Politecnico di Torino
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Stephany Ortuno Chanelo is a PhD student at Politecnico di Torino and member of the VANDAL laboratory and the SmartData@PoliTO. She obtained a M.Eng. from the National Autonomous University of Mexico. Her research interests focus on the intersection of robotics and artificial intelligence, particularly in computer vision. She is currently collaborating with COMAU on developing a computer vision system to enhance industrial productivity.

Multi-modal Learning for Reliable and Efficient Robotic Object Grasping

ABSTRACT

With increasing demand for efficiency in industrial settings, the need for advanced robotic systems has become essential. Automatic bin picking, a key task in automation, enhances performances, providing a competitive advantage. This project proposes a novel gripper combination strategy. By leveraging AI, the system can analyze object characteristics like texture, shape, and material, allowing it to operate effectively with a combination of two different grippers. This approach improves the robot's capacity to handle items of varying shapes, sizes, and materials. A key contribution of this work is the implementation of a grasping pose model based on semantic segmentation masks. Comparative evaluations demonstrate that this method outperforms traditional approaches, particularly for irregular objects. Success rates from real-world robot setups will further validate the system's performance.