



Newsletter Volume 6



Newsletter Volume 3



Conclusion of MOU on ITS Study with Tsinghua University, China ITS Joint Mini Symposium in Tsinghua University

As part of the ITS effort to actively develop international cooperation with overseas universities, we concluded a Memorandum Of Understanding (MOU) on an ITS study with State Key Laboratory of Automotive Safety and Energy (ASE), Tsinghua University, China, on October 14th, 2007. Prof. Ouyang Mingao, director of ASE, Prof. Keqiang Li, Prof. Bo Cheng, some professors and staff from ASE, and Prof. Ikeuchi, director of the ITS Center, Prof. Kuwahara, Prof. Suda, Prof. Suzuki, and Prof. Tanaka from the ITS Center attended the signing ceremony held in ASE. Prof. Ouyang Mingao and Prof. Ikeuchi signed the agreement, shook hands with a firm grip, and swore that they would build deeper cooperation between them from now on. During the ceremony, Mr. J-P. Medevielle, vice director of INRETS, France, and Prof. Dumont, EPFL, Switzerland, made congratulatory speeches on the conclusion of the agreement, and the ITS Center presented ASE with an anniversary gift. A friendly atmosphere characterized the ceremony from beginning to end. The ITS Center attendants visited the experiment facility of ASE before the ceremony.

After the signing ceremony, an ITS joint mini symposium with Tsinghua University, INRETS, and the ITS Center was held in the Main Building at Tsinghua University. The aim of the symposium was to deepen understanding mutually through the introduction and the presentation of the study on which each group was working. Three or four persons from each group gave a presentation in the symposium. Students of Tsinghua University participated in the symposium and listened attentively to presentations. The list on page3 shows speakers and their presentation subject. After the symposium, the above commemorative picture offered by Dear JIN Xiaoping was taken in front of the wall on which the Tsinghua University's principles are written: "zi qiang bu xi, hou de zai wu." This means "Don't neglect improving yourself, keep your natural virtue high, and accomplish things."

Acknowledgment : Professors and staff of Tsinghua University made all the arrangements for the signing ceremony and the symposium. We express our heartfelt gratitude.

ITS Symposium in Fukuoka / UT ITS Center Seminar Series (2)

The ITS symposium in Fukuoka was held by the ITS Center and ITS Japan, on Dec. 8, 2007, at Fukuoka International Congress Center, aiming for newer developments of ITS in the Kyusyu area.

During the first part of the symposium, a lecture titled "The most advanced ITS technology and international cooperation" was jointly given by Prof. Kuwahara, Prof. Suda, and Associate Prof. Suzuki from our Center, as the 2nd UT ITS Center Seminar Series; another lecture given by Prof. Morikawa from Nagoya University was titled "Aiming at building a model city of environmental ITS." In the second and third parts, Prof. Mizokami from Kumamoto University, representatives from the Nishi-Nippon Railroad Co. Ltd., and others gave a presentation called "Effort toward Building ITS in Kyusyu." Also, there was a panel discussion about "Promoting ITS in the Kyusyu area from a perspective of Asia." 104 participants joined the symposium.

The ITS Center continuously promotes this kind of activity for deploying ITS in regional areas.



Scene of convention hall



Panel discussion



Prof. Kuwahara, the deputy chief of the ITS center, giving his speech

Special Course in ITS for Working People 2007 in Chiba Experiment Station

A Special Course in ITS for Working People 2007 was held on September 20 at Chiba Experiment Station (CES), Institute of Industrial Science, under the joint auspices of CCR (Center for Collaborative Research), FPIS (The Foundation for the Promotion of Industrial Science), and the ITS Center. The aim of this course was to introduce accomplishments of the "Sustainable ITS Project," a project of CCR industry-academia collaboration started in 2003, and to develop human resources in the ITS field. From 2004 to 2006, this course was held at the Komaba Research Campus, Meguro-ku, Tokyo, once a year. This is the first time this course was held at CES.

On this day, Prof. Watanabe, director of CCR, and Prof. Ikeuchi, director of the ITS Center, made the opening speech. From the morning to the evening, Prof. Suda and Prof. Tanaka, core members of the ITS Center, and Prof. Hori, Prof. Kageyama (Nihon University), Prof. Hasegawa (Saitama University), and Prof. Oguchi (Tokyo Metropolitan University), support members, gave lectures as listed on page3. Prof. Suda, director of CES, made the closing speech. After the course, some participants visited four laboratories and the experimental facility. Many people from companies, governments, and universities requested participation in this course. On this day, 87 people participated in the course and filled up the meeting room at CES. All participants listened attentively to lectures and wrote notes on their textbooks. We hope that this course will be helpful for the research and development of human resources.



ITS Joint Mini Symposium

2007/10/14 in Tsinghua University Beijing China

Visit and Signing Ceremony	
9:30-10:00	Visit the State Key Laboratory of Automotive Safety and Energy (ASE), Tsinghua University
10:00-10:05	Opening speech (Professor OUYANG Mingao, Director, ASE)
10:05-10:10	Opening Speech (Mr. J.-P. MEDEVIELLE, Vice director, INRETS)
10:10-10:15	Speech (Prof. DUMONT, EPFL)
10:15-10:30	Ceremony (signature / pictures)
Session1: TRAFFIC ENGINEERING	
10:30-11:00	Intelligent traffic management system development and application in Chinese cities (Prof. Huapu LU, Tsinghua University)
11:00-11:30	Data Driven Approach for Urban Expressways Management using Real Time Sensing Data -Utilization of ETC data – (Prof. Masao KUWAHARA, The University of Tokyo)
11:30-12:00	Traffic modelling and data fusion in traffic engineering (Dr. Nour-Eddin EL FAOUZI, INRETS)
12:00-12:30	Main research topics in Transport Networks and Advanced Software Engineering (Dr. RégineSEIDOWSKI, INRETS)
Session 2: TRAFFIC SIMULATION, INFORMATION PROCESSING	
13:30-14:00	Mixed Reality Traffic Experiments Space for ITS (Prof. SUDA, The University of Tokyo)
14:00-14:30	Relevance of combined use of behavioural microscopic traffic simulation and of driving simulator for ITS development and assessment (Dr. Stéphane ESPIE, INRETS)
14:30-15:00	Challenges for ITS data collection and processing by wireless communication and IPv6-based Internet (Prof. Zuo ZHANG, Tsinghua University)
Session 3: TRAFFIC SAFETY	
15:30-16:00	ASV Research Activities in China (Prof. Keqiang LI, Tsinghua Univ.)
16:00-16:30	VR applications for traffic safety and travel comfort (Prof. IKEUCHI, The University of Tokyo)
16:30-17:00	Vehicle-Infrastructure-Drivers Interactions research issues (Dr. Mariana NETTO, INRETS)
17:00-17:05	Closing Remark (Prof. IKEUCHI, The University of Tokyo)

Special Course in ITS for Working People 2007

Chairman : Lecturer Shinji TANAKA(IIS)

10:00~10:10	Opening Speech Prof. Toshiya WATANABE(Director of CCR) Prof. Katsushi IKEUCHI(Director of ITS center)
10:10~11:00	Proposal of Encording for Safety Improvement at Intersections Prof. Takashi OGUCHI(Tokyo Metropolitan University)
11:00~11:50	Sensing Technique of Road Surface Condictions for Vehicle Control Prof. Ichiro KAGEYAMA(Nihon University)
13:00~13:50	Deployment of Mixed Reality Traffic Experiments Space of ITS Lecturer Shinji TANAKA(IIS)
13:50~14:40	WYSIWYAS Navigation Systems and the Systems Innovation Theory as Their Backbone Prof. Takaaki HASEGAWA(Saitama University)
14:40~15:30	Deployment of Mixed Reality Traffic Experiments Space on ITS Prof. Yoshihiro SUDA(CCR)
15:30~16:20	New Life Style by Super Capacitor Driven Mini size Electric Vehicle Prof. Yoichi HORI(IIS)
16:20~16:25	Closing Address Prof. Yoshihiro SUDA(Director of Chiba Experiment Station)
16:30~17:30	Lab. tour

Displayed ITS center's activities in IIS Open House

At the IIS Open House, held from May 31st to June 2nd, 2007, the ITS Center presented displays of research activities as a united display with a simple TS-DS*¹ system, and three measurement vehicles at the entrance of the research building. As the Open House was held as a unified open campus this year, the number of visitors increased by more than 2,000 from last year, and many families visited on Saturday, which made the atmosphere lively.

The area of the ITS Center display attracted considerable attention from a distance with its three special vehicles and a leading edge simulator, and we counted numerous visitors to our area. Some of them were eager to ask the staff about the on-board devices on the measurement vehicles and about the components of the TS-DS*¹ system, and so on. Also, the ITS Center cooperated with the activities of "Scientists for Next Generation (SNG)" as one of the host laboratories of the tour. Many groups of junior and senior high school students came, too. They listened to the explanation of the display and practiced driving our simulator system. Their driving in this unaccustomed situation drew cheers from their friends, and this could be a good memory for a young generation who will proceed to universities in the near future.

*¹ TS=Traffic Simulator, DS=Driving Simulator



Ceremony to Celebrate the Installation of the IIS Chiba Rail Test Track

The ceremony to celebrate the installation of the IIS Chiba Rail Test Track was held on November 9, 2007, when the Open House of Chiba Experiment Station (CES), Institute of Industrial Science (IIS), and The University of Tokyo (UT) took place. Domestic universities installed a test track where a railway vehicle can be made to run for the first time. The specification of the test track is as follows: length 95.0 m, curve radius 48.3 m, and gauge 1,435 mm. The asphalt pavement is treated so it is compatible with the surface of the railroad so it can be used as both a premises road and a vehicle test road. As a part of the traffic experimental field, this treatment lets us conduct a cooperative experiment with the experimental intersection installed in 2006.

On this day, many guests from domestic railway companies, railway vehicle manufactures, transportation governments, etc., were invited to the ceremony. At the ceremony, we celebrated the ribbon-cutting ceremony with guests from the Ministry of Education, Culture, Sports, Science and Technology, the Ministry of Land, Infrastructure, Transportation and Tourism, the Railway Technical Research Institute, the National Traffic Safety and Environment Laboratory, the Aircraft and Railway Accident Investigation Commission, Chiba University; and Vice President of UT. Prof. Maeda, Director of IIS, opened the decorative ball. Then, an experimental demonstration with an actual bogie was given. Before the ceremony, Prof. Suda, a core member of the ITS Center and director of CES, delivered a special lecture "Development of Studies on ITS and Vehicle Control in CES" about the introduction of the rail test track as part of an experiment in Light Rail Transit (LRT), which is spreading rapidly as a solution to the next generation's urban traffic around Europe and America. This approach calls for a combination of human-infrastructure-vehicle, research and experiment for safety, suppression of environment load, and freeing up of traffic jams. Many TV programs, newspapers and magazines reported the ceremony and the test track.

The Open House of CES is the event where laboratories working prominently in CES introduce their achievements and equipment. The ITS Center introduces its activities each time. The subject is "Expansion of Sustainable ITS Studies and Projects," including "Introduction of Sustainable ITS Studies and Projects," and "Introduction of Experimental Intersection." Core members' laboratories also made presentations with panels. The ITS sensing vehicle ARGUS (Automobile for Road, Ground, and Urban Sensing) was also displayed. The ITS Center disseminates information about its activities widely through distribution of its flyer, newsletters, and the technical report of IIS "Seisan-Kenkyu."



*Articles of "Seisan-Kenkyu" are now available at <http://www.iis.u-tokyo.ac.jp/>.

6th Symposium on ITS 2007

The sixth ITS symposium, an annual domestic conference, was held during Dec. 6-7, 2007, at Kobe Industry Promotion Center (Host: ITS Japan, Co-host: Kobe Industry Promotion Foundation). This time Prof. Yasuo Asakura served the symposium as program chair, and given the main theme as "Safe and harmonious ITS," presentations were organized into corresponding three sub-themes including "Accident Mitigating ITS," "Disaster Resistant ITS," and "Environmental and Human Friendly ITS." In the sessions, 83 papers were presented (53 of them were presented at poster sessions), and there were altogether 324 participants in the symposium, which turned out to be the second-most flourishing symposium in the past. From our Center, 14 papers were presented (See page 8-9).



A view of session



Commendation ceremony of poster session

ITS Journal Editor in Chief

by Masao Kuwahara

Following the former Editor-in-Chief Professor Ikeuchi, I took up the post of Editor-in-Chief of the ITS Journal beginning with the next issue. The ITS Journal was founded as an international journal covering interdisciplinary areas related to ITS. Since several new journals have been published recently, the market for ITS-related publications has become more competitive. I will try to improve publicity for the journal by emphasizing its unique character.

Beginning this year, associate editors have been introduced. Prof. Hasegawa (Saitama University), Visiting Prof. Edward Chung (EPFL and The University of Tokyo), and Dr. Ching-Yao CHAN (PATH, University of California, Berkeley) are the first associate editors. I am sure that the introduction of associate editors will help in gathering high-quality papers from wide areas as well as in speeding up the review process. In addition, to increase publicity, a task force on ISI acquisition has been established. The members of the task force are Dr. Kurauchi (Head, Kyoto University), Dr. Uehara (Keio University), and Dr. Suzuki (University of Tokyo). Their strategic plan for the ISI acquisition will be introduced to the editors at the next editorial meeting to be held in Singapore in conjunction with the Asia-Pacific ITS Forum in July 2008.

I very much look forward to support from all of you in elevating the reputation of our ITS Journal.

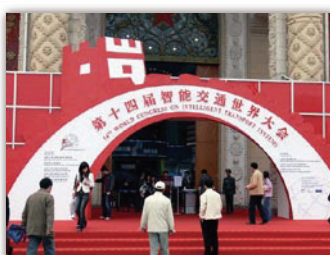


The 14th World Congress on Intelligent Transport Systems in Beijing

The 14th ITS World Congress was held from October 9-13, at the Beijing Exhibition Center in Beijing, China. The congress is held in October each year as a forum for international cooperation and interaction concerning ITS and as a venue for presentations on the latest technologies.

In the Congress, 1 paper in Scientific Session, 3 papers in Technical Sessions, and 1 paper in Interactive Session were presented from ITS center. In addition, Prof. Ikeuchi acted as the Moderator in Special Session "Next Generation Digital Map in Japan and Perspectives in Asia" and Prof. Ikeuchi, Prof. Kuwahara and Prof. Suda contributed as a board of review to choose excellent papers in Scientific Sessions.

Please see 8 page for more precise information of the presented papers.



In the year of 2007, we continued our research activities on two projects that started in 2006.

The Measurement Vehicle Group is developing measuring technology components that will be installed on the measurement vehicles. We made a presentation of our measurement vehicles at the Fukuoka Motor Show in December 2007, as described in the article about that show.

The Simulator Group has upgraded the driving simulator and moved it to a new building. We conducted some experiments in which test subjects used the new instruments, and the results were satisfactory.

Collaborative development of next-generation ITS sensing vehicle

Since June 2006, the ITS Center has been proceeding with a project, "Development of ITS sensing vehicle for next-generation ITS," collaborating with Aero Asahi Corp., Asia Air Survey Co. Ltd., Denso Corp., and Toyota Mapmaster Inc. In regard to ITS, we are seeing that a higher quality is required in the analysis of drivers and driving environment, traffic flow analysis, and reconstruction/representation of virtual city models for navigation and driving simulation. Meanwhile, technologies for acquiring and processing real-world information required for such issues are still not well-established. In this research, we aim to design a special sensing vehicle that can acquire and process real-world information such as geometric/photometric information about constructs, behavior of self/peripheral vehicles, and behavior of drivers in traffic situations. We then aim to apply these results to the construction of digital maps and the improvement of driving simulation.

In the first year, specific research themes were figured out, specification of the vehicle was laid down, and the first versions of the vehicles were produced. One of these vehicles is ARGUS*¹, a new model equipped with omnidirectional cameras and laser range scanners that can measure surrounding environments, including buildings and road surfaces. The other is the upgraded MAESTRO*², originally developed by the Akahane Lab, which can record its own position, behavior of the driver, and the behavior of the surrounding vehicles with highly accurate synchronization.

In the second year, technological developments are being carried out, such as localization by signal processing, matching existing map and scanned data, vibration correction by image processing, driving simulation using real images, etc. For instance, in [1], an existing 2D digital residential map including symbolic information such as names of shops, and fine 3D geometry of streets actually scanned by the vehicle, are matched by dynamic programming, and merged.

In the third year, we will verify the value of this work, upgrade vehicle equipment, and conclude the project.

*1 Automobile for Road, Ground, and Urban Sensing

*2 Measurement vehicle with Advanced Equipment System for Traffic Operation

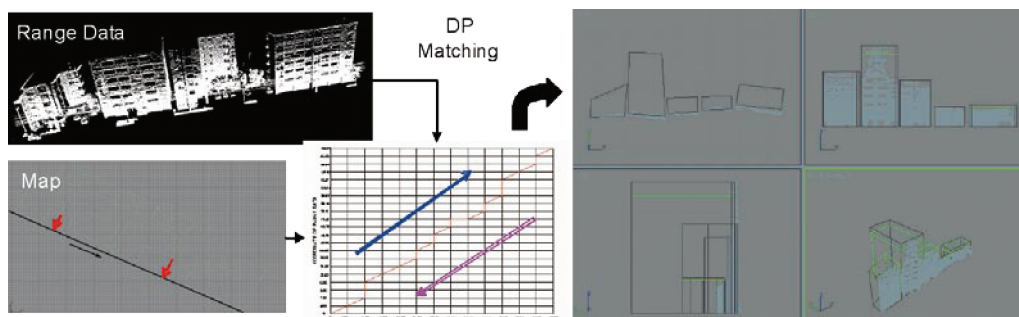
[1] L. Tong, S. Ono, M. Kagesawa, "3D Modeling of a Residential Map by Matching with Range Images of Streets", ITS World Congress, Beijing, China, Oct. 2007.



ARGUS



MAESTRO

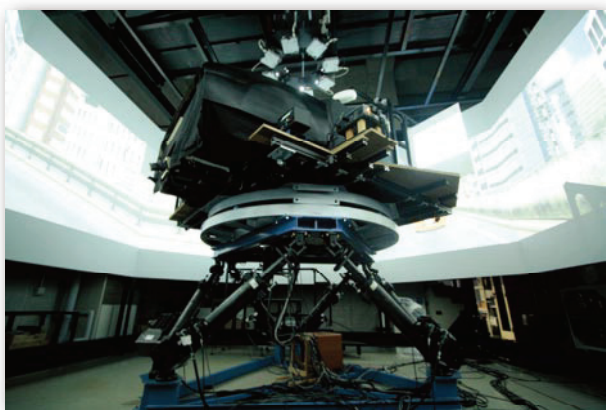


Matching range data and existing digital map

Utilization of Universal Driving Simulator for Human, Vehicle, and Traffic Research

The Driving Simulator Research Group (DS-Group), consisting of core-professors' laboratories, AISHIN AW CO., LTD., SOCIAL SYSTEM RESEARCH INSTITUTE INC., MATSUHITA ELECTRIC INDUSTRIAL CO., LTD., and MITSUBISHI PRECISION CO., LTD., has discussed plans, activities, goals, and schedules for group studies in meetings that began in 2006. The DS-Group organizes studies and research based on the plan. The DS-Group's goal in the second phase of the Sustainable ITS Project begun in 2006 is designed so that a microscopic traffic simulation system "KAKUMO," the deliverable of the first phase of the project, has been improved and is easier to use. Also, the group is proceeding with studies and research as follows: investigation of a driving simulator (DS) in which a car navigation system is installed, drawing a map showing the transition of studies on DS, evaluation of adjustment of parameters used for DS, validation of experiments on traffic signals and on-street parking with DS-simulated actual roads, investigation of visibility in case of adding the new visual system to traditional DS, evaluation of effectiveness on image combined with live-action images and computer graphics, and consideration of driver models in changing lanes.

DS was moved from a basement of the D-core building of the Institute of Industrial Science (IIS) to a basement of the CCR building in the summer of 2007, in preparation for performing function enhancement and improvement in the future. Expansion of the installation area and size of screens enabled mounting a cut-body like a mini van type vehicle. In addition, frames supporting screens and projectors to give images were renewed, and an operating space was opened so that DS can use these for various experiments. In the near future, addition of new visual system leading to improved visibility and a sound system improving realistic sensation are planned.



Universal Driving Simulator after relocation



Operation of relocation

Participation in Fukuoka Motor Show 2007

During Dec. 7-10, 2007, the Fukuoka Motor Show was held at three venues including the Fukuoka International Center around Hakata Port, under the auspices of the Executive Committee*. The ITS Center took part in the exhibition as a presenter. This was the first motor show held in Fukuoka City, and the second in the Kyushu area, following the motor show in Kumamoto City. The show was held to display the future and the culture of automobiles, from Kyushu to Asia.

Our Center set up a booth 6m x 9m in the ITS Zone on the first floor of Car-life Pavilion of the venue, along with the Kyushu Regional Development Bureau, MLIT, and the Internet ITS Consortium, where we exhibited our two experimental sensing vehicles (see page 6) and the simplified version of the Virtual Traffic Experiment Laboratory, an enhanced traffic flow and driving simulation system with a real image-based view.

On Dec. 5th, Research Associates Ono and Yamaguchi, and Technical Associate Nishikawa came to the venue and created the booth. After Dec. 7th, Associate Professor Suzuki, Research Associate Warita, project members of the ITS sensing vehicle development group (cooperative researchers from private companies), and student members also joined by turns, and worked as presentation staff for exhibits. Most of the visitors to the booth were from the general public, and interest was high. All 500 pamphlets of the Center that we had prepared and our paper collections (Monthly journal of the Institute of Industrial Science) were distributed.

On Dec. 8, "ITS Symposium in Fukuoka" was also held as a partial event of the Motor Show (see page 2).

*Composed of 35 organizations, including the Fukuoka Prefecture, Kyushu University, The Nishinippon Shimbun Co., Ltd., etc.



Journal Papers

Title	Author	Journal Title
Tactical Lane Change Model with Sequential Maneuver Planning	N. A. Webster, T. Suzuki, M. Kuwahara	Transportmetrica 2008 Vol. 4, No. 1, pp. 63-78, 2008
Mapping Personal Trip OD from Probe Data	E. Chung, M. Kuwahara	International Journal of ITS Research Vol. 5, No. 1, pp. 1-6, 2007
Evaluation of Stopping Behavior of Drivers in Dilemma Zone Using Driving Simulator	T. Oda, Y. Suda, S. Tanaka, D. Yamaguchi	International Journal of ITS Research Vol. 5, No. 1, pp. 47-54, 2007
Signal Control by Successive Updating of Control Parameters Based on Prediction of Traffic Flow	T. Oda	Electrical Engineering in Japan Vol. 161, No. 3, pp. 49-57, 2008

Conference Presentations (J)=presented in Japanese

Title	Author	Forum	Date	Place
Evaluation of Self-organized Traffic Accident Avoidance System by Using Immune Network (J)	T. Yuki, K. Kondo, T. Suzuki, Y. Kunii	JSME Robotics & Mechatronics Division Annual Conference (ROBOMECE2007)	May. 12	Akita
Visual Reconstruction of an Intersection by Integrating Cameras on Multiple Vehicles	D. Ota, S. Ono, K. Ikeuchi	IAPR Conference on Machine Vision Applications (MVA)	May. 17	Tokyo
Matching Range Images of Streets with a Residential Map	L. Tong, S. Ono, M. Kagesawa, K. Ikeuchi	IAPR Conference on Machine Vision Applications (MVA)	May. 17	Tokyo
Real-time Soft Shadows in Mixed Reality using Shadowing Planes	T. Kakuta, T. Oishi, K. Ikeuchi	IAPR Conference on Machine Vision Applications (MVA)	May. 17	Tokyo
Evaluation of a Road Design Considering On-street Parking Using Virtual Reality Traffic Experiment System	S. Tanaka, M. Kuwahara	The 11th World Conference on Transport Research	Jun. 26	Berkeley, US
Real-time Image Based Rendering Technique and Efficient Data Compression Method for Virtual City Modeling (J)	R. Sato, T. Mikami, H. Kawasaki, S. Ono, K. Ikeuchi	Meeting on Image Recognition and Understanding (MIRU)	Jul. 31	Hiroshima
Creating a Composite Virtual Birds-eye View at a Vehicle Intersection by Synthesizing Camera Images from Multiple Vehicles (J)	D. Ota, S. Ono, K. Ikeuchi	Meeting on Image Recognition and Understanding (MIRU)	Aug. 1	Hiroshima
3D Modeling of a Residential Map by Matching with Range Images of Streets	L. Tong, S. Ono, M. Kagesawa, K. Ikeuchi	14th ITS World Congress	Oct. 10	Beijing, China
A Study of Environment Conscious Travel Guidance with Pareto Improvement	Y. Hayashi, A. Naitoh, M. Jiang, T. Tokuyama, M. Iijima, R. Horiguchi, M. Kuwahara	14th ITS World Congress	Oct. 10	Beijing, China
Toll Plaza Operations Assessment Using a Specific Micro Simulation Driver's Behavior Model	A. Torday, H. Warita, M. Ono, K. Suzuki	14th ITS World Congress	Oct. 11	Beijing, China
Evaluation of the Universal Driving Simulator with Experimental Subjects	Y. Suda, D. Yamaguchi	14th ITS World Congress	Oct. 11	Beijing, China
Stopping Behavior of Drivers in Dilemma Zone: Analysis via Driving Simulator	T. Oda, Y. Suda, S. Tanaka, D. Yamaguchi	14th ITS World Congress	Oct. 11	Beijing, China
The International Traffic Database Project	M. Miska, A. Torday, H. Warita, M. Kuwahara	14th ITS World Congress	Oct. 12	Beijing, China
A Study On Travel Time Prediction during Incident Occurrence	A. Sugawara, T. Imai, H. Tsuda, M. Kuwahara, H. Warita	14th ITS World Congress	Oct. 12	Beijing, China
Estimation of Inattentive in Driving by Using Driver Head Pose and Vehicle Information (J)	K. Horiguchi, S. Kumano, D. Yamaguchi, Y. Sato, Y. Suda, T. Suzuki	2007 JSAE Annual Congress (Fall)	Oct. 17	Kyoto
An User-participatory Visual Driving Assistance System	D. Ota, S. Ono, K. Ikeuchi	International Conference on Intelligent Robots and Systems (IROS) Workshop	Oct. 29	San Diego, US
3D Modeling of a Residential Map by Using a Vehicle-borne Laser Range Scanner (J)	L. Tong, S. Ono, M. Kagesawa, K. Ikeuchi	Technical Meeting on ITS, IEEJ	Nov. 27	Osaka
Deployment of Sustainable ITS Project (J)	K. Ikeuchi, M. Kuwahara, Y. Suda, T. Tanaka, T. Suzuki, S. Tanaka, D. Yamaguchi, S. Ono	6th Symposium on ITS Research	Dec. 6	Kobe
Dynamic System Optimum Assignment Model for General Traffic Networks (J)	T. Tsubota, M. Kuwahara, S. I. Bajwa, R. Connors	6th Symposium on ITS Research	Dec. 6	Kobe

Title	Author	Forum	Date	Place
Study on Travel Time Prediction during Incident Occurrence (J)	A. Sugawara, M. Kuwahara, H. Warita, H. Tsuda, T. Imai	6th Symposium on ITS Research	Dec. 6	Kobe
Identification and Evaluation of Lane Change Model on a Highway from Microscopic & Macroscopic Viewpoints (J)	T. Yuki, M. Mori, K. Kondo, T. Suzuki, Y. Kunii, M. Kuwahara	6th Symposium on ITS Research	Dec. 6	Kobe
A Study of OD Variation Analysis and its Estimation Method on Tokyo Metropolitan Expressway (J)	H. Nishiuchi, M. Miska, H. Warita, M. Kuwahara	6th Symposium on ITS Research	Dec. 6	Kobe
Self Learning Tool for Travel Time Estimation in Signalized Urban Networks Based on Probe Data	C. Dias, M. Miska, M. Kuwahara	6th Symposium on ITS Research	Dec. 6	Kobe
A Study about the Effect Validation Method of ITS by The Travel Time Reliability (J)	T. Maruyama, D. Tabata, T. Okada, H. Warita	6th Symposium on ITS Research	Dec. 6	Kobe
Eigen Space Compression for In-vehicle Camera Image and Realization of the Realistic Driving Simulator by the Real-time Reconstruction by GPU (J)	R. Sato, J. Oike, H. Kawasaki, S. Ono, K. Ikeuchi	6th Symposium on ITS Research	Dec. 7	Kobe
Detection of Inattentive Driving by Fusing Multiple Observation Cues (J)	K. Horiguchi, S. Kumano, D. Yamaguchi, Y. Sato, Y. Suda, T. Suzuki	6th Symposium on ITS Research	Dec. 7	Kobe
ITS as System Integration and Multi-Scale Traffic Control (J)	T. Suzuki	8th SICE System Integration Division Annual Conference (SI2007)	Dec. 21	Hiroshima
Traffic Simulation Based on Driver Model Identification from Macroscopic and Microscopic Viewpoints (J)	M. Mori, T. Yuki, S. Kawai, Y. Kishi, T. Suzuki, Y. Kunii, M. Kuwahara	8th SICE System Integration Division Annual Conference (SI2007)	Dec. 21	Hiroshima
Localization Algorithm for Omni-directional Images by Using Image Sequence (J)	R. Matsuhisa, H. Kawasaki, S. Ono, A. Banno, K. Ikeuchi	IEICE General Conference 2008	Mar. 21 2008	Kitakyushu

Technical Reports

SEISAN-KENKYU (Report of Institute of Industrial Science, The University of Tokyo), Vol.59, No.3 (May, 2007)

- | | | |
|--|--|--|
| <p>1 The advantages of combining traffic simulation models for transportation analysis and ITS systems assessment
T. Alexandre, B. Jaime</p> <p>2 Creating a composite virtual birds-eye view at a vehicle intersection by integrating user-gathered visual information
D. Ota, S. Ono, K. Ikeuchi</p> <p>3 Integration of a residential map and real geometry using dynamic programming
L. Tong, S. Ono, M. Kagesawa, K. Ikeuchi</p> <p>4 Sequence design for great length tunnels - The environment for driving comfort
A. Han</p> <p>5 Virtual Asukakyo: A restoration of an archeological site with mixed reality technology and expansion into a tour guide system
T. Kakuta, T. Oishi, S. Ono, K. Ikeuchi</p> <p>6 Safety evaluation of on-street parking space using mixed reality traffic experiment system
S. Tanaka, M. Kuwahara</p> <p>7 Efficiency and safety impacts of dynamic shoulder utilization on intercity motorways
A. Iwanaga, S. Tanaka, M. Kuwahara</p> <p>8 Pedestrian traffic simulation models with anticipatory behavior
M. Asano, M. Kuwahara</p> | <p>9 Driver model for traffic simulation, with tactical lane changing behavior
N. Webster, T. Suzuki, M. Kuwahara</p> <p>10 Application of driving simulator to dilemma zone experiment
D. Yamaguchi, T. Oda, Y. Suda, S. Tanaka</p> <p>11 Improvement of driver's behavior by enhanced rotation performance of driving simulator
D. Yamaguchi, M. Onuki, Y. Suda</p> <p>12 Analysis of driver characteristics in speed control model
H. Miyamoto, T. Suzuki</p> <p>13 Identification of lane-changing model on express-way from microscopic & macroscopic viewpoints
K. Kondo, T. Suzuki</p> <p>14 Evaluation of self-organized traffic accident avoidance system by using immune network
T. Yuki, K. Kondo, T. Suzuki, Y. Kunii</p> <p>15 Season effect on traffic : A case study in Switzerland
P. M. Hai, E. Chung, M. O. de, Dumont A. Gilles</p> <p>16 An experimental vehicle for continuously observing running behavior of vehicles on actual roads
T. Komiya, T. Oguchi, H. Akahane, R. Horiguchi, M. Kuwahara</p> | <p>17 Reproducibility of car-following behavior on expressways using driving simulator
T. Oguchi, H. Tsuda, M. Kuwahara, S. Tanaka</p> <p>18 Construction method of drift-free omni images by integration of multiple video cameras
T. Mikami, S. Ono, K. Ogawara, H. Kawasaki, K. Ikeuchi</p> <p>19 Safety performance evaluation of collision warning system in intelligent transport systems
Y. Takatori, T. Hasegawa</p> <p>20 Integrated inter-vehicle and road to vehicle communication including multi-hop
K. Fujimura, T. Hasegawa</p> <p>21 Experimental evaluation of dynamic force distribution method for 4WD EV motion control
He Peng, Y. Hori</p> <p>22 Monocular estimation of non-rigid 3D head motion
Y. Sugano, Y. Sato</p> <p>23 Seamless localization using ad-hoc networks and RFID
T. Tanaka, S. Okano, K. Sezaki</p> <p>24 Analysis of ventilation efficiency indices inside a local domain in an urban area using two building model - Part(II) : Effect of wind direction
B. Mahmoud, S. Kato, T. Takahashi, H. Hong</p> |
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Press

TV	Date	Newspaper	Date
NHK "Ohayo Nippon"	Aug. 10	The Daily Yomiuri	Jun. 18
NHK "Shutoken Network"	Nov. 9	The Nishinippon Shimbun	Dec. 4
		The Nishinippon Shimbun	Dec. 9

International Cooperation Activities on ITS

As for international collaborative activities in 2007, we held joint symposium in October in conjunction with the 14th ITS World Congress in Beijing, China as shown in the top page based on the Memorandum of Understanding (MOU) between INRETS, France. And we concluded MOU with Tsinghua University in this occasion, too, which became the 9th MOU with outside universities and institutes (including 1 domestic MOU) and made our collaborative research network wider and stronger.

We also welcomed 5 visiting scholars as per usual from the United Kingdom, Germany, the United States, Thailand and Korea this year. Each of them stayed at CCR for several months and made significant contributions to our activities through seminars and advices to students.

As a fruit of these collaborative activities, we are planning to hold an international symposium in July, 2008 inviting researchers from these institutes to promote transmission and exchange of information.

We have got a contributed article by Dr. El Faouzi who stayed at CCR in 2006 as shown below for this newsletter.

MEMORANDUM SIGNED TO LAUNCH THE ITS CENTER AND THE FRENCH NATIONAL INSTITUTE OF TRANSPORT AND SAFETY RESEARCH (INRETS)

1. INRETS RESEARCH ACTIVITIES

Nour-Eddin EL FAOUZI
<http://www.entpe.fr/Dr/Licit/Niveau3/Equipe/Nour-Eddin.htm>

The French National Institute of Transport and Safety Research (INRETS) is a state-financed Scientific and Technological Organisation under the joint supervision of the Ministries in charge of Research and Transport. INRETS(<http://www.inrets.fr/index.e.html>) is a well-known institute which activities involve such diverse fields as economics, sociology, psychology, physiology, ergonomics, biomechanics, acoustics, mechanics, mathematics, computer science electronics and electro-technical. Research activities at INRETS can be gathered into three major programs:



- Safety Improvement Research: road and user safety, public policies and technology and human factors/man-machine cooperation;
- Transport Network Optimization and Oil Dependency Reduction Research: People mobility, lifestyles, territories, freight transport and traffic network management and operations;
- Increase of Transport System Reliability and Sustainability Research: Energy consumption optimisation and environmental impacts reduction.

2. MEMORANDUM SIGNED TO LAUNCH CCR - ITS CENTER - INRETS

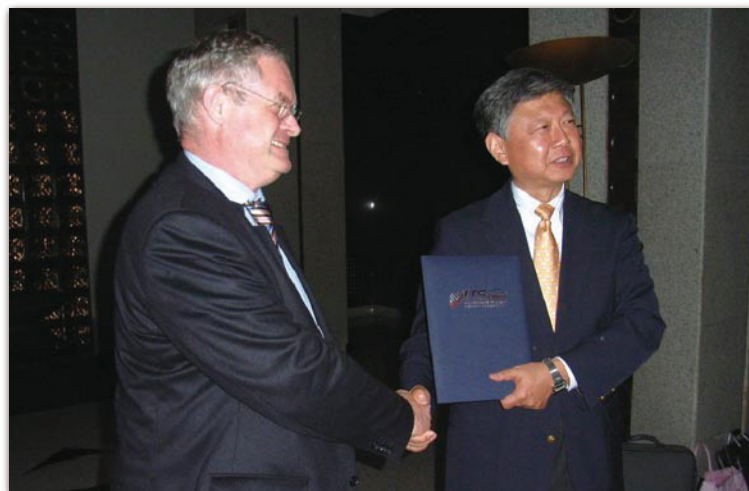
For INRETS, the international activities are of paramount importance and, at the same time, a prerequisite in terms of recognition for its excellence and notoriety. Such a development is in accordance with the terms of article 3 of INRETS founding charter, which concerns European and international activities. These activities encompass both scientific as well as peripheral scientific terms, and often take the form of either participation in multilateral or bilateral cooperation schemes, or the development of joint research projects.

Along this line, a memorandum of understanding (MoU) was signed to create a framework conducive to the development of a bilateral research exchanges between ITS Center and INRETS. This MoU has its origin back to 2005 with visiting Professor tenure at CCR of two INRETS' researchers. Namely, Dr. Stéphane Espié from Modelling, Simulation and Driving Simulators (MSIS) laboratory and Dr. Nour-Eddin El Faouzi from Transport and Traffic Engineering Laboratory (LICIT).

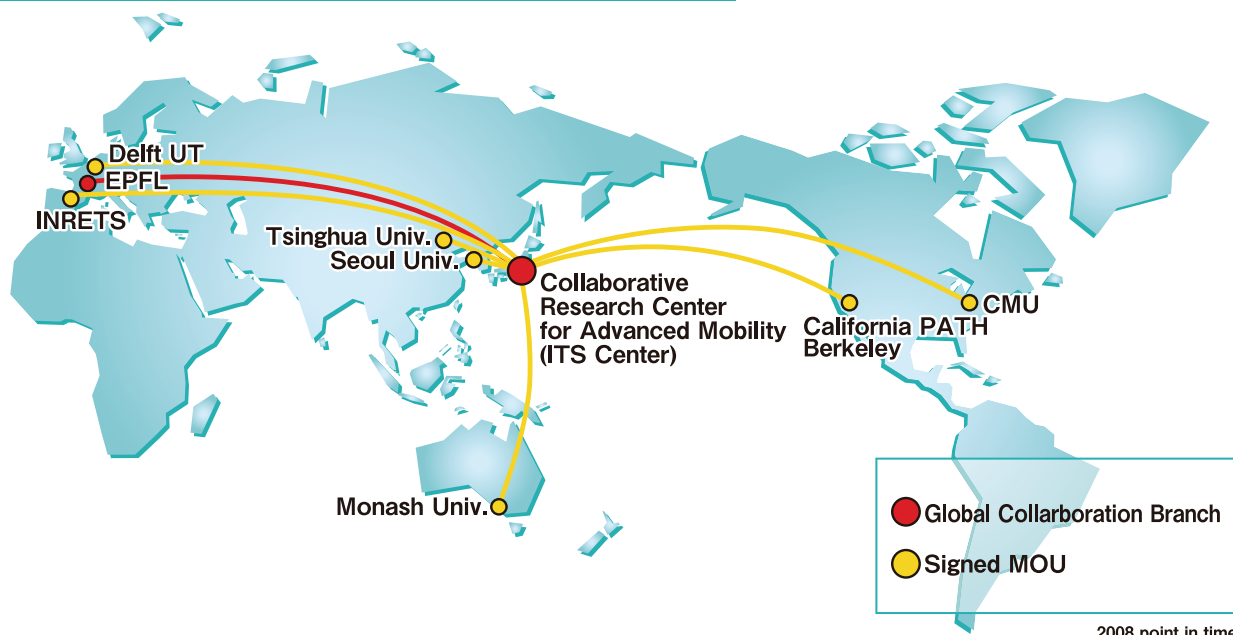
In advance to the MoU signing, it was decided to organise the first quadrilateral (China-France-Japan-Switzerland) ITS research Symposium (CFJS – ITS Symposium) in conjunction with the ITS World Congress in Beijing on the 14th October 2006. During this Symposium, which was hosted by the Tsinghua University, a celebratory ceremony was held in which Prof. Katsushi Ikeuchi, Director of the ITS Center and Mr. Jean-Pierre Medevielle, the INRETS Deputy General Director and Director of European and International affairs Department

for implementing the MoU and ITS Center and INRETS bilateral cooperation. Moreover, the ITS Center welcomed an INRETS delegate led by Mr. Medevielle for a technical meeting.

As a concrete action for this MoU implementation, the INRETS' Transport and Traffic Engineering Laboratory (LICIT) invited Prof. Masao Kuwahara for a short-term visit as a Visiting Professor. During this visit, the Kuwahara Lab. and the LICIT discussed ongoing research collaborations on ITS field as well as exploring further the possibility of contributing to European-Commission funded projects in the ITS area. Kuwahara Lab. is now being associate partner of a newly approved COST project TU0702 on modelling Weather Effect on Traffic operations. The activities to be undertaken within this project will compliment similar research Prof. Kuwahara and his group at IIS and ITS Center are currently undertaking as part of the CCR research activities.



Global Collaboration Network of the ITS center



Date	Counterpart		URL
Apr. 1. 2007	Japan	Regional ITS Infrastructure Research Center, Research Institute, Kochi University of Technology	http://www.kut-its.jp
Feb. 27. 2006	Korea	The GIS Research Cetner, The Institute of Urban Sciences, University of Seoul	http://www.uos.ac.kr/ceng/index.jsp http://campus.uos.ac.kr/usie/gis.htm
Oct. 14. 2007	China	Tsinghua University	http://www.tsinghua.edu.cn/docsn/wb/lxs/lxs.htm
Nov. 9. 2006	Australia	Monash University	http://www.monash.edu.au
Nov. 10. 2005	U S	California Partners for Advanced Transit and Highways, University of California, Berkeley	http://www.path.berkeley.edu/
Jan. 3. 2007		Vision and Mobile Robotics Laboratory, Carnegie Mellon University	http://www.cs.cmu.edu/~vmr
Oct. 7. 2005	Switzerland	Traffic Facilities Laboratory, Swiss Federal Institute of Technology, Lausanne Laboratoire des Voies de Circulation, Ecole Polytechnique Federale, Lausanne(EPFL)	http://lavoc.epfl.ch/EN
Feb. 20. 2006	Netherlands	Delft University of Technology Technische Universiteit Delft	http://www.tudelft.nl
Mar. 12. 2007	France	The French National Institute for Transport and Safety Research Institut National de Recherche sur les Transports et leur Securite(INRETS)	http://www.inrets.fr/index.e.html

Kato Laboratory

The Kato Laboratory at the University of Tokyo's Institute of Industrial Science (IIS) handles the physical measurement sector of the IIS's Center for Development of Instrumentation Technology, and undertakes measurement and forecasting of architectural and urban environments and the development of evaluation technologies.

The principal research topics are air pollution and the thermal environment. We develop measurement systems to detect air pollution using bio sensors, to measure airflow when breathing and the upwards airflow around a human body that develops due to the heat of metabolism, and to measure irregular airflows that have been disturbed by coughing, sneezing, etc. Furthermore, we forecast physical environments based on experimental and computer simulations, as well as developing evaluation technologies.

Current main research topics are:

- Development of an automated optimal design system for indoor thermal and air environments based on computational fluid dynamics (CFD)
- Research into ventilation efficiency for thermal and air environments both indoors and outdoors
- Research and development of next-generation energy-saving air conditioning systems
- Analysis of airborne indoor chemical pollutants and development of healthy and hygienic living environments
- Analysis of wind environments around urban architecture based on CFD and wind-tunnel testing; in particular, analysis of pollutants discharged near the land surface (analysis of the dispersion of vehicular emissions), mechanisms behind the spread of fires within buildings and urban areas, and the dispersal of hazardous substances in the event of a terrorist attack on a building or urban area.

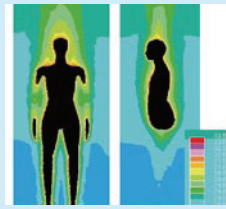


Fig.1 Thermal analysis of airflow around the human body

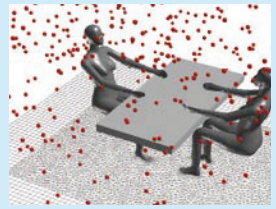


Fig.2 Analysis of indoor virus dispersion



Fig.3 Development of personal air-conditioning systems

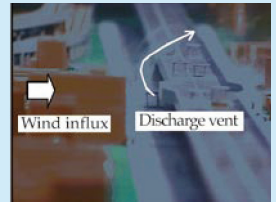


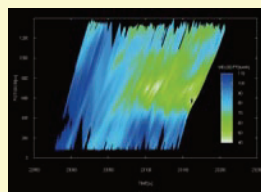
Fig.4 Analysis of air pollution dispersion based on wind-tunnel testing

Akahane Laboratory (Chiba Institute of Technology)

At Akahane Laboratory, Chiba Institute of Technology, we are precisely and continuously measuring trajectories of a number of unspecified running vehicles by an observation system with plural video cameras and by our sensing vehicle MAESTRO, Measurement vehicle with Advanced Equipment System for Traffic Operation. Based on these measurements, we are analyzing merging behavior and occurrence processes of traffic congestion at sag sections of motorways from various viewpoints in order to develop effective and safe driving support systems.

An observation system with plural video cameras achieves longer and more accurate measurement than observing with a single camera. For instance, we are continuously observing trajectories of individual vehicles at the 1.3 kilometer inbound section of the Yamato Sag of the Tomei Expressway with 11 video cameras. Based on the observation, we have identified some leaders of vehicle platoons that caused congestion in order to analyze influences of the running behavior of them to following vehicles.

We are also developing a method of seamlessly estimating trajectories of persons even if they sometimes move through underground sections using mobile phones equipped with GPS receivers and magnetic sensors. In addition, we are developing an online method of predicting risks of traffic accidents based on vehicle detector data. We are experimenting with music that is synchronized with pedestrian signals at intersections as well.



Contact



Center
for Collaborative
Research
The University of Tokyo



Sustainable ITS Industrial Collaborative Project

Center for Collaborative Research, The University of Tokyo

CCR will be amicably dissolved and reorganized at the end of March 2008.

This project is continued in the ITS Center.



Institute of Industrial Science
The University of Tokyo



Collaborative Research Center for Advanced Mobility (ITS Center)

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