HISTORY

VER.	DATE	AUTHOR	DESCRIPTION
00	18/02/2020	Alberto Reghenzi	First issue

APPROVAL

Technical Director	Sign. :	Date:
Quality Manager	Sign. :	Date:
Valid from: ___ / ___ / _____	Notes:	

SUMMARY

Proposta di Tesi N°1

Topic: Pharmaceutical products compliance analysis with ML and DL techniques

The aim of the project is to create a SW module for the analysis of the images acquired by one or more cameras installed on an inspection machine manufactured by Antares. The software module, based on ML and DL algorithms, will have to be able, suitably trained, to identify the non-conformities of the product by distinguishing the images of defective samples from those relating to compliant samples.

The image analysis module must be integrated into the sw architecture used by Antares on the current inspection machine. The phase of collection and classification of images to be used as a database for learning and validation data will be supported by the current automatic inspection system operating on the inspection machine.

Estimated duration: 6-9 months.

Skills required: fundamentals of machine learning, fundamentals of image processing, programming in C ++ or Python.

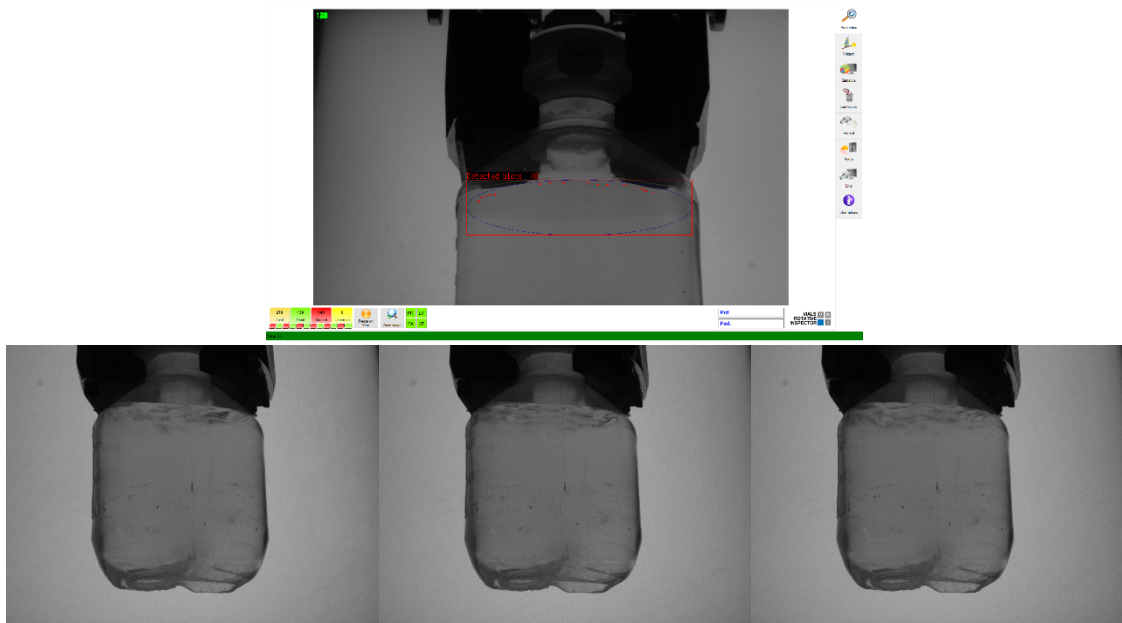Skills to be acquired: Pytorch library

Proposta di Tesi N°2

Topic: Detection of Particles Floating on the Surface of a Liquid Using ML and DL

The aim of the project is to create a SW module that analyzes a sequence of images in order to determine the presence or absence of particles floating on the liquid surface. The sequence of images to be analyzed will be acquired with the container standing still, after an appropriate rotation necessary to put the particles in motion. The analysis algorithm developed must be able to distinguish the case in which the perceived movement is due to the ripples of the liquid compared to the case in which the sequence refers to a sample containing one or more particles. The implementation must be based on ML and DL algorithms.

The image analysis module must be integrated into the sw architecture used by Antares. The phase of collection and classification of images to be used as a database for learning and validation data will be supported by the current automatic inspection system operating on the inspection machine. The results obtained must be compared with those of the current vision system developed by Antares.

Estimated duration: 6-9 months.

Skills required: fundamentals of machine learning, fundamentals of image processing, programming in C ++ or Python.

Skills to be acquired: Pytorch library.