#04_LEGO

Context

The Lego Group manages around 50 different colors with different aspects such as transparency, metallic or glitter. The different quality system through the manufacturing process needs color classification to validate the color of the LEGO element in the application. The purpose goes for validating that we have the right element in the scene during our packing process to check the color accuracy of our molding process. The extend of element from simple to complex geometry makes it hard to define and validate color consistency.

Challenge

Aiming towards a “zero-shot method”, build a color classifier for the LEGO manufacturing. The LEGO Group has too many colors and elements geometries to be capable of training the models for each case.

We therefore are looking for scalable method consisting of rendered scene and/or automated training and/or small sample initial training. It should not be expected to have The LEGO Group spend more manual training time than what can be allocated during the summer school.

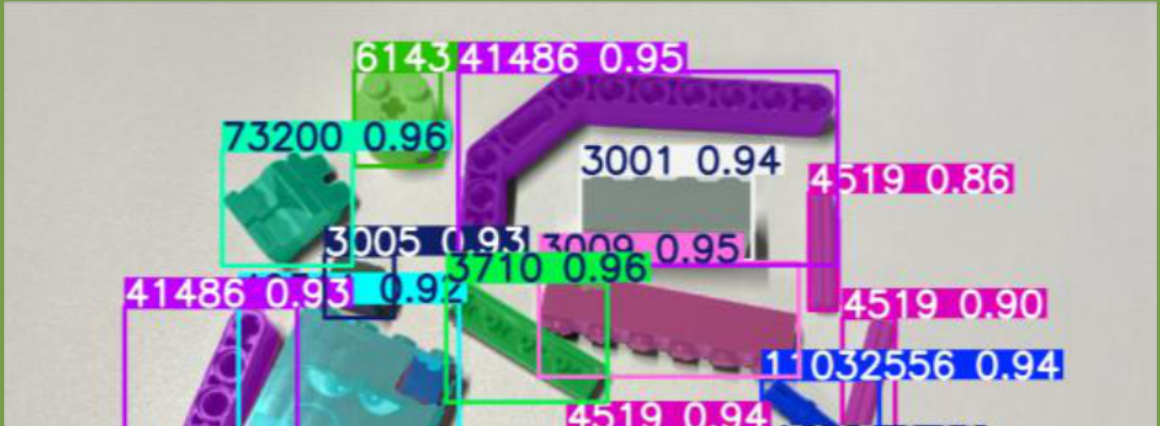
For the application, one can consider that the target color is know and the objective of the model is to validate that the target is indeed the expected one.

The challenge has two levels:

- The first being able to validate target color against other color of the LEGO pallet in an uncontrol environment
- The second one being able to check color consistency of that target color across multiple element in a control environment.

Materials provided by the company

Color palette with specific color definition, Element CAD file, Image acquisition equipment (camera, lens, light)



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