



UNIVERSITÀ DI PISA



## Object Detection in Industry 4.0 and Agritech

Object detection with computer vision is a powerful technology which enables machines to identify and locate specific objects within images or video streams. By leveraging advanced algorithms and deep learning models, computer vision systems can accurately detect and classify objects, revolutionizing various industries and Agritech (integrating cutting-edge technology in agriculture).

The candidate is expected to contribute to the design and development of an AI-based solution for applications in Industry 4.0 and Agritech such as:

- Quality control and defect detection in manufacturing lines
- Industrial safety and monitoring for enhancing workplace safety
- Recognition and Localization Methods for Vision-Based Fruit Picking Robots
- Autonomous robots and drones for solving tasks such as inventory management, logistics, and assembly line operations

The activity may take place as part of a research project involving Italian companies and research centers.

Have a look at the following online sources:

- G. Gallo, F. D. Rienzo, F. Garzelli, P. Ducange and C. Vallati, "A Smart System for Personal Protective Equipment Detection in Industrial Environments Based on Deep Learning at the Edge," in *IEEE Access*, vol. 10, pp. 110862-110878, 2022, doi: 10.1109/ACCESS.2022.3215148.
- Tang, Y., Chen, M., Wang, C., Luo, L., Li, J., Lian, G. and Zou, X., 2020. Recognition and localization methods for vision-based fruit picking robots: A review. *Frontiers in Plant Science*, 11, p.510.

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Check the [AI-DII Group](#) website for other proposals

