
Vision-Based Localization for Autonomous Basketball Robots

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Abstract— Localization is a fundamental capability for autonomous robots, enabling them to operate effectively in dynamic environments. In Robocon 2025, accurate and reliable localization is crucial for improving shooting precision, avoiding collisions with other robots, and navigating the competition field efficiently. In this paper, we

propose a hybrid localization algorithm that integrates classical techniques with learning-based methods, relying solely on visual data from the court's floor to achieve self-localization on the basketball field

Keywords—Robot Localization, Autonomous Navigation, Neural Networks, Robocon