

『Tsinghua Information Forum』 #85—NEC #2



- **Title:** Cognitive Radio & Networks in Intelligent Vehicle Systems (IVS) and High Speed Rail (HSR) Applications: Challenges and Opportunities
- **Speaker:** Dr. T. Russell Hsing
FIEEE, FBCS (UK), FSPIE
- **Time:** May.22, 14: 00—15: 30
- **Venue:** 1-415, FIT Building, Tsinghua

Abstract:

With the recent advance in Cognitive Radio, the use of wireless spectrum is getting more and more efficient. Each vehicle (or high-speed rail train) will become a unique moving-node in the entire global communications network. Many new telematics services could be offered through these emerging technologies. The networks infrastructure will support more economic and effective interactions between the automobiles (or the HSR trains) and also with the surrounding environment, through both wireless access and wire line based networking infrastructure. Those potential services and applications include safety, health and status of the automobile (or HSR train), location-based user services, passenger entertainment, and more efficient use of the transportation, wireless spectrum and communications infrastructure. The speakers will present their view on the potential challenges and opportunities of using cognitive radio in Intelligent Vehicle Systems (IVS) and High Speed Rail (HSR) Train applications during this talk. This talk will address how such a vast service and network systems can be scaled, supported, made reliably and economically. Important issues such as the maturity of the technology, the value of the services performed the complex regulatory regime and standards, the adequate business models and rationale for creating such networks will be presented.

Biography:

Dr. T. Russell Hsing, a Fellow of the IEEE, the British Computer Society (BCS) in UK, and the SPIE-The Internal Society for Optical Engineering. Before his retirement in March 3, 2012, he has been Executive Director to manage and lead the Emerging Technologies and Services R & D Department at Telcordia Technologies (formerly Bellcore) since 1996. Currently he is member of the industrial advisory council for the EDGE Lab of Princeton University in New Jersey, USA; member of the Scientific Advisory Board for the Institute of Network Coding at the Chinese University of Hong Kong, Guest Professor at the Peking University in Beijing, China, and Advisor for the ACROPLIS Program (Network of the Future) for the European Framework-7 Initiative.. He is now a member of the IEEE Fellow Committee in 2012. He has been Co-Editor-in-Chief of the ICT Book Series for John Wiley & Sons Publications since 2007, and Funding Editor for the Journal of Visual Communications and Image Representation since 1990 (Academic Press and then Elsevier). He has lectured tutorial courses at the IEEE and SPIE technical conferences in Boston, Switzerland, Beijing, Washington DC, Taipei, UC-Irvine and Columbia University during the past 30 years. Dr. Hsing has also co-edited a book titled "Visual Communication: Technology and Application." with Dr. Andrew Tescher (Optical Engineering Press, 1990).

He graduated from the Chiao Tung University (Taiwan) in 1970, and received his M.S. and Ph.D from the Electrical Engineering Department of the University of Rhode Island in 1974, and 1977. He has accumulated 35 years in the telecommunications and information & communications technology industry. His research interests are in the areas of DSL, Video Communications and Signal Processing, Broadband Wireless Technologies and Networking Systems, Fiber Optics Imaging System, High-Speed VLSI Implementation, Vehicular Networks and Telematics Applications, and Broadband Access and Services Applications.

Organizer: SIST

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