BIOGRAPHY and ABSTRACT

Associate professor Keisuke Suzuki, Kagawa university, Japan

Biography:

Dr. Keisuke Suzuki is an Associate professor in the Department of Intelligent Mechanical Systems Engineering, Kagawa University in Japan. His major research field is the design of human-machine interfaces (HMI) of driving assistance systems, and for making ISO regulations of vehicle-control devices. Dr. Keisuke Suzuki worked for Japan Automobile Research Institute (JARI) for 8 years and stayed in the Swedish National Road and Transport Research Institute (VTI) for one year as a visiting researcher, before moving to Kagawa University.

To evaluate the programming approach, a compiler framework was extended to support the language extensions in the occam-pi language, and backends were developed to target two different coarse-grained reconfigurable architectures. XPP and Ambric. The results on XPP reveal that the occam-pi based implementations produce comparable throughput to those of NML programs, while programming at a much higher level of abstraction than that of NML. Similarly the two occam-pi implementations of autofocus criterion calculation targeted to the Ambric platform outperform the CPU implementation by factors of 11-23. Thus, the results of the implemented case-studies suggest that the occam-pi language based approach simplifies the development of applications employing run-time reconfigurable devices without compromising the performance benefits.

Estimating Damage-Mitigation Level of Collision-Prevention Support Braking.

Abstract:

In this study, collision-prevention support braking was used as an example, and a methodology for estimating the collision mitigation ratio using this system is discussed. A method for analyzing the collision-mitigation ratio is discussed through a time series Monte-Carlo simulation based on the integrated error of driver and system.

First, driver performance in terms of braking timing and deceleration level for collision avoidance was analyzed in a driving simulator when the control timing of the braking-support system was changed. Next, a driver model simulating braking operation, when a preceding vehicle started slowdown was constructed. Through time series simulations using this driver model, the frequency of collisions with a preceding vehicle and the collision velocity were estimated.

One result analyzed through this simulation study based on the integrated error of driver and system considering the driver's risk taking behavior during the use of the system estimates that the frequency of collisions decreased from 6.64x10-1 to 1.00x10-5 when the driver used the driving support system for collision avoidance. Although further verification regarding the driver error and system error will be necessary, a methodology for evaluating effectiveness of driving-support system is shown in this study.