Data Model Standardization for Inter-Robot Communication in RoboCup MSL

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Abstract—Robot Soccer competitions of the RoboCup Federation provide a natural way to make the real-world and real-time performance of a fully integrated robotic system measurable. Stochastic influences are ruled out, as the teams play multiple times against each other, within a well defined environment and with a well defined set of rules. Therefore, the final ranking at the end of a RoboCup tournament can be seen as a representation of the combined performance of hardware, high-level intelligent behaviour and low-level skills. However, often one is interested in the performance of a specific module within the robot, not in performance of the robot as a whole. Due to dependencies and entanglement, it is hardly possible to measure the performance of these individual modules. And furthermore, replicating sensor values in a real-world environment like RoboCup is almost impossible. In this paper, we argue that standardization of interfaces contributes to solving these problems. We report progress within our community towards the standardization of inter-robot communication required for cooperative world modelling. The definition of such data models will eventually allow us to use the strong benchmarking capabilities of RoboCup Soccer not only for full-system evaluation, but also to measure the performance of single sub-modules, either in hard- or software. At the same time, standardization will make log data in RoboCup MSL universally reusable.