

**Romb
Technologies**

Semantic Visual Intelligence for Intralogistics

Technology use-cases

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Semantic segmentation technology

- Proprietary AI segmentation model trained on custom dataset
- Classifies **12 relevant classes** (pallet, load, person, vehicle, ...), **easy to extend** and customize
- Reference hardware implementation: NVidia Jetson ORIN + Framos D435e
- Inference running **up to 20fps**, suitable for real-time operation
- Combines segmented RGB image with depth data to obtain **accurate pose estimates** (up to 1 cm, 0.5 deg)

Use-case 1: Adaptive load handling



- Combines segmented RGB image with depth information, to obtain **3D pallet pose estimate**
- **Automated** camera-fork calibration¹
- Approach is re-planned for misaligned pallets -> **more flexibility**

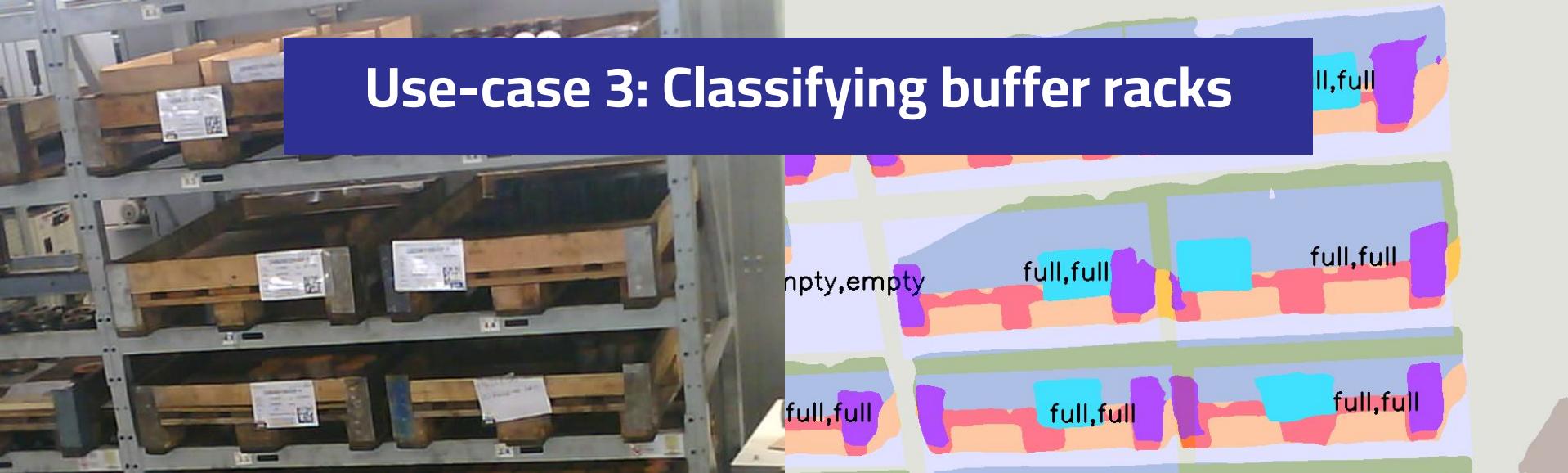
¹EP24223684.2 patent pending

Use-case 2: Obstacle avoidance

- Combines segmented RGB image with depth information, to obtain obstacle pose estimate
- Avoidance behavior can be **customized based on obstacle class** (e.g., stop if person nearby, avoid static obstacle) -> improved **efficiency and safety**



Use-case 3: Classifying buffer racks



- Uses **fixed camera** looking at the buffer rack
- Classification results written to database and **used to assign AGV missions** -> Improved **transparency and efficiency**
- Deployed at OMCO Croatia, largest glass mould manufacturing facility in the world