



SDM information session

January 2010

Message from the Director and Dean

I would like to take this opportunity to extend my sincere wishes for a happy new year. The year has already given us our first shock. We lost to Korea in an international competitive tender for a nuclear power plant in the United Arab Emirates (UAE). While the two Japanese companies emphasized their high technology, France and Korea collaborated to create presentations that looked at the project from the buyer's point of view. And that was the decisive difference, according to advice that the top manager on the buyer's side given to the top manager of the Japanese group. Korea has long recognized the importance of systems engineering, and I am reminded of how its government and private sectors have worked together on systems approaches. I would like to underscore and share with you my sense of crisis at this defeat.



What we are attempting to do at the Graduate School of System Design and Management (SDM) is to acknowledge the weakness that we Japanese have of losing sight of the forest through the trees; we want to train people who are capable of designing systems that are optimized at the big-picture level. Since our founding in 2008, we have served as the local chapter for the International Council on Systems Engineering, have built and strengthened ties with a number of foreign universities and have also become a member of the Council of Engineering Systems Universities (CESUN), an international university organization. Today, we enjoy global ties with more than 40 universities in North America, Europe, Asia and Australia. Engineering systems is a multidisciplinary endeavor that encompasses systems engineering, technology and policy, engineering proper, corporate activities, operating research and product development. The Council holds international conferences, provide forums to discuss the development of engineering systems and to share educational materials and curricula.

In March of this year we were pleased to confer our first SDM Masters degrees and send our first class out into the world. There are great expectations riding on SDM, and we will also be subject to rigorous evaluation and critique. The faculty members at the graduate school are committed to taking on this challenge, and we look forward to your guidance and support.

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

News

TOPIC
1

SDM information session (Saturday, December 12 at Hiyoshi and Tuesday, December 22 at Mita)

In preparation for the third Entrance Exam for Year 2010 (Application period: Wednesday, January 13 to Monday, January 18, 2010), SDM information sessions were held at the Hiyoshi Campus Collaboration Complex on Saturday, December 12, 2009 and at the Mita Campus South Building on Tuesday, December 22, 2009. The sessions attracted a total of approximately 100 participants, an indication that SDM is becoming better known among business people and new graduates of other

universities. Professor Ohkami, Dean of SDM began the program by providing an explanation of SDM, which was followed by introductions to the faculty members, overviews of the projects taking place in SDM Research Institute laboratories and a presentation on ALPS, after which the participants were given time for questions and answers. Following the presentations, the faculty members provided individual consultations to participants, many of whom avidly sought out a number of opinions and

were obviously thinking deeply about their career plans. The briefing was originally scheduled to run about 2 hours, but easily exceeded that by another 90 minutes.

Below is the schedule for the third Entrance Exam for Year 2010.

Web entries commence
Wednesday, January 6, 2010

Application period
January 13 (Wed.) to January 18 (Mon.), 2010

TOPIC 2

Courses on “Systems Architecture and Design” and “Systems Integration”



Classroom



Professor Rashmi Jain

Courses in English on “Systems Architecture and Design” and “Systems Integration” were offered on December 14, 15 and 16, 2009 and on December 17, 18 and 21, 2009 in Classroom C3N14 on the 3rd floor of the Collaboration Complex. A total of 10 students participated, 4 from Japan and 6 from other countries. While this number was smaller than when the courses were offered in May, the content was even better, as can be seen from the group work

on case studies of ATM systems development.

The first half, “Systems Architecture and Design,” began by considering what is meant by “architecture” and “good requirements.” The lectures also looked at the impact of requirements and architecture on systems integration. In the “Systems Integration” half, the lectures turned to topics like interface management, integration, testing, verification, applicability confirma-

tion using commercial off-the-shelf (COTS) parts and systems integration management. Students were very satisfied and pleased to have the opportunity to hear directly from Professor Rashmi Jain, the upcoming head of educational activities at the International Council on Systems Engineering (INCOSE), on the topics of “systems architecture and design” and “systems integration.”

TOPIC 3

Professor Teshima lectures at the 2nd “i-college”

Professor Ryuichi Teshima delivered a lecture entitled “Refining Intelligence” at the 2nd “i-college,” a relay lecture series by top professors sponsored by Fuji Sankei Business i. His remarks focused on how to use intelligence to make decisions amidst shifting paradigms.

▶ <http://www.business-i.jp/corp/kouza.html>

The entire article can be found on the SDM website.

▶ http://www.sdm.keio.ac.jp/news/pdf/fujisankeibusinessi_091202.pdf



Professor Ryuichi Teshima

TOPIC 4

Professor Ohkami Interviewed by Nikkei BPnet

Professor Ohkami, Dean of SDM was interviewed by Nikkei BPnet in an article that ran on Thursday, December 3, 2009. Titled “System Design and Management Offers a New Development Technique

for Today’s Large-Scale, Complex Systems,” the article discussed the need for system design and management and some of its success stories. Below are the details.

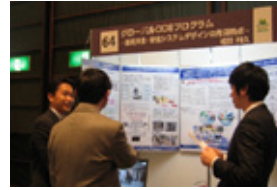
▶ <http://www.nikkeibp.co.jp/article/news/20091203/198974/>

TOPIC 5

Global COE Program results announced at the KEIO TECHNO-MALL

KEIO TECHNO-MALL 2009 (10th Keio Science and Technology Exhibition) was held at the Tokyo International Forum and featured the results achieved by Associate Professor Naohiko Kotake, Assistant Professor Yasutoshi Makino and Assistant Professor Terumasa Narukawa at the "Center for Education and Research of Symbiotic, Safe and Secure System Design" of the Global COE Program. Many faculty members and students of the SDM participated and were on hand to discuss their work with visitors.

The Center overseen by Professor Takashi Maeno has been working since FY2008 with faculty members, students and researchers from the SDM and the Graduate School of Science and Technology. It focuses on environmental symbiosis and safety, two of the most important values of our time, and conducts educational and research activities that are oriented towards the creation of new systems designs that incorporate these values. The group specifically examines the four areas of mobility systems, energy systems, human systems and living space systems, working in collaboration with programs overseas to conduct crosscutting educational research.



Participants discussing at the booth



Government-industry-academia Talk Session



Roundtable Session



KEIO TEC HNO-MALL 2009

GCOE web link

▶ <http://www.gcoe-s4design.keio.ac.jp/index.html>

TECHNO-MALL web link

▶ <http://www.kll.keio.ac.jp/ktm/>

TOPIC 6

Associate Professor Toma describes SDM leadership training in the Harvard Business Review



Associate Professor Tetsuya Toma

The November edition of "Harvard Business Review," published in Japan by Diamond, Inc., contains a feature on the "Boosting the Careers of Top Runners: Techniques for Training Top-Level Talent" that looks at SDM as a top runner in education and research.

In the article, titled "See the Forest and the Trees: Keio's SDM Takes on the Challenge of Training Project Leaders," Associate Professor Tetsuya Toma describes SDM's initiatives. Most Japanese companies have traditionally emphasized OJT, employees learning how to do their jobs from people more senior in the organization. Unfortunately, this does not lend itself to the training of leaders who are able to handle projects that are increasingly large in scale and complex in scope; the development of this talent by OJT requires long periods of time. Leading these kinds of projects requires broad knowledge, global perspectives,

strong communication skills and decisiveness. In other countries, you will find many talented young leaders at the forefront, and if Japan is to regain its competitiveness in international markets, it must also practice "off-the-job training." One specific example described in the article is the "1st Project Leader Training Course" that was held at SDM for the general public last September. Associate Professor Toma is currently putting together the "2nd Project Leader Training Course" with a target of this spring. We would like to fulfill your expectations.

TOPIC 7

Professor Haruyama made a fellow of the "Institute of Electronics, Information and Communication Engineers" by the IEICE Communications Society



Professor Shinichiro Haruyama

Professor Shinichiro Haruyama was made an FY2009 Institute of Electronics, Information and Communication Engineers Fellow by the Institute's

Communications Society for his leading-edge research into "software radio platform technologies."

He helped to found the Technical Committee on Software Radio, a part of the IEICE Communications Society, in January 1999 and served as its vice chair for 4 years from 1999 to 2002, during which time he was instrumental in leading the Committee. Internationally, he works in close collaboration with the SDR Forum, an organization to research software radio

in the United States and has helped to build the foundations of international cooperation in the area of software radio. In his area of specialty, he has researched software radio that is able to flexibly switch between the 2.4 gigahertz band and 5.2 gigahertz band, the frequencies used by wireless LANs. This work demonstrates the utility and effectiveness of software radio. The Fellowship was awarded in recognition of his contributions to the Technical Committee on Software Radio and to software radio research.

▶ <http://www.ieice.org/jpn/fellow/ichiran21.html>

Lab profile

Visual Simulation Laboratory
Professor Tetsuro Ogi
<http://lab.sdm.keio.ac.jp/ogi/>

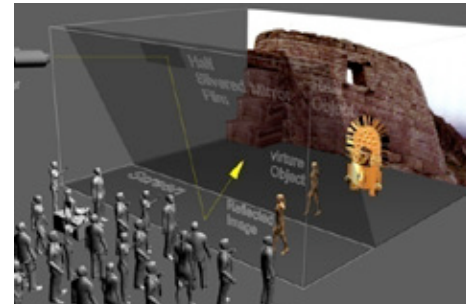
Researcher at Mitsubishi Research Institute, associate professor at University of Tokyo and Associate Professor at University of Tsukuba before taking up his present post. Areas of expertise: human interface, virtual reality, realistic communication and visual simulation. Publications: "Introduction to Cyber-Space" (Nippon Jitsugyo Publishing) and "Thoughts on Simulation" (University of Tokyo Press) and more.



The development of faster, more compact computers, the spread of broadband networks and the use of three-dimensional imaging have brought extraordinary changes to telecommunication systems and media environments. The research in this laboratory takes a broad perspective on systems design, ranging from human interfaces, virtual realities, realistic communication and other communications media technologies to the application of visual simulation in social systems. Below are some of the recent research topics.

Immersive display technologies

Immersive displays use large screens and high-definition 3-D video to create extremely realistic, immersive visual spaces. Development projects include a cave made up of surround screens, a "CDF" super-high resolution display using 4K 3-D video, the "AR View" augmented reality display using large half mirrors, and tiled displays made up of multiple LCD panels. These immersive displays are capable of life-size expression of three-dimensional video, and therefore enable the visualization of design models and simulation results. They can also be used effectively as data mining environments.



Digital museum making use of immersive augmented reality technology

Realistic communications technologies

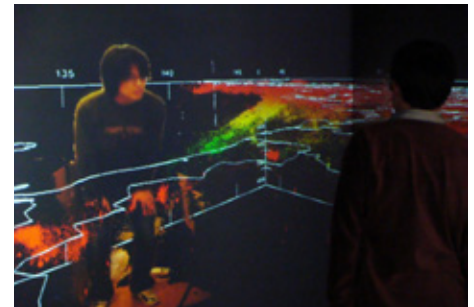
Immersive display environments can be networked to achieve highly realistic space sharing. This kind of technology is called "tele-immersion," and it is looked to for the next generation of communications environments. Research on techniques for achieving ultra-realistic communication in shared virtual spaces includes video avatars that synthesize shared virtual spaces from mutual transmissions of video images among users and data sharing technologies for shared virtual spaces. Tele-immersion technology will have applications in facilitating realistic meetings, collaborative work and distance learning between remote locations.



Project management making use of cyber-space

Design of data communications media systems

This is applied research into the design of the next generation of data communication systems and media systems. A wide range of projects have been taken up, including a digital museum using immersive augmented reality technology, a three-dimensional planetarium using spatial images based on the layer segmentation method, a project management system that makes use of cyber-space, visualization of seismic data using tele-immersion environments, digital signage using tiled displays, real time safety network systems, emergency life-saving system simulation and immersive driving simulators for the elderly.



Visualization of seismic data using tele-immersion environments



Group photograph in front of the CDF system



Immersive driving simulator



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* Please put "SDM Research Institute" in the subject when communicating by fax or e-mail.

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