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Information for Contributors

Announcements, feature articles, book and meetings reviews, opinions, letters to the editor, professional activities, Abstracts of reports, and other material of interest to the ITS community are solicited. Please submit electronic material for consideration in any of the following formats: Microsoft Word, OpenOffice, plain ASCII, rich text format (rtf), or portable document format (pdf) to the Editor-in-Chief at brendan.morris@unlv.edu.

SOCIETY NEWS

From the Editor

Brendan Morris

I am very happy to deliver the first Newsletter as the newest Editor-in-Chief. It is an honor take over the reigns from Dr. Miguel Angel Sotelo. I will strive to continue the great work of my predecessors and look to make the Newsletter even more accessible. Please do not hesitate to contact me to tell me how you think the Newsletter can be best utilized.

In this issue, you find the call for participation in our ITSS Awards and a feature article highlighting the China's Fifth Annual Intelligent Vehicles Future Challenge by Professor Jingming Xin. As always, we have a message from our new Society President, Matt Barth, along with the upcoming conferences and abstracts for the newest Transactions and Magazine articles.

Featured Article

China Future Challenge: Beyond the Intelligent Vehicle

By Prof. Jingmin Xin, Chenghong Wang, Zhaotian Zhang, and Nanning Zheng,
Xi'an Jiaotong University, Xi'an, China

The 2013 China Intelligent Vehicle Future Challenge (IVFC'2013) was held on November 2 to 4, 2013 in Changshu, Jiangsu, China. This competition of unmanned vehicles was hosted by the National Natural Science Foundation of China (NSFC) and organized by the People's Government of Changshu City, Jiangsu Province, China.

In August 2008, the NSFC started the Major Research Plan "Cognitive Computing of Visual and Auditory Information" (study period: 2008 to 2015, total funding: 190 million RMB Yuan). The overall purposes of this major research plan are to study and construct new computational models and methods based on the human visual and auditory cognitive mechanism and to improve the computers' comprehension ability of unstructured visual and auditory perception information and their processing efficiency of massive heterogeneous information by giving full plays to the interdisciplinary advantages of information science, life science and mathematics. Especially one of the goals of this major research plan is to develop the verification platforms of unmanned vehicles with the perception of natural environment and the ability of decision-making. As an important part of this national major research plan, the competition of IVFC has been held annually since 2009. In order to make better progress and to promote the original innovations of this major research plan, the purpose of IVFC is to provide a platform for academic exchange and inspection for exploring the efficient computing models and improving the computers' comprehension ability of unstructured visual and auditory perception information and their processing efficiency of massive heterogeneous information. In the past six years, this major research plan funded 84 projects as fostering projects, key funding projects or integrated

Figure 1:Venues of five competitions of IVFC in China

projects from more than 490 proposals, where the averaged funding was about 1.59 million RMB Yuan per project.

The IVFC'2013 was the fifth competition of unmanned vehicle and the third one undertaken in the environment of real roads, and it was the first competition held in the southern cities of China, where the first four IVFCs were held in Xi'an, Ordos and Chifeng in 2009, 2010, 2011 and 2012 as shown in Fig. 1, and the team of the University of Parma, Italy attended the IVFC'2009. The IVFC'2013 was also the largest and more difficult competition, and there were 16 participating teams from major universities and research institutions in the research fields of intelligent vehicle such as Beijing University of Technology, Chang'an University, Military Transportation University, Nanjing University of Science & Technology, Shanghai Jiaotong University, Tongji University, Tsinghua University, Wuhan University, Xi'an Jiaotong University, and Hefei Institutes of Physical Science, Chinese Academy of Science. The team of Seoul National University, Korea also participated in this competition. Additionally, some emergency and rescue vehicles, ambulances, and five vehicles for the match-referee provided technical supports for the IVFC'2013.

Figure 2: Example suburban road testing

By using various sensors to perceive the environment outside vehicle and processing the obtained information with the processing mechanisms and methods of visual and auditory information, the unmanned vehicles can achieve the self-driving through the self-control and intelligent decision-making processes. The IVFC'2013 included two parts: the suburban road testing (about 18 km) and the urban road testing (about 5 km), where there were many bridges, tree-tunnel, entrance ramp, the school gate and other scenes. The assessment contents were set as follows: the interference of some moving vehicles, recognition of traffic lights, construction detour, obstacle avoidance, and stopping at finish line in the former testing, while the U-Turn, intersection crossing, slow-down in front of school and stopping for pedestrians in the latter testing. Unlike the unmanned vehicles developed in Europe and other developed countries, which basically rely on the GPS information and the navigation of electronic map, the IVFC requires the participating vehicles to percept the natural environment outside the vehicle with the equipped sensors such as the cameras for verifying the computers' handling capacity and

efficiency of visual and auditory information. Moreover in the IVFC'2013, the 4S (i.e., safety, smartness, smoothness, and speed) criteria were also used to evaluate the driving behavior of each unmanned vehicle. Additionally for enriching the competition content, the man-machine confrontation, challenge between teams and the friend match with Korean team were arranged during the IVFC'2013. See Figs. 2-4 for more details of this competition.

Figure 3: Example urban road testing

The IVFC'2013 was strongly supported by the China Central Television (CCTV), Changshu Customs, Changshu Entry-Exit Inspection and Quarantine Bureau, Changshu Institute of Technology and other related departments in the organization and implementation. The IVFC'2013 not only promoted the use and deep exploration of advanced technology in the automotive industry and to create a favorable environment for innovation-driven in the automobile industry but also provided strong impetus to the innovation and the development of the information science and other research areas such as the unmanned vehicle in China. It is reported that the 2014 China Intelligent Vehicle Future Challenge (IVFC'2014) will be held this fall.

Figure 3: Example of man-machine confrontation