

Five Years of SSL-Vision – Impact and Development

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Abstract. Since its start in 1997, the setup of the RoboCup Small Size Robot League (SSL) enabled teams to use their own cameras and vision algorithms. In the fast and highly dynamic SSL environment, researchers achieved significant algorithmic advances in real-time complex colored-pattern based perception. Some teams reached, published, and shared effective solutions, but for new teams, vision processing has still been a heavy investment. In addition, it became an organizational burden to handle the multiple cameras from all the teams. Therefore, in 2008, the league started the development of a centralized, shared vision system, called SSL-Vision, which would be provided for all teams. In this paper, we discuss this system’s successful implementation in SSL itself, but also beyond it in other domains. SSL-Vision is an open source system available to any researcher interested in processing colored patterns from static cameras.

1 Introduction

The RoboCup Small Size League (SSL) has evolved to a fast-paced and dynamic environment for cooperative multi-robot research. In the SSL, robots are able to traverse the game field in merely two seconds, which demands algorithms capable of decision making, team coordination and motion control in fractions of a second. In part, this dynamism is due to the adoption of global vision systems in the league. Not having to be concerned with robot localization and mapping problems, teams can focus more on intelligent software algorithms and more precise hardware and control engineering.