International Symposium on Intelligent Transportation Systems Research

Co-chairs: Takeshi Oishi, Prakash Ranjitkar, and Bok-Suk Shin

1 May 2014 (Thursday)
University of Auckland, Tamaki Campus
Lecture Theatre 732-201

SYNOPSIS

Intelligent Transport Systems (ITS) utilises communication, control, information and computer technologies in an integrated manner to improve the safety, capacity and efficiency of the transportation system. This symposium will introduce various international cutting-edge research and applications in ITS. Internationally recognised academicians and leading industry experts will share their insights on ITS research and its application globally.

Organized by

THE UNIVERSITY OF AUCKLAND   ITS Center THE UNIVERSITY OF TOKYO 次世代モビリティ研究センター

Sponsored by

Ministry of Transport TE MANATŪ WAKA   THE UNIVERSITY OF AUCKLAND   ITS Center THE UNIVERSITY OF TOKYO 次世代モビリティ研究センター

Institute of Industrial Science The University of Tokyo   ITS Japan

TENTATIVE PROGRAM

8:30 - 9:00	*Registration*	
9:00 - 9:20	**Opening Remarks** **Yoshihiro Suda** (Professor, Dr, ITS Center, Institute of Industrial Science, the University of Tokyo, Japan) **Douglas Wilson** (Senior Lecturer, Dr, Director of Transportation Engineering Program, Civil & Environmental Engineering, the University of Auckland, New Zealand)	
9:20 - 10:35	**Session 1: ITS Innovation** **Chair: Takeshi Oishi** (Professor, Dr, ITS Center, Institute of Industrial Science, the University of Tokyo, Japan)	
9:20 - 9:45	*Advanced Mobility Research for Sustainable Transportation at ITS Center, The University of Tokyo* **Yoshihiro Suda** (Professor, Dr, ITS Center, Institute of Industrial Science, the University of Tokyo, Japan)	
9:45 - 10:10	*Model driven engineering for intelligent transportation systems* **Parthasarathi Roop** (Associate Professor, Dr, Director of Computer Engineering Program, Electrical & Computer Engineering, the University of Auckland, New Zealand)	

10:10 - 10:35	*Towards a safer, efficient and equitable motorway system using ITS measures* **Prakash Ranjitkar** (Senior Lecturer, Dr, Civil & Environmental Engineering, the University of Auckland, New Zealand)
10:35 - 10:55	*Morning break*
10:55 - 12:35	**Session 2: Traffic Management** **Chair: Prakash Ranjitkar** (Senior Lecturer, Dr, Civil & Environmental Engineering, the University of Auckland, New Zealand)
10:55 - 11:20	*Effects of Adaptive Cruise Control introduction on smoother traffic* **Takashi Oguchi** (Professor, Dr, ITS Center, Institute of Industrial Science, the University of Tokyo, Japan)
11:20 - 11:45	*Vehicle and people monitoring with MAC address data* **Edward Chung** (Professor, Dr, Queensland University of Technology, Australia)
11:45 - 12:10	*Inductive power transfer and its applications in transport systems* **Grant Covic** (Professor, Electrical & Computer Engineering, the University of Auckland, New Zealand)
12:10 - 12:35	*Engineering next-generation ITS* **Roopak Sinha** (Senior Lecturer, Dr, Faculty of Engineering, Auckland University of Technology, New Zealand)
12:35 - 13:35	*Lunch break*
13:35 - 14:50	**Session 3: Vehicle Control & Computer Vision** **Chair: Bok-Suk Shin** (Research Fellow, Dr, CITR, Computer Science, the University of Auckland, New Zealand)
13:35 - 14:00	*Four-dimensional virtual cities* **Katsushi Ikeuchi** (Professor, Dr, ITS Center, Institute of Industrial Science, the University of Tokyo, Japan)
14:00 - 14:25	*Extracting 3-D depth information and visual navigation information from 2-D video sequences using the properties of neurons along the primate visual motion pathway* **John Perrone** (Associate Professor, Dr, School of Psychology, the University of Waikato, New Zealand)
14:25 - 14:50	*Current Advances in Vision-Based Driver Assistance* **Reinhard Klette** (Professor, Dr, CITR, Computer Science, the University of Auckland, New Zealand)
14:50 - 15:10	*Afternoon break*
15:10 - 16:40	**Session 4: Panel Discussion** *ITS – tools and techniques – how can we optimise?* **Panellists:** **Shintaro Ono** (Project Associate Professor, Dr, ITS Center, Institute of Industrial Science, the University of Tokyo, Japan) **Douglas Wilson** (Senior Lecturer, Dr, Director of Transportation Engineering Program, Civil & Environmental Engineering, the University of Auckland, New Zealand) **John Macilree** (ITS team representative, Ministry of Transport, New Zealand)
16:40 - 17:00	*Closing*

Biographies of Speakers and Chairs

Bok-Suk Shin (Research Fellow, Dr, CITR, Computer Science, the University of Auckland, New Zealand)
Dr. Bok-Suk Shin is a PhD graduate of Pusan National University, Korea. Since February 2011 she is a Post-Doc researcher at the Computer Science Department, The University of Auckland, in the .enpeda.. (Environment Perception and Driver Assistance) research group. She has 10 years of experience in research, project design, and teaching in data analysis, pattern recognition, computer vision, 3D visualization, and 3D game development. So far, her more than 30 publications have been dominantly on track recognition for small species, with a current shift towards 3D computer vision, especially in the area of vision-based driver assistance.

Douglas Wilson (Senior Lecturer, Dr, Director of Transportation Engineering Program, Civil & Environmental Engineering, the University of Auckland, New Zealand)
Dr. Douglas Wilson is the Transportation Engineering Group Leader in the Department of Civil and Environmental Engineering at the University of Auckland, New Zealand and a Strategy Director at the Ministry of Transport. Current responsibilities include lecturing and supervising research in Highway Design and Construction, Pavement s and Materials, Road Safety Engineering, Skid Resistance and Surface Characteristics and Traffic Engineering and Management both at the undergraduate and graduate level. Doug supervises a number of graduate and undergraduate students undertaking research on a wide base of transportation related topics. Recent research projects have included the Cost of Congestion and Travel Demand Management measures including congestion and road pricing options for Auckland. He has over 15 years industry consulting experience whilst working for private engineering consultants, local and central government engineering agencies and over 15 years lecturing experience at The University of Auckland and prior organisations.

Edward CHUNG (Professor, Dr, Queensland University of Technology, Australia)
Dr. Edward Chung is a Professor of Intelligent Transport Systems and the inaugural Director of the Smart Transport Research Centre at the Queensland University of Technology (QUT) in Brisbane. He is an internationally recognised expert in the application of Intelligent Transport Systems (ITS) with many years of experience as an engineer and an experienced academic and researcher working both nationally and internationally. Edward is focusing on leading research to realise the benefits of real-time travel information provision in reducing congestion. He was previously Head of the ITS group at Laboratoire des Voies de Circulation (LAVOC) at Ecole Polytechnique Fédérale de Lausanne in Switzerland, where he led large project teams on traffic and safety monitoring in Europe. He is also a visiting professor at theITS Centre located at the University of Tokyo. Edward holds a Bachelor of Civil Engineering with Honours, and a PhD from Monash University.

Grant Covic (Professor, Electrical & Computer Engineering, the University of Auckland, New Zealand)
Dr. Grant Covic is a Professor in the Department of Electrical and Computer Engineering program at the University of Auckland, New Zealand. He has pioneered wireless or inductive power transfer technology and coined IPT terminology globally together with Professors John Boys. Their technology is used throughout the world, from factories that depend on automated systems or clean-room environments, to charging electric vehicles (EV).

John Macilree (ITS team representative, Ministry of Transport, New Zealand)
John Macilree is currently Acting Manager of the Technology and Transport Systems Team at the New Zealand Ministry of Transport. John first joined the Ministry of Transport in 1981 and after seven years at The Treasury as Assistant Director, Communications returned to the Ministry in 1996. His specialist expertise is in aviation but he has worked on policy issues involving all transport modes. John is a graduate of the University of Otago and in 2009-10 was a Visiting Fellow at in the Department of Tourism's Centre for Air Transport Research. He holds a Private Pilot Licence.

John Perrone (Associate Professor, Dr, School of Psychology, the University of Waikato, New Zealand)
Dr. John Perrone is currently in the School of Psychology at the University of Waikato, New Zealand. He specializes in teaching and research in the field of vision and visual perception with a particular emphasis on visual motion perception. He uses computer modelling techniques to simulate the properties of motion sensitive cells in the primate brain in order to develop computer algorithms for visual navigation. His current research is in the development of biologically-based sensors for autonomous vehicles and robotics. He gained his PhD from Canterbury University (New Zealand) in 1981 and then worked as a research associate at NASA Ames Research Center (California) and Stanford University before returning to New Zealand in 1993.

Katsushi IKEUCHI (Professor, Dr, Institute of Industrial Science, University of Tokyo, Japan)
Dr. Katsushi Ikeuchi is a Professor at The University of Tokyo. He received a Ph.D. degree in Information Engineering from the University of Tokyo in 1978. After working at the Massachusetts Institute of Technology's AI Lab for two years, Electrotechnical Lab, Japan for five years, and Carnegie Mellon University for ten years, he joined the university in 1996. His research interest spans computer vision, robotics, and computer graphics. He has received several awards, including Marr Award from IEEE PAMITC, Most active distinguished lecturer award from IEEE RAS and Distinguished Researcher Award from IEEE PAMITC as well as Shiju Houshou (the Medal of Honour with Purple ribbon) from the Emperor of Japan. He is a fellow of IEEE, IEICE, IPSJ, and RSJ.

Parthasarathi Roop (Associate Professor, Dr, Director of Computer Engineering Program, Electrical & Computer Engineering, the University of Auckland, New Zealand)
Dr. Parthasarathi Roop is an Associate Professor and is currently the Program Director of the Computer Systems Engineering program at the University of Auckland, New Zealand. His research interests are in Embedded and Real-Time Systems and associated application areas such as intelligent transportation systems, V2V and V2I communication protocols, airport baggage handling systems and bio-medical devices. He is particularly interested in static analysis techniques for validation, safety and certification. Partha is an Associate Editor of Elsevier Journal on Embedded Hardware design (MICPRO) and Springer/EURASIP Journal on Embedded Systems. In 2009, he received the Alexander von Humboldt fellowship for experienced researchers from

the Humboldt foundation, Germany. Partha has been a visiting professor at Iowa State University, INRIA (France), AIST (Japan) and Kiel University (Germany).

Prakash Ranjitkar (Senior Lecturer, Dr, Civil & Environmental Engineering, the University of Auckland, New Zealand)
Dr. Prakash Ranjitkar is a Senior Lecturer at the Department of Civil and Environmental Engineering, University of Auckland, New Zealand. He has more than 15 years of academic, research and consulting experience in a range of transport and other infrastructure engineering projects. His current teaching responsibilities include lecturing on traffic engineering, transportation planning, intelligent transportation systems and modelling and simulation of transport facilities to undergraduate and postgraduate students. The areas of his research expertise include traffic engineering, intelligent transportation systems, modelling and simulation of transport facilities, traffic operations and management, traffic safety, human factors, public transportation and application of emerging technologies in transportation. Prior to joining the University of Auckland in 2007, he worked for the University of Delaware in USA (2006-2007) and Hokkaido University in Japan (2001-2006). He is a member of IPENZ Transportation Group and Institute of Transportation Engineers (USA).

Reinhard Klette (Professor, Dr, CITR, Computer Science, the University of Auckland, New Zealand)
Dr. Reinhard Klette is a Fellow of the Royal Society of New Zealand and a professor in the Computer Science Department at Auckland University, New Zealand. His professional interests are in computer vision (in theory and applications) and in the design of geometric algorithms. He has (co-) authored more than 350 peer-reviewed publications. In 2001-2008 he was an Associate Editor of IEEE PAMI. He is the general chair of PSIVT 2015 at Auckland, New Zealand. Springer London published in January 2014 his book entitled "Concise Computer Vision".

Roopak Sinha (Senior Lecturer, Dr, Faculty of Engineering, Auckland University of Technology, New Zealand)
Dr. Roopak Sinha is a Senior Lecturer in computer science at Auckland University of Technology (AUT). His research in intelligent transportation systems focuses on functional safety analysis of next generation ITS. He can be contacted at rsinha@aut.ac.nz

Shintaro Ono (Project Associate Professor, Dr, ITS Center, Institute of Industrial Science, the University of Tokyo, Japan)
Dr. Shintaro Ono received the BE degree in 2001 and PhD degree in 2006 from The University of Tokyo. Currently he is a Project Associate Professor in Advanced Mobility Research Center (ITS Center), The University of Tokyo. His research interests include sensing system, computer vision and graphics technology for ITS.

Takashi OGUCHI (Professor,Dr, Institute of Industrial Science, University of Tokyo, Japan)
Dr. Takashi Oguchi is currently a Professor at Advanced Mobility Research Center (ITS center) of Institute of Industrial Sciences (IIS) in the University of Tokyo. He served as the International Program Committee Chair of ITS World Congress Tokyo 2013. He graduated the University of Tokyo in 1988, and got PhD from the same university in 1993. He joined Nissan Motors Co. Ltd. in 1993, moved to Tokyo Metropolitan University in 1995, and came to the current position in 2011. His major research interests are traffic management and control including advanced arterial signal control and advanced motorway management.

Takeshi Oishi (Professor, Dr, ITS Center, Institute of Industrial Science, the University of Tokyo, Japan)
Dr. Takeshi Oishi is an Associate Professor at Institute of Industrial Science, The University of Tokyo. He received the B.Eng. degree in Electrical Engineering from Keio University in 1999, and the Ph.D. degree in Interdisciplinary Information Studies from the University of Tokyo in 2005. His research interests are in 3D modeling from reality, digital archiving and augmented/mixed reality.

Yoshihiro Suda (Professor, Dr, Director of ITS Center, Institute of Industrial Science, the University of Tokyo, Japan)
Dr. Yoshihiro SUDA is Professor and Director of Advanced Mobility Research Center (ITS Center) and Chiba Experiment Station, Institute of Industrial Science, The University of Tokyo. He graduated from Department of Mechanical Engineering, Faculty of Engineering, The University of Tokyo in 1982 and Graduate School in 1987, and he got Doctor Degree of Engineering. After working at Hosei University and Queen's University at Kingston, Ontario, Canada, he has been Professor of The University of Tokyo from 2000. His major research fields are automotive and rail vehicle dynamics and control, Intelligent Transport System and Human-Machine Interface. He is board member of ITS Japan and Railway Technical Research Institute. He also worked as members of government committee and academic society.