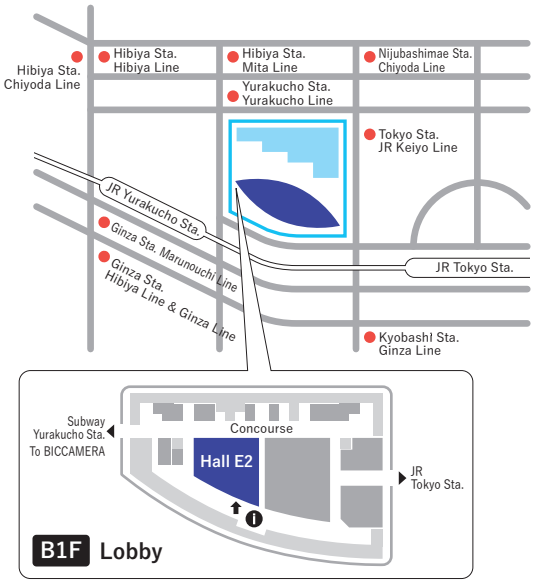
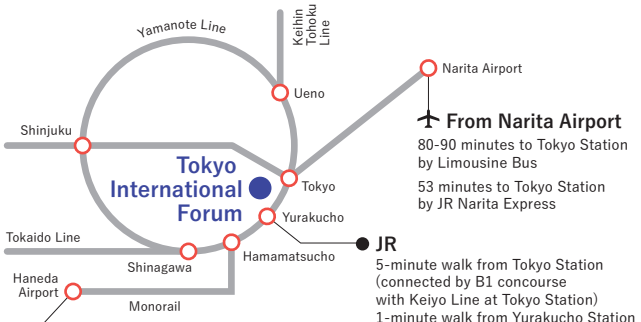
ACCESS

Tokyo International Forum
B2F (Hall E2)

3-5-1 Marunouchi, Chiyoda-ku, Tokyo, Japan
Tel: +81-3-5221-9000





From Narita Airport
80-90 minutes to Tokyo Station by Limousine Bus
53 minutes to Tokyo Station by JR Narita Express

JR
5-minute walk from Tokyo Station (connected by B1 concourse with Keiyo Line at Tokyo Station)
1-minute walk from Yurakucho Station

Subway
1-minute walk from Yurakucho Station (connected by B1 concourse)

From Haneda Airport
23 minutes to Hamamatsucho Station by Monorail
4 minutes from JR Hamamatsucho Station to Yurakucho Station

Organized by

Keio Leading-edge Laboratory of Science and Technology (KLL)

3-14-1 Hiyoshi, Kohoku-ku, Yokohama, Kanagawa
223-8522, Japan
Tel: +81-45-566-1794 Fax: +81-45-566-1436
E-mail: ktm@kll.keio.ac.jp

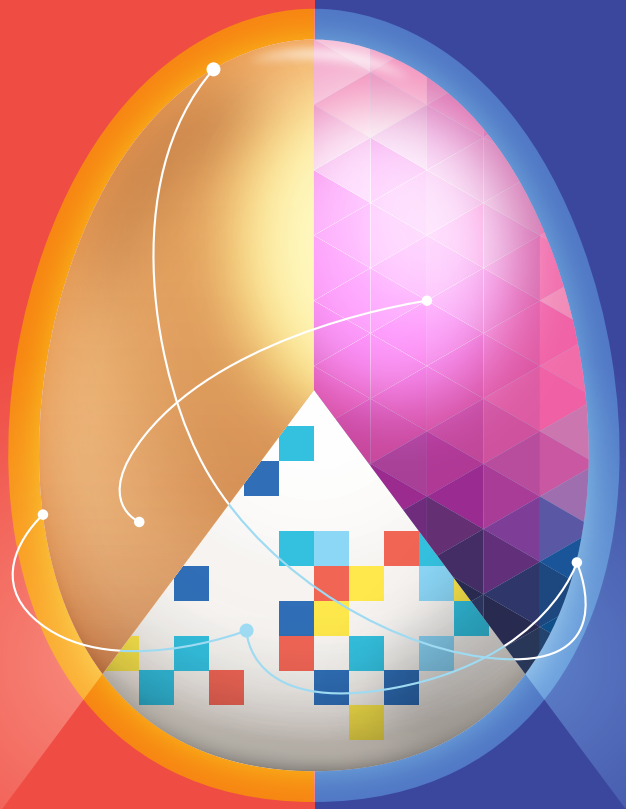
www.kll.keio.ac.jp/ktm/

Supported by Nikkan Kogyo Shimbun Ltd.

17th Annual Keio Science and Technology Exhibition

KEIO TECHNO MALL 2016

More Partnerships, More Dreams



12.16 [fri]

Admission Free

10:00▸18:00

Tokyo International Forum B2F (Hall E2)

For Event Schedules,
Please refer to the end.

KEIO TECHNO-MALL 2016

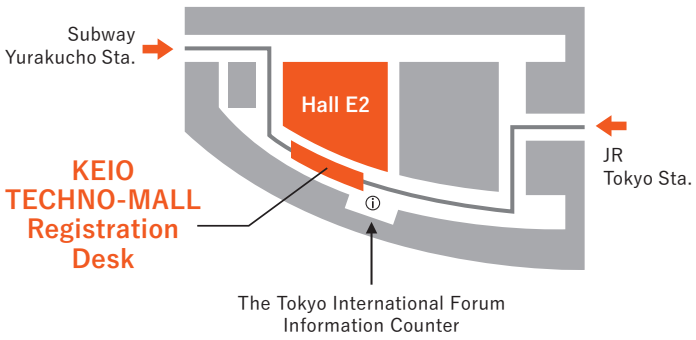
Floor Map

B2F Hall E2

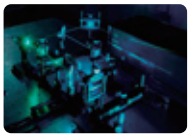
- Cafe Area
- Request Box
- Live broadcast of the Interviews
- Questionnaire

Biomedical	Information and Communication
Electronics	Society & Environment
Materials	Mechanics
Other Fields	Applied Chemistry Group Exhibition Zone
Creativity Initiative Zone	

B1F Lobby



KEIO TECHNO-MALL
provides four platforms



- Encounters with researchers and subjects of research
- Expanded scope and greater flexibility
- Publicizing of research results
- Search for product / technology possibilities

1 Encounters with researchers and subjects of research

You can be sure of unexpected encounters and first-hand information otherwise unattainable on the internet. More than just topics related directly to your own products or business, perhaps, you will find subjects of research with prospects for new business expansion.

2 Expanded scope and greater flexibility

By learning about the actual research at exhibition booths and seminars, talking directly with the researchers and feeling actual objects, you will be able to get a real feeling for the expanse of possibilities. Also, with regard to collaboration with universities, Keio Leading-edge Laboratory of Science and Technology (KLL) will respond flexibly to requests for advice about procedures and contractual aspects.

3 Publicizing of research results

With the KEIO TECHNO-MALL being a venue for the objective and academic publication of research results, you can demonstrate the outcomes of industry-academia collaboration, and you can utilize it for business expansion.

4 Search for product / technology possibilities

Proposals for the utilization of your products and technologies in helping research are also very welcome. The KEIO TECHNO-MALL provides a platform for linking to the development of new products and technologies amid the flow of people, objects, funds and information.

KEIO TECHNO MALL 2016

Program of Events
Outline of Exhibits

Event Information

Venue Event Stage

Keynote Speech

10:40-11:30

Open innovation strategy for Keio University in collaboration with industry

Open innovation strategy for Keio University in collaboration with industry. To make a new breakthrough and development in science and technology, a successful collaboration among global institutes, university resources and industries is most important in research function of Keio University. As if products would be globally exchanged in a port as economy would grow, “Open Innovation Hub” will play a key role in research collaboration of Keio University.

[10:40-11:00] Overview

MAKABE, Toshiaki
Vice-President for Research, Keio University

[11:00-11:30] Case Studies

NanoImaging Center

OKA, Kotaro
Professor, Dept. of Biosciences and Informatics, Faculty of Science and Technology

Haptics Research Center

OHNISHI, Kouhei
Professor, Dept. of System Design Engineering, Faculty of Science and Technology

Open Research Center for Development of Super Mature Society

YAMANAKA, Naoaki
Professor, Dept. of Information and Computer Science, Faculty of Science and Technology

Main Event

13:30-14:30

Building the New National Stadium

Architect Kengo Kuma’s roots lie in the Tokyo Olympics. As a 10-year old boy at the time of the 1964 Tokyo Olympics, Kuma was taken by his father to visit the Yoyogi National Gymnasium designed by Kenzo Tange. The design would have a profound impact on Kuma, sparking his desire to become an architect. After the plot twists surrounding the New National Stadium, the team of Taisei Corporation, Azusa Sekkei, and Kengo Kuma won the revised bid, with an inviting design that is just two-thirds the height of the original Zaha Hadid design. The stadium makes extensive use of wood, and the warm design blends into the surrounding outer garden of Meiji Shrine. We will examine the philosophy and ideas of architect Kengo Kuma, which carry on to the design of the New National Stadium for the Tokyo Olympics in 2020.

KUMA, Kengo
Architect
Professor, The University of Tokyo

Interviewer:
MITA, Akira
Professor, Dept. of System Design Engineering, Faculty of Science and Technology

Coordinator:
YAMANAKA, Naoaki
Professor, Dept. of Information and Computer Science, Faculty of Science and Technology

Round-table Session I

11:40-13:00

Human Brain Deceived by Computers — Examining Virtual Reality and Robots

As the capabilities of computers have expanded, it has been suggested that they might one day exceed the abilities of the human brain, but is that really true? The panel will discuss computer-human collaboration and the evolution of virtual reality and robots, from the perspective of deception of the human brain by computers.

MOGI, Kenichiro
Senior Researcher, Sony Computer Science Laboratories, Inc.

KIMURA, Toshitaka
Senior Research Scientist, NTT Communication Science Laboratories

MIKAMI, Dan
Research Engineer, Media Intelligence Laboratories, Nippon Telegraph and Telephone Corporation

IMAI, Michita
Professor, Dept. of Information and Computer Science, Faculty of Science and Technology

FUJISHIRO, Issei
Professor, Dept. of Information and Computer Science, Faculty of Science and Technology

Facilitator:
SAITO, Hideo
Professor, Dept. of Information and Computer Science, Faculty of Science and Technology

Round-table Session II

14:50-16:00

Examining Angel Activities and Science and Engineering Based Ventures Started by the Keio Leading-edge Laboratory of Science and Technology

Although technology transfer from industry to universities through collaboration and self-startups is desirable, there are known to be several difficulties with incubating ventures in Japan. This roundtable panel discusses the possibilities for university-based ventures and the issues they are facing.

SASAKI, Keishin
President & CEO, e-solutions, Inc.

NAKA, Michimasa
CEO, Boardwalk Capital, Inc.

YAMAGISHI, Kotaro
CEO, Keio Innovation Initiative, Inc.

MASHITA, Naoaki
Representative Director, President and CEO (Founder), V-cube, Inc.

SUZUKI, Ryuichi
CEO, AISSY, Inc.
Executive Director, Mentor Mitakai

AWANO, Yuji
Professor, Dept. of Electronics and Electrical Engineering, Faculty of Science and Technology

Facilitator:
MORITA, Toshio
Associate Professor, Dept. of Mechanical Engineering, Faculty of Science and Technology

Seminar Information

Venue Seminar Stage

Technology Partnership Seminars

30min. each

❶ 11:00-11:30

Investigation of the mechanisms of health effect caused by PM2.5 particles

We introduce recent concept to elucidate these parameters using aerosol engineering techniques such as virtual impactor and cyclone system.

OKUDA, Tomoaki

Associate Professor,
Dept. of Applied Chemistry,
Faculty of Science and Technology

Booth ▼ P10

❷ 14:50-15:20

Future Lifestyle Vision using Ubiquitous Optical Sensing

We introduce a future lifestyle vision using interactive media technology based on ubiquitous optical sensing.

SUGIMOTO, Maki

Associate Professor,
Dept. of Information and Computer Science,
Faculty of Science and Technology

❸ 15:40-16:10

Optoelectronic devices based on nanocarbon materials

We introduce (i) high-speed light emitters on silicon chips and (ii) single photon sources at room temperature and telecommunication wavelength for quantum cryptography, based on nanocarbon materials.

MAKI, Hideyuki

Associate Professor,
Dept. of Applied Physics and Physico-informatics,
Faculty of Science and Technology

❹ 16:40-17:10

Cleaning and food processing based on the dynamics of untrasound-induced bubbles

Gas bubbles can be nucleated in liquids and viscoelastic materials under ultrasound irradiation, as in carbonated beverages. We introduce cleaning and food processing based on the dynamics of acoustic bubbles.

ANDO, Keita

Assistant Professor,
Dept. of Mechanical Engineering,
Faculty of Science and Technology

For Event Schedules, please refer to the end.

*Please note that content, etc. of events or seminars are subject to change due to unavoidable circumstances on the day of the exhibit.

Outline of Exhibits

☐ Special symbols used in the following exhibition descriptions

Keio Patent — Technology involving patent rights held by Keio University. For further information, please inquire at the KLL Desk.

Seminar — Technology Partnership Seminar; detail shown on Page 8.

KIF Research Project — Research Project at Keio Innovation Foundry (KIF) as one of Keio University Faculty of Science and Technology 75th Anniversary Commemorative Project. For further information, please see KIF web site.

http://www.kll.keio.ac.jp/kif/

Biomedical

Biomedical

BOOTH 1

The innovative arrhythmia therapy: PD ABLATION®

Professor **ARAI, Tsunenori**
Department of Applied Physics and Physico-informatics

We have proposed PD ABLATION® as an application of Photodynamic Therapy to an innovative arrhythmia treatment and developed a clinical device. The great interest has been focused in the heart rhythm societies of worldwide. We will show you the state-of-the-art technologies on PD ABLATION®.

Biomedical

BOOTH 2

Innovative laser probe technology for deep lesion

Keio Patent

Professor **ARAI, Tsunenori**
Department of Applied Physics and Physico-informatics

To treat deep tumor lesion, we have focused on development of an ultra-thin laser probe less than 1.5 mm in diameter. We specially designed the probe to treat distal lung tumor and brain stem tumor. New technologies equipped on the probe will be shown.

Biomedical

BOOTH 3

Cure arteriosclerotic blood vessel surely: Vascular hyperthermia

Professor **ARAI, Tsunenori**
Department of Applied Physics and Physico-informatics

We have developed innovative vascular heating technology by means of laser-mediated-heat generation to treat ischemic disease. A dilatation as well as drug delivery characteristics were drastically improved. We have already experienced clinical cases. We will present the clinically available heating catheter and irrigating system.

Biomedical | Information and Communication

BOOTH 4

Wireless Health Monitoring

Keio Patent

Professor **OTSUKI, Tomoaki**
Department of Information and Computer Science

We introduce wireless health monitoring techniques that can realize non-contact measurement of vital signals, such as heart beat, breathing, and blinking.

Biomedical | Information and Communication

BOOTH 5

Monitoring Using Radio Wave: Array Sensor

Keio Patent

Professor **OTSUKI, Tomoaki**
Department of Information and Computer Science

We introduce an array sensor that can monitor a person using radio wave without invading privacy. Array sensor can classify activities and localize person.

Biomedical | Information and Communication

BOOTH 6

Monitoring Based on Temperature Distribution: Low-Resolution Infrared Sensor

Keio Patent

Professor **OTSUKI, Tomoaki**
Department of Information and Computer Science

We introduce our monitoring system using a low-resolution infrared array sensor that can monitor a person based on temperature distribution without invading privacy.

Biomedical | Society & Environment

BOOTH 7

Investigation of the mechanisms of health effect caused by PM2.5 particles

Keio Patent Seminar

Associate Professor **OKUDA, Tomoaki**
Department of Applied Chemistry

Recently, atmospheric aerosols such as PM2.5 are of serious concern for human health. Physical and chemical properties of aerosols are important as they provide metrics for their adverse health effects. Here I would like to introduce recent concept to elucidate these parameters using aerosol engineering techniques such as virtual impactor and cyclone system.

Biomedical | Society & Environment

BOOTH 60

Inkjet-Printed Chemical Sensors for Healthcare and Environmental Applications

Keio Patent

Professor **CITTERIO, Daniel**
Department of Applied Chemistry

Inkjet printing technology commonly known from home-use inkjet printers has become a tool for industrial-scale mass fabrication. Our laboratory is making use of this technology in combination with paper substrates to develop low-cost, single-use and simple chemical sensors for clinical and environmental applications.

Information and Communication

Information and Communication

BOOTH 8

Polymer Optical Waveguide Devices Enabling ExaFLOPS Scale Computing

Keio Patent

Associate Professor **ISHIGURE, Takaaki**
Department of Applied Physics and Physico-informatics

Optical interconnect technologies have been drawing much attention for realizing ExaFLOPS scale high-performance computing systems. In this research, polymer optical waveguide devices for high-bandwidth-density interconnects are designed and fabricated in order to demonstrate their outstanding performances.

Information and Communication | Electronics

BOOTH 9

PEACH: a switch to build a supercomputer with direct connection of GPUs

KIF Research Project

Professor **AMANO, Hideharu**
Department of Information and Computer Science

PEACH is a switching fabrics which build a supercomputer with a low latency direct communication between GPUs through PCIe.

Information and Communication | Society & Environment

BOOTH 10

Web eco-system by WIX (Web Index)

Associate Professor **TOYAMA, Motomichi**
Department of Information and Computer Science

Three main access paths to the Web are search engine, book mark and hyper-links. Each of these accompanies eco-system of information providers and consumers. WIX (Web Index) is meant to provide the fourth access path to the Web and we would like to exhibit the new eco-system based on WIX.

Information and Communication

BOOTH 11

Email+SQL=RMX

Associate Professor **TOYAMA, Motomichi**
Department of Information and Computer Science

We will demonstrate RMX system, which extends the syntax of Email address to cooperate with SQL to achieve higher functionalities.

Information and Communication

BOOTH 12

KANSEI MANGA Recommend

Keio Patent

Associate Professor **MITSUKURA, Yasue**
Department of System Design Engineering

The evaluation of human emotions has been a multi-disciplinary area of research interest. Although there are several methods for such evaluation, such as subjective evaluation and behavioral taxonomy, direct evaluation from the human brain is more reliable. Electroencephalograph (EEG) signal analysis is particularly widely used because of its simplicity and convenience. In the site, we show the MANGA recommend system using the EEG.

Information and Communication

BOOTH 13

Scalable Control Technology for Large-scale Networks across Multi-carrier

KIF Research Project

Professor **YAMANAKA, Naoaki**
Department of Information and Computer Science

In the Software Defined Transport Network which makes carriers' large-scale networks dynamically manageable, a single management device controls all networks across multi-carrier. From the point of view of scalability, cooperation between management devices of each carrier is needed in the future. Therefore, we propose a secure cooperation method between management devices in the multi-carrier environment.

Information and Communication

BOOTH 14

HOLST: Energy-efficient datacenter network based on ultra high-speed optical switch

KIF Research Project

Professor **YAMANAKA, Naoaki**
Department of Information and Computer Science

Recently, datacenter network architecture using optical switches is studied to reduce the power consumption. On the conventional method, the number of traffic flows is limited due to the low switching speed of mechanical switches. Therefore, we propose a novel datacenter network architecture using ultra high-speed optical switches to increase the number of flows that are able to pass through optical lines.

Information and Communication

BOOTH 15

Atomic NFV for realization of super-distributed virtual network devices

KIF Research Project

Professor **YAMANAKA, Naoaki**
Department of Information and Computer Science

Network Function Virtualization (NFV) makes it possible to create communication services by using a virtualization of network node functions. We demonstrate "Atomic NFV" that realizes super-distributed virtual network devices.

Information and Communication

BOOTH 16

Low-cost and Energy-saving Optical Network by Programmable Optical Edge

KIF Research Project

Professor **YAMANAKA, Naoaki**
Department of Information and Computer Science

Conventional optical network requires multiple optical edges which implement dedicated communication processing function for each network service such as IP and Ethernet. In our research project, single programmable optical edge can accommodate multiple network services using reconfigurable communication processing modules composed of FPGA/LSI/CPU fabric.

Information and Communication | Biomedical

BOOTH 17

LMML: A Computational Forensic Visualization Environment

Professor **FUJISHIRO, Issei**
Department of Information and Computer Science

An integrated processing environment for a dedicated mark-up language, LMML, is introduced, which is intended to describe and visually analyze forensic big data towards the digitization of criminal investigation and court.

Information and Communication | Electronics

BOOTH 18

IoT environmental sensing system

Professor **MATSUMOTO, Yoshinori**
Department of Applied Physics and Physico-informatics

This booth exhibits IoT environmental sensing system which measures the weather, radiation or PM2.5 information using low power sensor and small solar cell. The data transmits through Wi-Fi or sensor network to collect or record by cloud system. IoT technologies visualize the data and analyze by tablet mobile device.

Information and Communication | Society & Environment

BOOTH 19

Interactive Intelligent System

Professor **IMAI, Michita**
Department of Information and Computer Science

Imai laboratory studies on Interactive Intelligence to achieve smooth Human machine interaction. We investigate the mechanism of human cognition and design and adaptive system based on the findings of the human cognition. We prepare an interactive robot, and an autonomous mobile wheelchair and explain our technical motivation in this exhibition.

Information and Communication | Electronics

BOOTH 20

Research and Development on Photonic Networks Using Broad Wavelength Range of T-band and O-band

Keio Patent
KIF Research Project

Professor **TSUDA, Hiroyuki**
Assistant Professor **KUBO, Ryogo**
Department of Electronics and Electrical Engineering

Arrayed-waveguide grating routers for newly developing waveband (T-band, 1000-1260 nm) are fabricated. It realizes low-cost, ultra large capacity transmission systems for data center networks.

Information and Communication

BOOTH 21

Route guidance system in Intelligent Transportation Systems (ITS)

Professor **SHIGENO, Hiroshi**
Department of Information and Computer Science

We are researching vehicle-to-vehicle communication that vehicles communicate each other directly on the roads. For example, it is used for acquire the information such as accidents, traffic jam and so on faster and change the route. Moreover, we evaluate the application performance using network simulator and traffic simulator.

Information and Communication

BOOTH 22

Photonics polymer for ultra high-speed optical fiber and ultra high definition display

KIF Research Project

Professor **KOIKE, Yasuhiro**
Department of Applied Physics and Physico-informatics

4K/8K broadcast is scheduled to be started towards the Tokyo Olympics in 2020. We have developed the world's fastest plastic optical fiber that enables a real-time transmission of the staggering amount of information. Moreover, our photonics polymers bring innovation to the liquid crystal display structure which is getting bigger and more complicated.

Information and Communication | Society & Environment

BOOTH 23

PRINTEPS: a Total Intelligent Application Development Platform

KIF Research Project

Professor **YAMAGUCHI, Takahira**
Assistant Professor **MORITA, Takeshi**
Department of Administration Engineering

System development using general-purpose robots takes a lot of time. If the intelligent software is incorporated, cost (human, monetary, time) will be even higher. Therefore, in order to facilitate the development of the intelligent system using a robot, we perform research and development for building tools and intellectual software.

Information and Communication

BOOTH 24

Object Recognition / Augmented Visualization by 3D Image Sensing

KIF Research Project

Professor **SAITO, Hideo**
Department of Information and Computer Science

We present our recent research on 3D object recognition and augmented visualization by 3D image sensing, which is based on computer vision technologies for understanding scenes from images captured with cameras. A live visualization system for visualizing hidden scene will also be presented as a demonstration of the augmented visualization.

Information and Communication

BOOTH 25

Coexistence of real-time and IP communication in wide area LAN

Associate Professor **YAKOH, Takahiro**
Department of System Design Engineering

This works aims at coexistence of real-time and IP communication in wide area LAN by synchronized TDMA. Periodic real-time communication occupies its communication path and transmission delay can be bounded. Additionally, throughput deterioration of IP communication is prevented by transmitting pause frame from switch.

Information and Communication

BOOTH 26

Optical Flow Estimation from a Single Image under Modulated Lighting

Keio Patent

Associate Professor **YAKOH, Takahiro**
Department of System Design Engineering

Modulated lighting during the exposure of a photography superimposes the temporal information in motion blurs. The following image processing well designed for the modulation can extract the optical flow velocity and even acceleration from a single image.

Information and Communication

BOOTH 27

ZINK on ZNA: Content Distribution Mechanism with Efficient Bandwidth Sharing on New Generation Network Architecture

Professor **TERAOKA, Fumio**
Assistant Professor **KANEKO, Kunitake**
Department of Information and Computer Science

We aim at realizing a content distribution mechanism called ZINK with efficient bandwidth sharing on a new generation network architecture called ZNA. ZINK enables content retrieval with location-independent content name for high content availability and enables in-network caching for efficient bandwidth sharing. ZNA provides ZINK with the following features: lower latency, broader bandwidth, and higher fault-tolerance than those in the current Internet.

Information and Communication

BOOTH 28

Open Data Oriented Network Management Infrastructure with Knowledge Base System

Professor **TERAOKA, Fumio**
Assistant Professor **KANEKO, Kunitake**
Department of Information and Computer Science

We develop KANVAS, which collects various network information and provides it as well-systemized open data. KANVAS realizes network management with network knowledge, such as network monitoring and inference of the cause of network failure.

Information and Communication

BOOTH 29

Next Generation Content Service

Assistant Professor **KANEKO, Kunitake**
Professor **TERAOKA, Fumio**
Department of Information and Computer Science

In the future content service, we believe that the size and number of contents will grow much larger. We demonstrate two services for the future content service in this exhibition. 1."MOON"- enables the distribution and rendering of high-resolution video over a network. 2."Content Relationship Network"- enables to get the importance of content from the large number of relationships.

Information and Communication

BOOTH 30

Future data transfer platform for preventing affluent digital society

Assistant Professor **KANEKO, Kunitake**
Professor **TERAOKA, Fumio**
Department of Information and Computer Science

We need to handle data more delicately and highly, while developing of AI or appearance of IoT. Although we treated computing and networking separately, these will be integrated IT platform by next generation's IT platform so that users will focus on service.

Information and Communication

BOOTH 33

Dollhouse VR: An Asymmetric Collaborative System for Architectural-scale Space Design

Research Associate **SUGIURA, Yuta**
Department of Information and Computer Science

We present a system that facilitates asymmetric collaboration among users with two different viewpoints in the design of living or working spaces, such as in the preparation of architectural schematics and floor plans. The system supports a pair of interaction techniques that facilitate communication between these two user viewpoints.

Information and Communication | Electronics

BOOTH 34

Wrap & Sense: Grasp Capture by a Band Sensor

Research Associate **SUGIURA, Yuta**
Department of Information and Computer Science

We present a bare hand grasp observation system called Wrap & Sense. We built a piece of band sensing equipment composed of infrared distance sensors placed in a line. The sensor band is attached to a target object with all sensors directed along the object surface and detects the hand edge partially. Type of grasp (e.g.,"power grasp") is used in combination with the 3D shape of the object to determine the whole hand posture.

Information and Communication | Electronics

BOOTH 35

A Measurement System of Body Expansion Using Spring and Photo Reflective Sensor

Associate Professor **SUGIMOTO, Maki**
Research Associate **SUGIURA, Yuta**
Department of Information and Computer Science

We proposed a stretchable sensor for measurement of body expansion. This sensor consist of a photo reflective sensor and spring. The photo sensor is embedded in the spring. When the spring is not stretched, the emitted IR light will reflect back to the phototransistor. However, when the spring is stretched, some of the emitted IR light can flow out through the aperture of the spring, reducing the light reflecting back to the transistor. Therefore, the more the spring is stretched, the less the amount of light would be detected. This method allows user to construct a stretchable sensor that is simple, low-cost and customizable.

Information and Communication | Electronics

BOOTH 36

AffectiveWear: Smart Eyewear that can Recognize a Wearer's Facial Expressions in Daily Life

Keio Patent

Associate Professor **SUGIMOTO, Maki**
Research Associate **SUGIURA, Yuta**
Department of Information and Computer Science

AffectiveWear is a smart eyewear that can recognize a wearer's facial expressions in daily life. The eyewear can classify eight facial expressions using photo reflective sensors and machine learning method. AffectiveWear can help understand a wearer's mind. The information can be used for a marketing research and a support system for older adults.

Information and Communication

BOOTH 37

3D Gaze Detection for Collective Visual Sensing

Associate Professor **SUGIMOTO, Maki**
Research Associate **SUGIURA, Yuta**
Department of Information and Computer Science

Collecting gaze information of multiple users can reveal the attention and intention among them. In this demonstration, we introduce a gaze detection and its 3D visualization technique using wearable camera devices.

Electronics

Electronics | Biomedical

BOOTH 38

Small-size and Low-energy Sensor Systems Detecting Low-molecular Substances for Breath-based Health Monitoring

Professor **UCHIDA, Ken**
Professor **KURODA, Tadahiro** Professor **ISHIKURO, Hiroki**
Department of Electronics and Electrical Engineering

Small-size and low-power sensor systems where nano-materials are utilized are introduced. The sensors detect gaseous molecules as well as volatile organic compounds (VOC). Because of low-energy properties, it can be integrated in mobile devices such as smart phone and will be utilized to monitor health conditions of users.

Electronics | Materials

BOOTH 39

Material, device and simulation technologies for Graphene LSI interconnects

Professor **AWANO, Yuji**
Department of Electronics and Electrical Engineering

Research and development of Graphene material growth, device & process, and simulation technologies for LSI interconnect applications.

Electronics | Biomedical

BOOTH 40

High sensitive optical sensor & high repetition rate optical pulse source

Associate Professor **TANABE, Takasumi**
Department of Electronics and Electrical Engineering

Optical microcavity can detect small environmental change, which allows us to use this device as gas and pH optical sensor. It also enables the conversion of a continuous wave light into ultrahigh repetition rate pulse trains. Such studies remained basic researches, but we are now trying to move into an application stage by integrating the device with a fiber and enable to carry it out from the laboratory.

Electronics

BOOTH 41

Control System for Welfare Device - Human Motion Analysis and Control -

Professor **MURAKAMI, Toshiyuki**
Research Associate **NOZAKI, Takahiro**
Department of System Design Engineering

In the development of practical devices for human-machine system, adaptive system design is required for the device users and the environment. Taking these requirements into accounts, our research group focuses on intelligent machine system such as walking assist device and prevention system of falling down by the monitoring of human motion and the development of the advanced algorithm based on force control.

Electronics | Materials

BOOTH 42

Highly-sensitive magnetic field imaging using diamond

Associate Professor **HAYASE, Junko**
Professor **ITOH, Kohei**
Department of Applied Physics and Physico-informatics

Wide-field imaging of weak magnetic field is demonstrated by using electrons in diamond as a magnetic field sensors. High sensitivity and high spatial resolution for measuring magnetic field can be achieved by utilizing quantum properties of electrons in diamond.

Electronics | Mechanics

BOOTH 43

Responsive Multithreaded Processor for Distributed Real-Time Systems

Keio Patent

Professor **YAMASAKI, Nobuyuki**
Department of Information and Computer Science

We show some cutting-edge embedded technologies such as Responsive Multithreaded Processor (RMTP) for parallel distributed real-time system applied like humanoid robot control, RMTP SoC, RMTP SiP and Responsive Link, which is a real-time communication standard.

Electronics

BOOTH 44

Highly Reliable Non-Contact Interface Using Transmission Line Couplers

Keio Patent KIF Research Project

Professor **KURODA, Tadahiro**
Department of Electronics and Electrical Engineering

Our research demonstrates high-speed non-contact interface using transmission line coupler (TLC). Proximity communication with a wireless power supply provides immunity to mechanical damages caused by vibration/friction and isolation from water/chemicals while reducing fabrication costs. These features are suitable for medical and automotive applications where high reliability is demanded.

Electronics

BOOTH 45

Control system for welfare devices -Development of advanced prosthetic hand-

Keio Patent

Research Associate **NOZAKI, Takahiro**
Professor **MURAKAMI, Toshiyuki**
Professor **OHNISHI, Kouhei**
Department of System Design Engineering

We introduce an advanced prosthetic hand “general purpose artificial hand.” This artificial hand substitutes physical sensation of healthy body part for that of lost body part. By the haptic transplant technology, human-like strong, dexterous, and adaptive motions are realized.

Electronics | Materials

BOOTH 46

Spintronics Research Center

Professor **ITOH, Kohei**
Associate Professor **ANDO, Kazuya**
Department of Applied Physics and Physico-informatics
Professor **NOZAKI, Yukio**
Department of Physics

Spintronics Research Center of Keio University specializes in quantum spintronics research in the framework of the Spintronics Research Network of Japan operated together with U. Tokyo, Tohoku U. and Osaka U. Recent advancements in quantum spintronics research are presented.

Electronics | Information and Communication

BOOTH 47

Development of a Technology Computer Aided Design (TCAD) tool for electronic devices

Professor **ITOH, Kohei**
Department of Applied Physics and Physico-informatics

TCAD Research and Development Center of Keio University develops a process and device simulator based on physical and chemical modeling. Demonstration of TCAD tool as well as recent R&D achievements are presented.

Society & Environment

Society & Environment

BOOTH 32

Marketing Data Analysis: Quantification for Customer Satisfaction and Quality, and Data Analysis for E-Commerce

Professor **SUZUKI, Hideo**
Department of Administration Engineering

Nowadays, marketing analysis using the Web environment attracts attention. On the other hand, effective information can be also acquired from analysis of the questionnaire which is positioned as a conventional approach. We present various marketing analysis, such as case studies of quantifying customer satisfaction and quality, and data analysis for e-commerce.

Society & Environment

BOOTH 48

Modeling and Security of Social Systems

Assistant Professor **IIJIMA, Tadashi**
Department of Administration Engineering

Modelling, Process Mining, Security, and Conformance checking techniques for social systems have been studied in our laboratory.

Society & Environment | Information and Communication

BOOTH 49

Planning Evacuation Plan build by using Wide-area or Indoor Evacuation Simulation and Virtual reality techniques

Assistant Professor **IIJIMA, Tadashi**
Department of Administration Engineering

Our research goal is to realize navigation technique for evacuees by real-time planning and notification of an adequate evacuation plan. In order to make the adequate plan, it's necessary to combine various techniques, such as agent-based simulation, physical simulation of disasters, and virtual reality techniques for visualization.

Society & Environment

BOOTH 50

A measurement and removal technology for PM2.5 in the air

Professor **TANAKA, Shigeru**
Department of Applied Chemistry

Recently, many studies point out that the fine particles in the atmosphere has more damage to human health. The automatic continuous measurement equipment for acidity and chemical ions in PM2.5 was developed to understand the behavior of PM2.5 in the atmosphere. The removal equipment was also developed by spraying with charged water mist.

Society & Environment

BOOTH 51

A removal and refining technology for NMP in the exhaust gas from the production process of Li ion battery

Keio Patent

Professor **TANAKA, Shigeru**
Department of Applied Chemistry

NMP is an expensive solvent, so that the recycle use of NMP is expected. The recovery and refining equipment for NMP in the exhaust gas from the production process of Li ion battery was developed.

Society & Environment

BOOTH 52

Analysis of driver cognitive and behavioral characteristics, design and evaluation of human machine interface

Professor **DAIMON, Tatsuru**
Department of Administration Engineering

We study the effect of advanced driving safety assistance systems with in-vehicle/roadside information, collision warning and automated driving on driver cognitive and behavioral characteristics. Especially, we study the analysis and evaluation of human machine interface of such systems based on driver characteristics.

Society & Environment

BOOTH 53

Meta-heuristic solution for vehicle routing problem

Professor **DAIMON, Tatsuru**
Department of Administration Engineering

Vehicle routing problem (VRP) is a constraint optimization problem on the number of vehicles, link cost (time or distance), load capacity of each vehicle, various requests of customer on time of delivery or pickup (time window). We study fast and conditional algorithm of meta-heuristic solving VRP, with the goal of rationalizing vehicle routing for logistics.

Society & Environment | Mechanics

BOOTH 61

Wheelchair Design Based on Model Based Systems Engineering

Assistant Professor **KATO, Takeo**
Department of Mechanical Engineering

This study structures the wheelchair user's requirements using SysML language, which is the typical way applied in Model Based Systems Engineering (MBSE), and proposes a wheelchair which achieves better function (comfort) and appearance (social adaptiveness).

Society & Environment | Materials

BOOTH 62

Materials for energy and environment

Professor **SHIRATORI, Seimei**
Department of Applied Physics and Physico-informatics

Carbon nano-fiber for high performance lithium ion battery, super sensitive membrane for smell sensor, perovskite solar cells and oil-water separation system will be exhibited. All of them are very effective to improve our environment.

Society & Environment

BOOTH 66

New Developments in Reactive Flows

KIF Research Project

Professor **UEDA, Toshihisa**
Department of Mechanical Engineering

Reactive flows play an important role in many engineering fields, such as mechanical engineering and chemical engineering. The new development in Reactive flows is shown.

Materials

Materials | Society & Environment

BOOTH 63

Wet process functional thin films

Keio Patent

Professor **SHIRATORI, Seimei**
Department of Applied Physics and Physico-informatics

Anti-icing/Anti-frosting films, micro reactor (droplets movement control), antibacterial film, and repellent film for hot fluidic foods will be exhibited.

Materials

BOOTH 64

Repel and slip stains hardly adhere on surface: Anti-fouling coating

Keio Patent

Professor **SHIRATORI, Seimei**
Department of Applied Physics and Physico-informatics

(1) Easy removal coating repels water for food or beverage and (2) Transparent coating slips oil for optical devices. This will reduce environmental problems and save energy. We promote the coating products to practical use.

Materials | Biomedical

BOOTH 65

Nano-Processing of New Materials

Keio Patent

Professor **YAN, Jiwang**
Department of Mechanical Engineering

We develop new technologies for nano-scale processing and surface property control of materials in order to improve the functional capability and added value of industrial products. We deal with super hard alloys, ceramics, semiconductors, glass, diamond, CFRP, and so on. Recently, we have succeeded in high-efficiency generation of nanoparticles and 3D nanostructures by laser irradiation on waste silicon sludge.

Materials | Electronics

BOOTH 67

Nondestructive inspection of internal anisotropy in polymeric materials by terahertz polarization spectroscopy

Keio Patent KIF Research Project

Associate Professor
WATANABE, Shinichi
Assistant Professor **OKANO, Makoto**
Department of Physics

Polymeric materials are usually opaque for visible light, but transparent for terahertz light. We demonstrate a polarization-sensitive terahertz spectroscopy which is very useful to investigate internal anisotropy inside polymeric materials.

Materials | Information and Communication

BOOTH 68

High-performance Optical Device Fabrication

Keio Patent

Professor **YAN, Jiwang**
Department of Mechanical Engineering

We develop new fabrication technologies for nano-precision free-form optics and their molds by using multi-axis numerical control ultraprecision machines. High-speed surface finishing of optical crystals, such as Si, Ge, ZnSe, CaF_2, etc. has been realized by ductile machining technology. Recently, we also succeeded in fabricating ultra-thin Si-HDPE hybrid lenses for future IR devises.

Materials | Other Fields

BOOTH 69

Fabrication Method for Ultra-fine Nano-catalysts by Gas-phase Intensive Nanocluster Source "Nanojima®"

Assistant Professor **TSUNOYAMA, Hironori**
Department of Chemistry

Nanoclusters composed of several to several thousand atoms show remarkable, size-specific catalytic performance. We have developed a fabrication method for ultra-fine metal nanocatalysts by utilizing intensive, size-selected nano cluster source "Nanojima®" (Ayabo Corp.) and non-destructive immobilization (soft-landing) method.

Materials | Other Fields

BOOTH 70

Development of Ultra-narrow Microfluidic Mixer for Chemical Synthesis of Fine Nanoclusters

Professor **NAKAJIMA, Atsushi**
Department of Chemistry

Nanoclusters exhibit remarkable functions dependent on their size. Liquid-phase, chemical synthesis method enables us to obtain gram-scale nanocluster materials. However, it is difficult to control the cluster size precisely. We have developed a novel microfluidic reactor with ultra-narrow reaction channels (Toshiba Machine Co. Ltd.) for the fine synthesis of nanoclusters.

Materials

BOOTH 73

Surface Engineering for Metals

Keio Patent

Professor **KOMOTORI, Jun**
Department of Mechanical Engineering

Metallic materials, such as carbon steel, stainless steel and titanium alloys, are required to have certain desirable properties for practical applications. The aim of our laboratory is to develop a new surface modification processes.

Materials | Biomedical

BOOTH 74

Development of biomaterials using Diamond-Like Carbon coating

Professor **SUZUKI, Tetsuya**
Department of Mechanical Engineering

The biocompatible materials have become more important with the development of medical technology. Surface modification receives much attention as one method of improving various properties of biomaterials. We have developed new biomaterials using Diamond-Like Carbon (DLC) coating. We will introduce about our approaches to the biomedical application development.

Materials | Electronics

BOOTH 75

Lower-cost and higher-durability solar cell using Diamond-Like Carbon film

Professor **SUZUKI, Tetsuya**
Department of Mechanical Engineering

To popularize solar cells, it is necessary to reduce the manufacturing cost of them. Solar cells using Diamond-Like Carbon (DLC) film meet this demand. Moreover, they possess great properties, which enable them to withstand various environmental conditions. We introduce our research on DLC solar cells to solve energy problems.

Mechanics

Mechanics | Electronics

BOOTH 71

Development of Gas-phase Intensive Nanocluster Source "Nanojima®" and Application to Synthesis of Novel Nanomaterials

Professor **NAKAJIMA, Atsushi**
Department of Chemistry

Nanoclusters composed of less than several thousand atoms have potential to novel functional materials based on their unique, size specific properties. We have developed a milligram-scale, fine synthesis method for nanoclusters "Nanojima®" (Ayabo Corp.) based on a dry process. We introduce recent activity of the apparatus and synthesis of novel nanomaterials.

Mechanics | Materials

BOOTH 88

Ultra-precision machining and intelligent machining system

KIF Research Project
Associate Professor **KAKINUMA, Yasuhiro**
Department of System Design Engineering

We research on production process of optical elements, analyzing the sub-surface damage due to nanoscale cutting and grinding of optical materials. In addition, we are working on development of intelligent machine tools which have ability to control machining force and vibration according to cutting state. In our booth, we will exhibit samples of optical elements produced by ultra-precision machining and show the developed intelligent machine tools.

Mechanics | Electronics

BOOTH 89

living and life Support Robot

Associate Professor **NAKAZAWA, Kazuo**
Department of System Design Engineering

I will give a demonstration of a mobile robot for the purpose of the living and life support. Various sensors such as range image sensors are attached on the robot and we can control remotely while judging sensor information. The robot can go to a destination by remote controlling and can avoiding obstacles automatically.

Other Fields

Other Fields

BOOTH 72

Experience Design
- Apply psychology to new products & services -

Associate Professor **NAKANISHI, Miwa**
Department of Administration Engineering

Our hand size is around 7 inches, and our capacity of short-term memory is 5 to 9 items. Just like these physical and cognitive characteristics, we humans have the common characteristics in the psychological aspect. Nakanishi-lab is developing methods to design new products and services that realize high-quality experiences for our life.

Other Fields

BOOTH 76

Dynamic Actuator

Keio Patent
Associate Professor **KATSURA, Seiichiro**
Department of System Design Engineering

This technology attains fast and dynamic outputs by considering a mechanical structure of an actuator. It is possible to transmit the electric power to the mechanical power with high efficiency. Thus high speed, high torque, and high back drivability are attained. The dynamic actuator realizes performance improvement of a robot that is used in contact tasks.

Other Fields | Electronics

BOOTH 77

Thermo Film

Keio Patent
Associate Professor **KATSURA, Seiichiro**
Department of System Design Engineering

"Thermo film" is a flexible device that can render thermal sensation based on thermal-electrical transformation. Since the device is thin and flexible, it is possible to change the structure. Thus the device will be applied to a wearable and cellular interfaces.

Applied Chemistry Group Exhibition Zone

Applied chemistry research committing to "health" and "beauty": molecules, materials, and system design

It is everyone's dream to lead a healthy life and stay beautiful. To realize this dream, we rely on new technologies in many fields, including medical care, pharmaceutics, cosmetics, and dietary management. In this context, applied chemistry research contributes to a wide range of technological developments at various scales ranging from sub-nanometer-sized single molecules over molecularly assembled materials to larger systems. Exhibits and short presentations covering organic / inorganic, polymer / small molecule chemistry will be given by 6 research groups from the Department of Applied Chemistry. We are looking forward to your visit.

Short Presentations

①10:30～11:00
②14:30～14:50
③15:20～15:40
④16:10～16:40

Biomedical | Materials 【Molecules】

BOOTH 54

The power of synthetic organic chemistry - constructing all kinds of molecule

Research Associate **OGURA, Akihiro**
Department of Applied Chemistry

The power of synthetic organic chemistry has enabled us to obtain valuable molecules such as pharmaceutical drugs and fine chemicals. We are further expanding the scope of the chemistry through total synthesis of complex natural product and creation of array of unprecedented molecules.

Materials Biomedical 【Materials】

BOOTH 55

Design and synthesis of bio-based nanoparticles for cosmetic and pharmaceutical materials

Research Associate **FUKUI, Yuuka**
Department of Applied Chemistry

Nanoparticles have recently attracted significant interests in the field of pharmaceutics and cosmetics. We have developed bio-derived nanocapsules by utilizing a phospholipid vesicle (liposome) as a template. A variety of naturally occurring materials were coated over the surface of a liposome to create various functions including the mechanical robustness and the controlled release of substances.

Materials Biomedical 【Systems】

BOOTH 56

Self-organization Phenomena Leading New Cosmetic Science

Keio Patent

Professor **ASAKURA, Kouichi**
Department of Applied Chemistry

Cosmetics are frequently been in far-from-equilibrium conditions in which self-organized spatial patterns are formed during and after the processes of their application. These phenomena sometimes exhibit significant influences on the properties of cosmetics. Typical examples are found in the UV protection efficacies of sunscreens and their evaluation methods.

Materials Biomedical 【Systems】

BOOTH 57

Droplet-Type Microrobots Exhibiting Chemotactic Motion

Research Associate **BANNO, Taisuke**
Department of Applied Chemistry

In far-from-equilibrium conditions, micrometer-sized droplets in emulsion system composed of water, oil, and surfactant exhibit self-propelled motion. Because their propelling mode and direction can be controlled by the compositions and chemical reactions, they have potential applications as carriers and probes for exploring environmental or biological systems in very small space.

Other Fields 【Molecules】

BOOTH 58

The Secrets of Eggshell Assisting Chick Hatching

Associate Professor **SAIKAWA, Yoko**
Department of Applied Chemistry

Calcium carbonate in avian eggshell is used as a calcium source for bone formation during embryonic development. We found an organic component which enables smooth dissolution of calcium carbonate. Investigation of calcium translocation from eggshell to embryo and the secret of eggshell are at our exhibition booth.

Biomedical Society & Environment 【Materials】

BOOTH 59

Functional Materials for Chemical Sensors and Biosensors Targeting Healthcare and Environmental Applications

Keio Patent

Professor **CITTERIO, Daniel**
Professor **SUZUKI, Koji**
Department of Applied Chemistry

Our laboratory works on the development of sensitive chemical sensors and biosensors for environmental and biomedical applications. Topics presented include the development of functional fluorescent dyes, luminescent probes and functional nanomaterials for medical and environmental sensing applications.

Creativity Initiative Zone

Creativity Initiative Research
–Global Smart Society Creation Project–

Keio University has been selected by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) for the 2014 Top Global University Project as one of Japan's top universities providing a world-class level of research and education (Type A). Under this project, Keio will contribute to the world by taking advantage of its own strength at 3 cluster areas; "Longevity", "Security" and "Creativity". We here present Global Smart Society Creation Project under Creativity Initiative.

Society & Environment Information and Communication

BOOTH 31

A research on spontaneous human activities with in urban public properties

Professor **RADOVIĆ, Darko**
Associate Professor **MITSUKURA, Yasue**
Department of System Design Engineering

co+labo radovic came back to Kuhonbutsugawa Street in Jiyugaoka, to present the mock-up of the new urban research pavilion "Urban Cupboard" which will be used for data collection and communication with the residents and visitors of the much-loved Green Promenade and the adjoining places.

Society & Environment

BOOTH 78

Smart Wellness Housing and City Assessment System

Professor **IKAGA, Toshiharu**
Department of System Design Engineering
Professor **YAMANAKA, Naoaki**
Department of Information and Computer Science

Ikaga laboratory displays the latest research on sustainable engineering of building and cities, such as low carbon, health, workplace productivity and resiliency in order to obtain scientific evidences interdisciplinary and internationally using field survey, subjective experiment and computer simulation.

Other Fields

BOOTH 79

Future of building enabled by ICT robotics

Professor **MITA, Akira**
Department of System Design Engineering

A future of buildings enabled by ICT robotics will be demonstrated.

Electronics Information and Communication

BOOTH 80

Cyber-Physical ICT: Fusion of Communications and Control Technologies

Assistant Professor **KUBO, Ryogo**
Department of Electronics and Electrical Engineering

In the IoT (Internet of Things) and M2M (Machine-to-Machine) networks, low-latency communication, security, and high-precision control techniques are required. We present the concept of cyber-physical ICT (Information and Communication Technology) supporting the next-generation IoT/M2M services from the viewpoint of communications and control engineering.

Information and Communication | Society & Environment

BOOTH 81

Smart Community Infrastructure

Keio Patent KIF Research Project

Professor **NISHI, Hiroaki**
Department of System Design Engineering

Novel infrastructure for smart community is proposed, and the infrastructure enables to implement and provide various smart community services effectively. The infrastructure can provide timing critical and privacy critical services by integrating a communication network inherited from the Internet architecture and flexible data processing using cloud / fog / local environments.

Information and Communication

BOOTH 82

Smart Community Implementation

KIF Research Project

Professor **NISHI, Hiroaki**
Department of System Design Engineering

Actual local implementation of smart community is introduced by illustrating the Smart Town project cooperated with a local government. In this project, special common data platform integrate and manage various smart community data by providing fine-grain authentification method. By using the platform, secure and flexible local community services can be provided.

Information and Communication

BOOTH 83

Reliable Transactions of Real-Time Contents in the IoT Era

KIF Research Project

Professor **YAMANAKA, Naoaki**
Department of Information and Computer Science

The IoT (Internet of Things) is the network of “things” with capability to communicate with each other. In the IoT era, data collected by sensors or cameras placed everywhere will be traded among users. This research aims at developing reliable, real-time, and scalable IoT trade platform and methods.

Information and Communication

BOOTH 84

Social Things and Utilization of those Data

KIF Research Project

Professor **YAMANAKA, Naoaki**
Department of Information and Computer Science

Professor **SUNAHARA, Hideki**
Graduate School of Media Design, Keio University

We introduced new concept called “Social Things” which support social activity of human as next step of IoT. In this booth, we show basic function of Social Things and utilization of data of Social Things.

Information and Communication

BOOTH 85

The new view of the world fused EEG and VR

Associate Professor **MITSUKURA, Yasue**
Department of System Design Engineering

In this demonstration, you can see the new device with comfortable in VR system. You can see the real-time stress detection by the VR system. By using this device, you can do the experiment for detecting the human feeling using the EEG and see the human feeling an on-line manner in VR system.

Society & Environment | Electronics

BOOTH 86

Systems and Control Theoretic Approach to Super Smart City

Professor **NAMERIKAWA, Toru**
Department of System Design Engineering

The systems and control theoretic approaches for the urban infrastructures and energy management systems building toward “super-smart city” will be presented.

Other Fields

BOOTH 87

Wave System

Keio Patent

Associate Professor **KATSURA, Seiichiro**
Department of System Design Engineering

We succeeded in realization of wave control of a mechanical system by a modeling methodology based on distributed parameter system. Using a delay element, it is possible to construct a stable system without complicated controllers.

Special Exhibits

- A Central Service Facilities for Research
- B Yokohama Industrial Development Corporation (IDEC)
- C Kawasaki Institute of Industry Promotion (IIP)

Panel Presentations

Mechanics

PANEL 90 Development of Easy, Reliable, and Intelligent High-Precision Machining System for Complexly Shaped Part Using Milling-Turning Machine Tool with Multi-Turrets

KIF Research Project

Professor **AOYAMA, Hideki**
Associate Professor **KAKINUMA, Yasuhiro**
Department of System Design Engineering

The objective of this project is to develop a turning-milling machine tools which are easy usage for high accuracy and high efficiency. For this objective, the following technologies will be developed; (a) a technology to determine the optimum process plan and to generate the NC program, (b) a technology to accurately estimate cutting force based on servo information, (c) a technology to automatically make the optimum cutting condition by identifying cutting state based on process models.

Information and Communication

PANEL 91 The secure access control schemes towards realization of IoT with high reliability

Professor **SASASE, Iwao**
Department of Information and Computer Science

The research results about routing, media access control, and attack defense which fill power saving, high reliability and high security are shown towards realization of IoT (Internet of Things).

Electronics Materials

PANEL 92 Device Design and International Standardization Activities for Organic Transistors based on Charge Carrier Doping

Associate Professor **NODA, Kei**
Professor **AWANO, Yuji**
Department of Electronics and Electrical Engineering

In this group, carrier doping for device designs in organic transistors have been intensely studied by using both device simulation and experimental methods. The research and development toward international standardization on characterization techniques for organic transistors is also going on. This study was partly supported by the Joint R&D Project of International Standards funded by METI.

Information and Communication

PANEL 93 Study of Energy Efficient Virtual Link Resource Allocation Approach for Network Virtualization Environment

KIF Research Project

Professor **YAMANAKA, Naoaki**
Department of Information and Computer Science

Energy consumption has been a critical issue for network virtualization environment (NVE). We focus on the data switching energy consumption on NVE, and study a dynamic virtual network resource allocation approach to reduce data switching energy consumption and moreover no impact on quality of service and end user experience.

Biomedical

PANEL 94 The development of microthermofluidic device for life science research

KIF Research Project

Associate Professor **TAGUCHI, Yoshihiro**
Associate Professor **SUDO, Ryo**
Department of System Design Engineering

This project develops microthermofluidic devices for life science research by the integration of microfluidic devices, which have been developed from the standpoint of bioengineering and bioMEMS, and micro-optical detection systems, which have been developed from the standpoint of thermal engineering and optical MEMS.

Biomedical Mechanics

PANEL 95 Cell Cultivation Technology using Ultrasonic Vibration

Keio Patent

Associate Professor **TAKEMURA, Kenjiro**
Department of Mechanical Engineering

Regenerative medicine requires a novel cell cultivation technology. Our research group aims to develop such cell cultivation technology using ultrasonic vibration. We will introduce an effective cell collection method using resonance vibration of cultivation base, and enzyme free cell detachment method.

Biomedical Materials

PANEL 96 UV/ozone surface modification of cell culture substrate for iPS cells

Associate Professor **MIYATA, Shogo**
Department of Mechanical Engineering

Our laboratory develops cell culture substrate using UV/ozone surface modification technique. We introduce the cell culture substrate that promote iPS cell adhesion and proliferation, and the substrate for evaluation of stem cell pluripotency.

Information and Communication

PANEL 97 A Reconfigurable Hardware for Integrating Various Structured Storage Technologies

Assistant Professor **MATSUTANI, Hiroki**
Department of Information and Computer Science

We are developing FPGA-based hardware accelerators for various NOSQL storages that cover key-value store, column store, and graph database.

KEIO TECHNO-MALL 2016
Event Schedule

Event Stage (120 seats)

10:00

9:55 **Live broadcast of the Opening Address**

10:15-10:30 (15min.) **Live broadcast of the Opening Ceremony**

10:30

10:40-11:30 (50min.) **Keynote Speech**

Open innovation strategy for Keio University in collaboration with industry

【10:40-11:00】 Overview

MAKABE, Toshiaki Vice-President for Research, Keio University

【11:00-11:30】 Case Studies

OKA, Kotaro Professor, Dept. of Biosciences and Informatics, Faculty of Science and Technology

OHNISHI, Kouhei Professor, Dept. of System Design Engineering, Faculty of Science and Technology

YAMANAKA, Naoaki Professor, Dept. of Information and Computer Science, Faculty of Science and Technology

11:00

11:30

11:40-13:00 (80min.) **Round-table Session I**

Human Brain Deceived by Computers
−Examining Virtual Reality and Robots

MOGI, Kenichiro
Senior Researcher, Sony Computer Science Laboratories, Inc.

KIMURA, Toshitaka
Senior Research Scientist, NTT Communication Science Laboratories

MIKAMI, Dan
Research Engineer, Media Intelligence Laboratories, Nippon Telegraph and Telephone Corporation

IMAI, Michita
Professor, Dept. of Information and Computer Science, Faculty of Science and Technology

FUJISHIRO, Issei
Professor, Dept. of Information and Computer Science, Faculty of Science and Technology

Facilitator: SAITO, Hideo
Professor, Dept. of Information and Computer Science, Faculty of Science and Technology

12:00

12:30

13:00

13:30

13:30-14:30 (60min.) **Main Event**

Building the New National Stadium

KUMA, Kengo
Architect
Professor, The University of Tokyo

Interviewer: MITA, Akira
Professor, Dept. of System Design Engineering, Faculty of Science and Technology

Coordinator: YAMANAKA, Naoaki
Professor, Dept. of Information and Computer Science, Faculty of Science and Technology

14:00

14:30

14:50-16:00 (70min.) **Round-table Session II**

Examining Angel Activities and Science and Engineering Based Ventures Started by the Keio Leading-edge Laboratory of Science and Technology

SASAKI, Keishin President & CEO, e-solutions, Inc.

NAKA, Michimasa CEO, Boardwalk Capital, Inc.

YAMAGISHI, Kotaro CEO, Keio Innovation Initiative, Inc.

MASHITA, Naoaki Representative Director, President and CEO (Founder), V-cube, Inc.

SUZUKI, Ryuichi CEO, AISSY, Inc. / Executive Director, Mentor Mitakai

AWANO, Yuji Professor, Dept. of Electronics and Electrical Engineering, Faculty of Science and Technology

Facilitator: MORITA, Toshio Associate Professor, Dept. of Mechanical Engineering, Faculty of Science and Technology

15:00

15:30

16:00

16:30

17:00

18:00

Seminar Stage (30 seats)

10:00

9:55 **Live broadcast of the Opening Address**

10:15-10:30 (15min.) **Live broadcast of the Opening Ceremony**

10:30

11:00

11:00-11:30 (30min.) **Technology Partnership Seminar**

Investigation of the mechanisms of health effect caused by PM2.5 particles

OKUDA, Tomoaki
Associate Professor, Dept. of Applied Chemistry, Faculty of Science and Technology

11:30

12:00

11:40-13:00 (80min.)
Live broadcast of the Round-table Session I

12:30

13:00

13:30

13:30-14:30 (60min.)
Live broadcast of the Main Event

14:00

14:30

14:50-15:20 (30min.) **Technology Partnership Seminar**

Future Lifestyle Vision using Ubiquitous Optical Sensing

SUGIMOTO, Maki
Associate Professor, Dept. of Information and Computer Science, Faculty of Science and Technology

15:00

15:30

15:40-16:10 (30min.) **Technology Partnership Seminar**

Optoelectronic devices based on nanocarbon materials

MAKI, Hideyuki
Associate Professor, Dept. of Applied Physics and Physico-informatics, Faculty of Science and Technology

16:00

16:30

16:40-17:10 (30min.) **Technology Partnership Seminar**

Cleaning and food processing based on the dynamics of untrasound-induced bubbles

ANDO, Keita
Assistant Professor, Dept. of Mechanical Engineering, Faculty of Science and Technology

17:00

18:00

*For Event Information, please refer to the pages 06-08.