

Laboratory Profile

Introducing two labs directed by Professor Hidekazu Nishimura



Professor Hidekazu Nishimura

Research Interests: Safety control systems design for personal mobility, Model-driven systems development of systems and services

MDSD Lab: Model-Driven Systems Development Laboratory

Representative:

Professor Hidekazu Nishimura

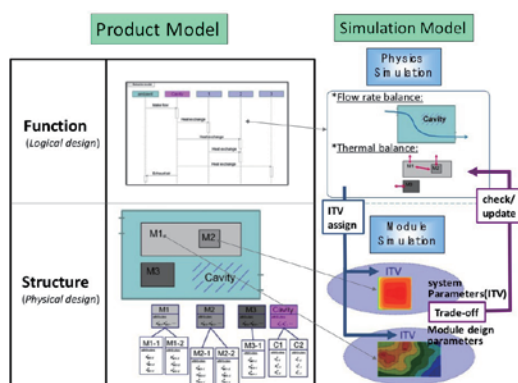
Members:

Project Assistant Professor Terumasa Narukawa, Associate Professor Seiko Shirasaka, and others.

MDSD Lab is engaged in concrete research using SysML (Systems Modeling Language) which is a tool to promote model-based systems engineering processes, DSM (Design Structure Matrix), MDM (Multi Domain Matrix) and other tools. In particular, research using SysML as a main tool to develop complicated systems composed of hardware, software, people, and equipment is ongoing.

As an example, by treating a cavity (internal space) as a module, we can formulate an interface between other modules so that the design prospect improves. Then, physical parameters between modules are passed through the cavities. Thus, internationally-based development teams can promote concurrent engineering by sharing these parameters on the platform integrated by SysML.

(Kenichi Seki-doctoral course (Sony))



MDSD Lab members who come from various industries and join the SDM Research Institute as researchers.

Furthermore, lab members are translating “A Practical Guide to SysML (ELSEVIER)” into Japanese for publication in 2011. We aim to expand the use of model-based systems engineering to create a virtuous circle for engineers to save time for creating more innovative systems by avoiding inefficient “redo” procedures. There are some

UD Lab: Universal Design Laboratory

Representative:

Professor Hidekazu Nishimura

Members:

Professor Yasushi Nakano (Faculty of Economics), Professor Takashi Maeno, and others.



The UD Lab researches ideal barrier-free spaces for human activities based on the concept of “Human Centered Design.” First, we examine accessibility, empirically analyze societal needs, and then draw the best form, and clearly design systems—including the goods and services necessary

for it.

Currently, our main research objects are power-operated vehicles used as tools to provide personal mobility, and elevators and escalators. In particular, we are validating and evaluating the barrier-free and universal design of university facilities on the Hiyoshi campus and surrounding facilities such as Hiyoshi station, based on interviews with various disabled people.

UD Lab closely collaborates with the Mobility System Management Center to design safe and secure mobility for everyone, including disabled people. For example, together with the Japan Transportation Planning Association, UD Lab has established the Public Transportation Study Group in which we exchange a wide range of views on barrier-free spaces in town and at public transport stations.

UD Lab also organized the following events in 2010.

MID_ACT

1yen movement

The Movie in the Dark was an event designed to allow participants to experience a movie in the same way that a visually-disabled person experiences it. The audience listened to the voice guidance created by members of the UD Lab. After the movie, various stakeholders discussed the feasibility of the “One yen movement” idea; producing voice guidance for 100 films a year with the funds raised from collecting one yen from the price of every movie ticket sold in Japan.

KEIO Futsal Adventure 2010 was a challenge to offer disabled and non-disabled participants an opportunity to enjoy playing futsal together. In collaboration with Japan Blind Football Association, Keio University Institute of Physical Education, and student volunteers, UD Lab organized the event in which we attempted to feel the body’s intelligence and to study and increase the recognition of the challenges of blindness among students and local residents.



SDM Research Institute, Graduate School of System Design and Management at Keio University
Collaboration Complex, Keio University, 4-1-1 Hiyoshi, Kohoku-Ku, Yokohama, Kanagawa 223-8526
Tel : 045-564-2518 Fax : 045-562-3502 E-mail : sdm@info.keio.ac.jp

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System Design and Management