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THE DNA INSIDE: INTELLIGENT VEHICLES

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Abstract

In this talk Cooperative system that is developed on a Fiat Linea, 2010 mid-sized sedan is presented to explain the software and hardware design procedure of an intelligent vehicle prepared to enter Grand Cooperative Driving Challenge (GCDC). In this perspective, first the design philosophy followed due to the stringent safety and performance criteria of the GCDC will be explained. Then, the detailed design, selection and sizing procedure of the hardware system and the integration of automatic throttle and brake system in order to achieve the functionality level will be presented. In the following part the software which consists of cooperative algorithm with different states and sub-states will be explained. Finally, experimental result obtained while cruising in the cooperative mode during GCDC heat will be shown to demonstrate the performance of an intelligent vehicle.

Biography

Ahu E. Hartavi received the B.Sc., M.Sc. and Ph.D. degrees in Electrical Engineering from the Istanbul Technical University, Istanbul, Turkey in 1997, 2000, and 2006, respectively. From 1999 to 2006, she worked as a Full-time Research Assistant in the Electrical Machines and Drives Department of Istanbul Technical University. In 2006, she joined the Mechanical Engineering Department of the same university. From 2006 to 2010, she was a Postdoctoral Researcher with the Mekar Labs, Automotive Controls and Mechatronics Research Center (AUTOCOM), Istanbul Technical University. She is currently an Assistant Professor with the Department of Electrical and Electronics Engineering, Yeni Yuzyil University.

Her current research interests include electrical machines, electric/hybrid electric vehicles technology, modeling and control methodology, intelligent vehicles, hybrid-power trains, energy management, regenerative braking, intelligent & rule-based controllers, automated throttle/brake systems, advanced driver assistance systems, active magnetic bearings and their applications, rapid control prototyping and hardware-in-the-loop simulators.

She was the Workshops Chair of the 2007 IEEE Intelligent Vehicles Symposium, the Local Organization Chair of the 2012 IEEE International Conference on Vehicular Electronics and Safety and Workshop Chair of the Challenges and Opportunities for Green and Smart Vehicles. Currently. she is acting as an Evaluator for the European Union 7th Framework Program Proposals Entitled "Information and Communication Technologies (ICT) for Fully Electric Vehicles", (Green Car) in Brussels.

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