

## Bin-picking in Focus op Vision

In the Focus op Vision project the main goal is to develop and share knowledge and experience concerning the development and use of Artificial Intelligence (AI) solutions for industrial problems. In this perspective, Saxion research group Mechatronics teamed up with RIWO engineering and VIRO engineering to develop a bin-picking demonstrator that uses Deep Learning based object detection and pose estimation to be able to autonomously pick objects from an unstructured bin.

### Task description

During this assignment, you will work alongside a team of engineers from Saxion research group Mechatronics, RIWO, and VIRO to develop this demonstrator using the UR5 robot arm (Figure 1). You will study and implement various technologies, such as point cloud processing, image processing, path planning, (convolutional) neural networks, etc. The desired demonstrator will be able to pick a variety of items, ranging from VIRO's promotional gifts to natural products such as apples and pears.

The focus of this assignment will be on software development and researching the underlying technologies. There will be a minor mechanical part concerning hardware development.

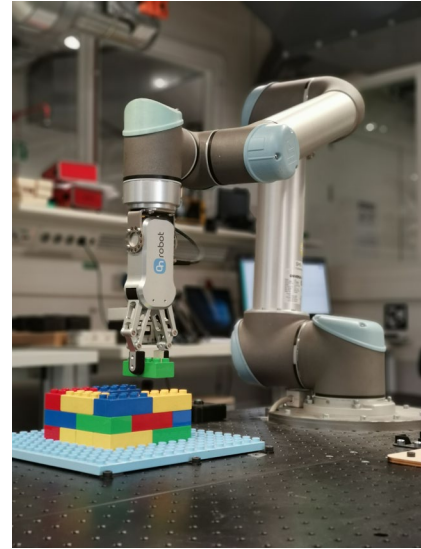
### Practical Information

**Student Profile:** Mechatronics; Applied Computer Science, Electrical Engineering. We are looking for a student with interest for AI, robot arm manipulators, and vision.

**Duration:** February 2021 – July 2021

**Compensation:** €230,- gross per month

**Contact Person:** Dennis Borger, [d.borger@saxion.nl](mailto:d.borger@saxion.nl); Max Snippe, [m.j.w.snippe@saxion.nl](mailto:m.j.w.snippe@saxion.nl)



*Figure 1: UR5 robot in action during another project.*