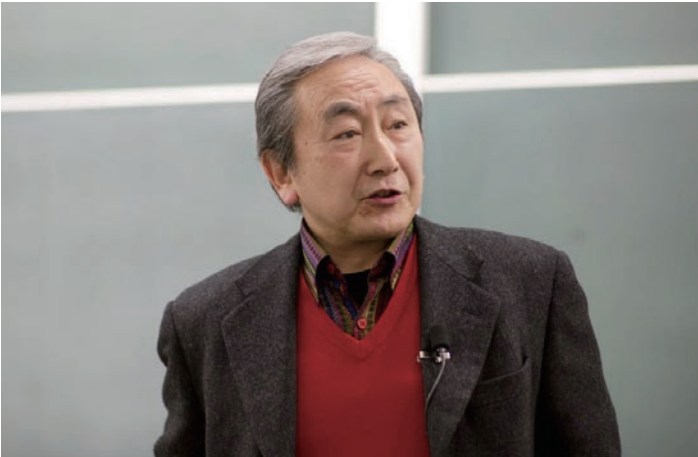


Presentation by TU Delft students



## TOPIC 5

## SDM Special Lectures by Daijiro Hashimoto and Junichiro Kawaguchi



Mr. Daijiro Hashimoto

The SDM Special Lectures on January 28 and February 4 were open to the public as SDM Open Lectures. The lecturers were Ex-Governor of Kochi Prefecture Daijiro Hashimoto, and Professor Junichiro Kawaguchi, who successfully



Professor Junichiro Kawaguchi

led the Hayabusa Project at JAXA. These open lectures held two weeks in a row were interdisciplinary lectures that integrated humanities and science technology; Mr. Hashimoto gave a politician's view of realizing dreams from

a social perspective and Prof. Kawaguchi talked about realizing dreams in space development from a technological perspective. The two lectures and lively Q&A sessions attracted approximately 200 people from outside of SDM.

## TOPIC 6

## Joint workshop with Cleave

Since 2010, the Aerospace and Intelligent Systems Lab (AIS Lab) at SDM Research Institute has been working on research to apply systems engineering methodologies to small-to-medium-sized business (SMB) together with Cleave Co. Ltd. Within the advanced systems engineering methodologies that SDM is working on, this research proactively utilizes some of methodologies applicable to SMB, such as analytical framework. SDM is working on analytical framework On December 17 and 18, 2010, the AIS Lab members, Assistant Professor Nobuaki

Minato, Associate Professor Seiko Shirasaka, and Associate Professor Naohiko Kohtake held a joint workshop with the 24 Cleave employees on Hi-yoshi Campus. Currently Cleave is promoting the establishment of a company-wide standardization process and aims to improve productivity and the quality of development activities by equipping all managers with a systems approach. Cleave's employees felt motivated by the joint research with Keio SDM and considered it to be a valuable training opportunity.



Workshop members

## TOPIC 7

## Yoko Ohzono, PhD wins Best Paper Award 2010



Plaque of Best Paper Award

On February 4, 2011, SDM Research Institute researcher Yoko Ohzono (PhD, 2009) was awarded Best Paper Award

2010 by The SSSJ Data Archive Center for Social Research and Data Archives, Institute of Social Science, The University of Tokyo. This highly recognized paper titled "Gender Differences in Managers' Self-Evaluations," (Journal of Behav-

ioral Economics and Finance, R vol.2 no.3. Nov. 2009) was written as a part of her PhD research titled "Essays on Gender Differences in Managers' Subjective Outcomes." We extend our most sincere congratulations and wish her further success.

## TOPIC 8

## Joint lectures by three graduate schools – Collaboration Complex Music Festa 2011

On January 28, "Joint lectures by three graduate schools – Collaboration Complex Music Festa 2011" was held in the Event Hall in the Collaboration Complex in order to facilitate the three Graduate Schools in Collaboration Complex (SDM, Keio Business School (KBS) and Graduate School of Media Design). In Part 1, Mr. Seiichi Furukawa, an opera singer, was invited to give a lecture titled "An attractive voice and its application" with a mini-workshop about speaking in business situations. In Part 2, students, graduates of the three graduate schools, and staff members performed a music concert for a large audience that included staff members, faculty members, and graduates. This well-

attended event gave everyone an opportunity to get to know each other.

Compared to other graduate schools, these graduate schools offer an intimate environment where young

students study alongside students with previous business experience. These events help to further the interaction among the graduate schools.



Student and staff playing together



Mr. Furukawa lectures and sings

## Laboratory Profile

Introducing two labs directed by Professor Taketoshi Hibiya



Professor Taketoshi Hibiya

Research Fellow at NEC's Fundamental Research Laboratories, Professor at Graduate School of System Design, Tokyo Metropolitan University before accepting his current position  
Major: Large scale systems engineering

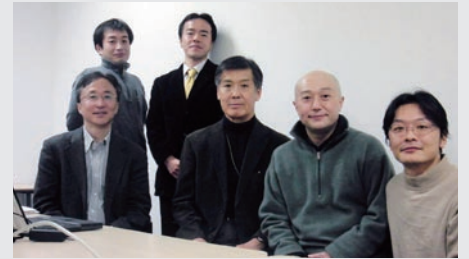
## Semiconductor Technology Laboratory

### Director:

Professor Taketoshi Hibiya

### Members:

Professor Shinichiro Haruyama, Associate professor Keio Shimazu, Jun Kato (doctoral course), Kenichi Seki (doctoral course), Yasuhiro Miyake (doctoral course), Shintaro Murakami (doctoral course), Hung-Chi Hsiao (doctoral course), Hideki Urabe (doctoral course), Eiichiro Moriya (doctoral course), Yutaka Yoshioka (master course), Sadao Suganuma (former executive director of Oki Engineering)



Lab members



Lab meeting

This one word, "semiconductor", means various things to various people. Semiconductors are closely tied to resources, material and property physics, production process, electronic components, LSI chips, embedded software, and digital equipment, each of which has been developed in depth and become

highly segmented. In SDM, there were students who specialized in one of these areas but had no contact with other semiconductor products. This lab was established to facilitate collaboration on semiconductors for which the entire picture is not visible from one position, but can be captured from multiple viewpoints, such as management and engineering. People with different backgrounds, such as production engineering management, analog circuit design, System LSI design, testing equipment development, marketing, software development, and research on sensors come together to present their ideas, get feedback, and fine-tune their applications.

We are mainly working on two research activities; analysis from a business viewpoint and development projects. Firstly, the semiconductor industry is one of the

most important industries in Japan; semiconductor devices are considered to be "rice in industry." This will continue to be very important in terms of business as well as technology. However, the US, Korea, China and Taiwan are cutting into Japan's strong position. It is inevitable that we apply optimal strategies in this changing business environment. We analyze industry trends from various points of view. "Foundry business" that handles "high-mix low-volume production" and "outsourcing of production systems" are keywords. Members of this lab have extensive semiconductor industry experience and are enthusiastic about their work.

Secondly, although discussions tend to concern business matters, manufacturing is also a popular topic especially among technology-oriented members. In 2010, we developed an application for mobile phones and entered it in the Mobile Application Contest hosted by Tokyo Institute of Technology. Having people from different industries develop the application revealed new points of view. Next year, we will create a MEMS (Micro-Electro-Mechanical Systems), device using a semiconductor micro-processing technology.

We welcome those of you who are interested in our lab. Please feel free to contact a member. Some members had no knowledge of semiconductor industry until they joined us.

(Yutaka Yoshioka-second year masters course)

## SSES Lab: Strategic Social Education System Lab

### Director:

Professor Taketoshi Hibiya

### Members:

Professor Takashi Maeno, Professor Kenichi Takano, Sachio Muraoka (doctoral course), Jun Kawai (masters course) and two other outside researchers.



Lab Members



SSES Shakaijin Kisoryoku • Certificate

The Strategic Social Education System Laboratory (SSES Lab) was established in April 2010 to create a training program for people who can contribute to society from a young age. On November 29, 2010, the "self-sustained action" training program that they developed and tested won the Incentive Award at the Shakaijin Kisoryoku (basic business skills) Grand Prix hosted by

the Ministry of Economy, Trade, and Industry.

The SSES Lab has found that many companies need excellent employees who can contribute in the early stages and developed a "self-sustained action" training program to train the ability to think, set targets, plan and act, which is the most fundamental but also the most important.

Its advantage was proven ten young SDM student examinees in a four-month demonstration test that began in May. In the test, the examinees tried to get a quick view of their own current state and design and manage themselves with the system engineering methods that they acquired in lectures and through

ALPS. And Mentors (mainly working students) asked questions, helped them to find solutions to their problems, and provided moral support as the students refined their goals and worked toward them. By trying to improve their actions based on the PDCA Plan-Do-Check-Action Cycle, students can flexibly tackle various barriers and continuously develop themselves. This program features the mechanism in which Mentors encourage student examinees' development.

This program will enable students not only to achieve fruitful results in their student life and research, but also to appeal themselves in a positive manner in job interviews. With this training, we believe that they will contribute to the society.

The current outlook for job hunters is worsening and finding a suitable job, or finding training for a suitable job, is becoming more difficult, which is likely to be a drain on Japan's social vitality. The SSES Lab continues to conduct research on the win-win utilization of people (including training and recruiting for industry, students and universities) to create more efficient and effective training programs, and to propose practical and proven solutions by applying the results to Japan's education systems and recruiting systems.

(Jun Kawai-second year masters course)



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