Vision Guided **Ra**ndom **Pi**cking for In**D**ustrial R**o**bots

RaPiDo

In this project we will equip industrial robots with vision sensors. This allows the robot to grasp and handle objects that are positioned randomly, and whose position and orientation are unknown. This eliminates the need for elaborate mechanical systems to align products correctly so that they can be grasped at predefined locations.

We will explore the state-of-the art in the domain of vision technology and robotics. An extensive evaluation will allow you to make the right choices easily and without risk. Some of the new technology we will demonstrate:

- Different 3D sensor technologies such as Structured Light and Time of Flight cameras.
- Algorithms to recognize and localize your products in images or 3D point clouds.
- Advanced robotic techniques such as: in-hand scanning, visual servoing and real-time path planning, which allow the robot to move efficiently and without collisions.
- Interfacing between the robot, sensors and system.

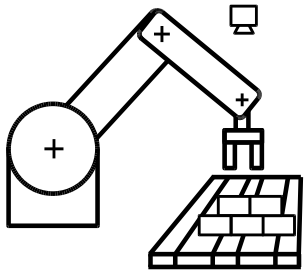
We will assess the performance on a wide variety of products, some of which with 'problematic' properties such as lack of texture, transparence, specular reflection, shape variance (e.g. fruit or vegetables) and deformable objects.

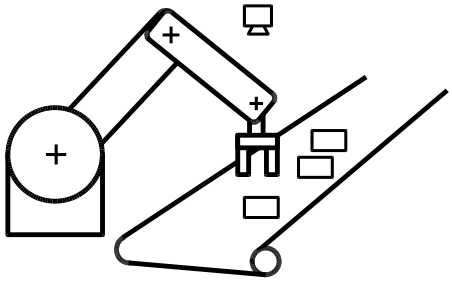
Important applications include:

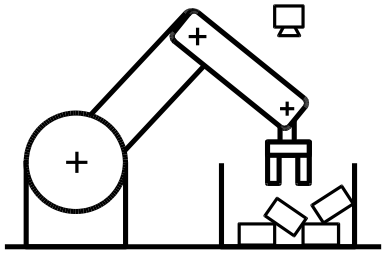
- *Conveyor picking:* grasp products on a moving conveyor belt
- *(de)palletizing:* stacking products (e.g. boxes or bags) onto pallets, ready for transportation
- *Random bin picking:* picking products that are piled randomly in a container

This project will be executed by the vision research group EAVISE at Campus De Nayer and the research group ACRO at KHLim, under supervision of the cooperating companies. The main target audience is companies active in automation, robotics or vision technology.

If you are interested in participating, or would like more information, please do not hesitate to contact us.







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