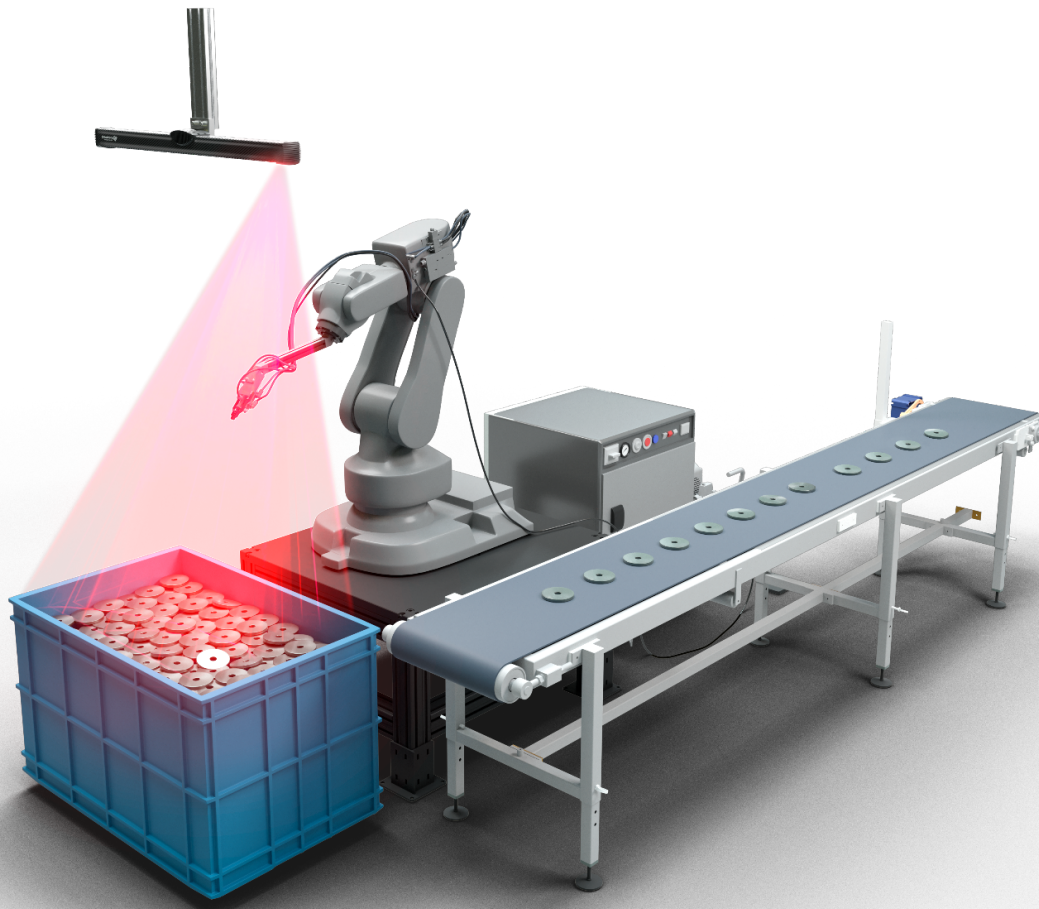# Bin Picking Studio 1.8.0

Release notes

Bratislava, Slovakia, 20 July 2023 — Photoneo releases Bin Picking Studio 1.8.0 - the new version of the company's robotic intelligence tool for bin picking powered by 3D vision. The upgrade to 1.8.0 brings you a number of new features and enhancements, including an AI module for Depalletization applications:

New features

AnyPick module for Boxes - a solution for Depalletization

The AnyPick module for Boxes extends the functionality of Bin Picking Studio with the ability to recognize unknown boxes based on a pre-trained neural network. This functionality allows you to deploy Bin Picking Studio also for Depalletization applications.

The AnyPick module for Boxes needs to be ordered separately as an extension module. For more information and inquiries, visit https://www.photoneo.com/depalletization/

When Bin Picking Studio is extended with the AnyPick module, users can create solutions of two types:
- Based on a CAD-object recognition
- Based on an AI-object recognition (boxes)

The configuration wizard in the AI-based solution guides users only through relevant configuration steps. The gripping point is chosen automatically based on the visible surface of the box. The output data provides information on the dimensions and orientation of the box to allow precise placing.

The AnyPick module for Boxes is supported (and trained) with PhoXi 3D Scanners.

Automatic robot-camera calibration

A calibration routine verified by the operator can now be repeated automatically using the new action requests in the robotic API:
- Start the automatic calibration
- Save the result of the automatic calibration
- Stop the automatic calibration

The semi-automatic calibration introduced in version 1.6 can still be used to verify safely the calibration routine.

Reporting of the vision system status to the controller

Added request to the robotic API - <u>Get vision system status</u> - to provide information about:
- Number of localized objects
- Number of ready objects
- State of the processing pipeline (in progress/finished)

This information is especially useful in combination with multiple vision systems to prioritize picking from the most full bin or to receive early information about an almost empty bin.

User experience and system improvements

- Redesign of the Vision System page into three clear views:
  - Configuration
    - Setup of the 3D sensor and localization scanning settings
    - Localization and localization settings
    - Calibration type and calibration scanning settings
  - Calibration overview
    - Information about current robot-camera calibration
    - Improved manual edit of the calibration matrix
    - Option to set up automatic calibration
  - Settings - optional settings overriding global defaults
- Update of Deployment Inspector - showing object dimensions (for AI-based localization of boxes) and gripping point priority (for CAD-based localization)
- Added support for 14 new robots (total 217 supported robot models)
- CAD localization improvements
  - Added parameter for special fine-tuning of CAD localization
  - Added option to specify when the object is considered occluded
- General GUI improvements and bugfixes
- PhoXi Control update to version 1.10, support for all Photoneo 3D Sensors
- 3rd party applications updates:
  - Google Chrome 114
  - Meshlab 2021.05
  - CloudCompare 2.11.1

Communication protocol and robot modules

Communication protocol v1.8 adds support for the new action requests in the robotic API for performing automatic robot-camera calibration and reporting vision system status.

Updated robot modules based on this version of communication protocol are available for:
- ABB
- Doosan
- Fanuc
- Kawasaki
- KUKA KRC
- Universal Robots
- Yaskawa

All robot modules based on previous versions of the Communication protocol remain supported.