

# Open Deep Learning toolkit for Robotics

**OpenDR** aims to develop a **modular, open and non-proprietary toolkit** for **core robotic functionalities** by harnessing **deep learning** to provide **advanced perception and cognition capabilities**, meeting in this way the general requirements of robotics applications in the applications areas of **healthcare, agri-food, and agile production**.

## Learning Curve Barrier

DL has a **steeper learning curve** than traditional CV and ML methods

## Computational Complexity Barrier

DL requires vast amounts of **computational power and energy**

## Static Perception Barrier

DL is applied on **static environments** and **does not exploit spatial or temporal embodiment**

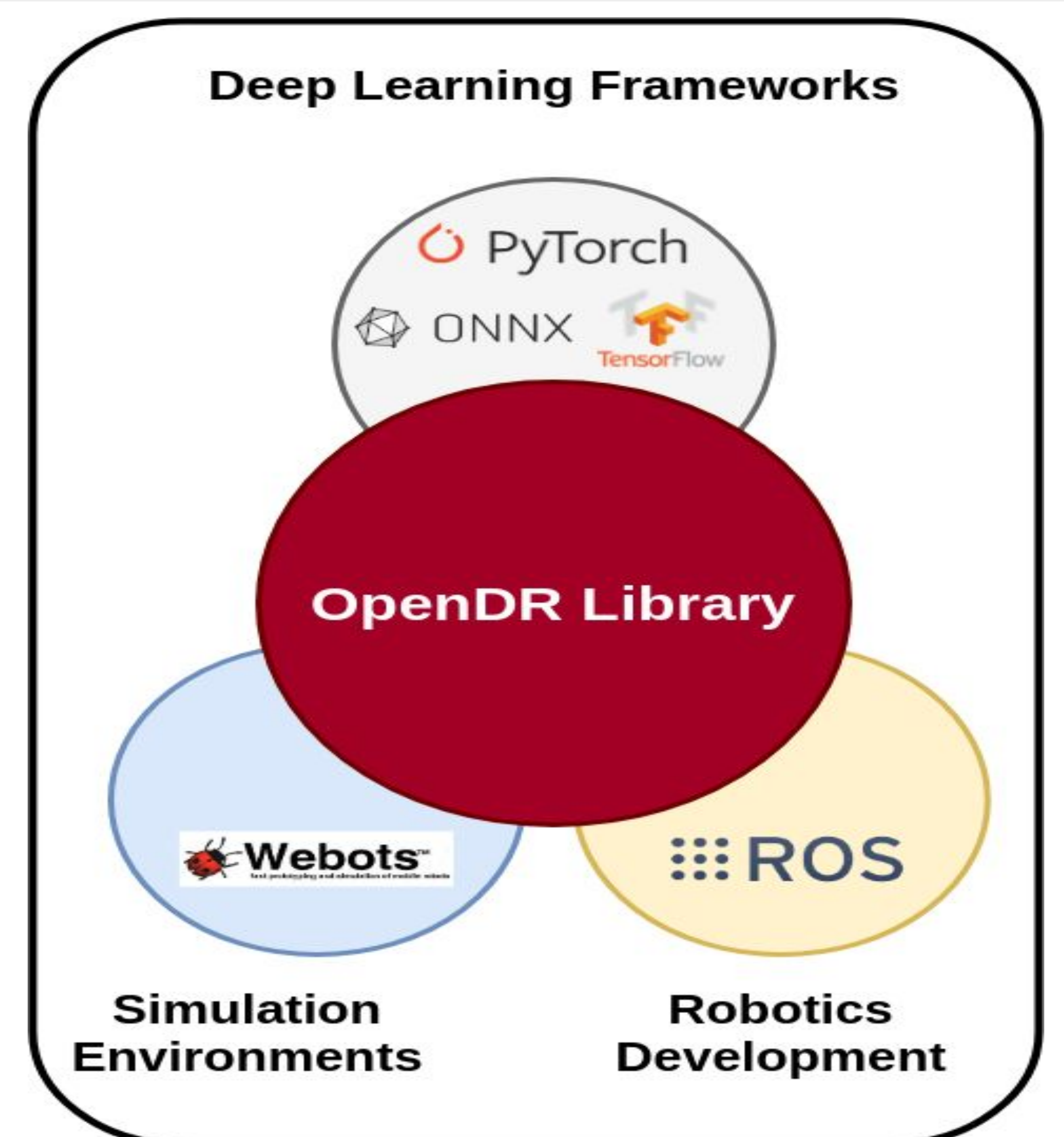
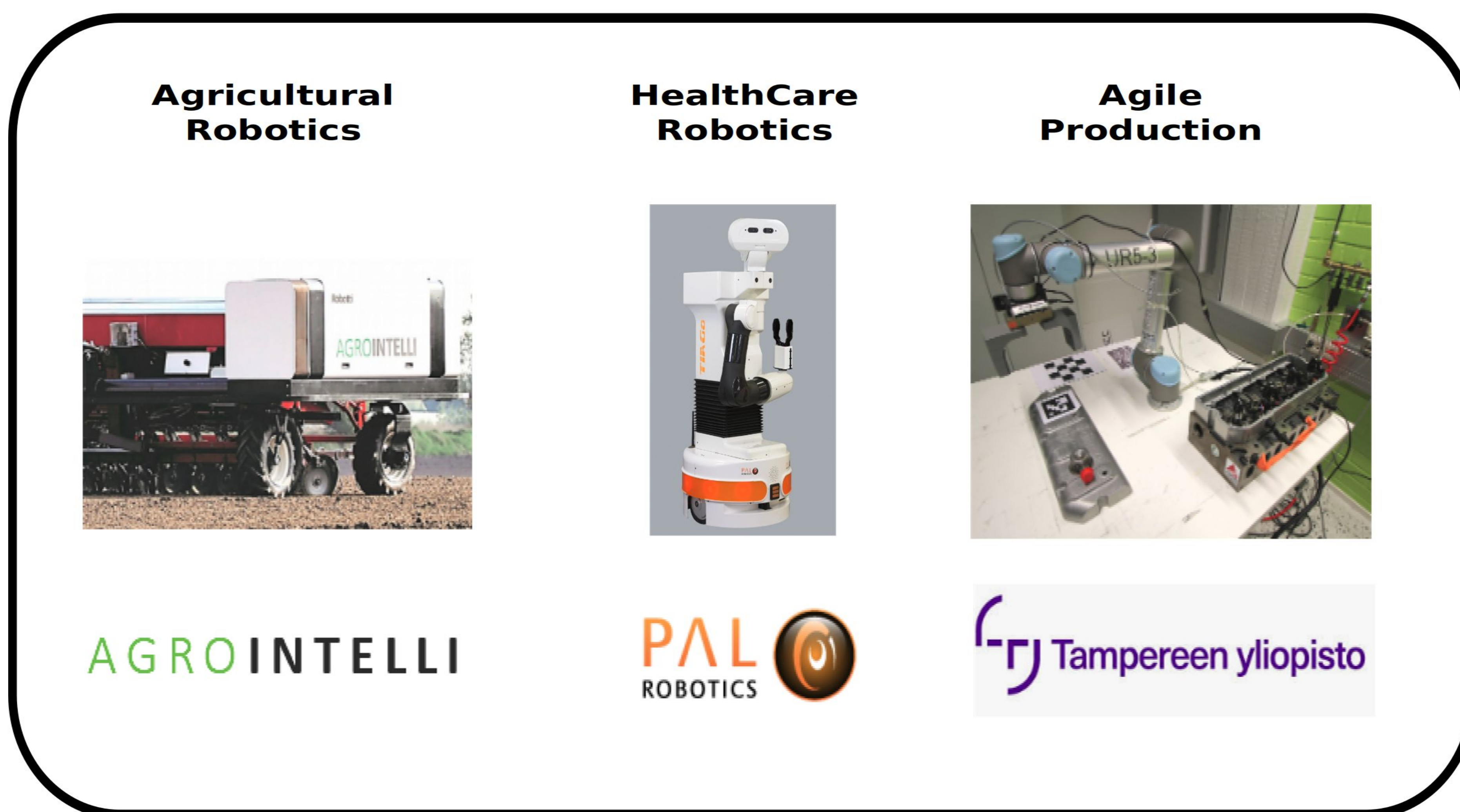
## Objectives

- To provide a modular, open and non-proprietary toolkit for core robotic functionalities enabled by **lightweight** deep learning
- To leverage AI and Cognition in robotics: from perception to action
- To propose a **co-integration of simulation and learning methodology** for deep learning in robotics and demonstrate the potential of OpenDR in three prioritized application areas
- To establish strong links to robotics Digital Innovation Hubs

## Expected Impact

- Improve the technical capabilities in robotics by providing easily deployable, efficient and novel DL tools
- Lower the technical barriers by providing a modular and open platform for developing DL models
- Enable a greater range of cognitive applications in agri-food, healthcare robotics and agile production (TRL 3+).
- Strengthen the competitiveness of companies by lowering the cost to access robotics-oriented DL tools.

### Use cases



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