



Synthetic data generation for defect detection in QA tasks

Automatic QA (Quality Assurance) is an exciting new development in industrial vision. By using an intelligent vision systems such as the IVS 70 we can detect hard to model defects on manufactured goods in everything from textiles to lacquered goods and metal parts. One challenge with this new type of model free checking is that it requires some amount of training data to allow efficient detection of problems.

Unibap is interested in exploring whether different methods in synthetic data generation can be used to rapidly generate test cases based on CAD models or other samples. Related methods such as GANs can be used to increase fidelity of rendered CAD models to match factory and light conditions.

Project description

Aid Automatic QA by generating synthetic data that can validate error detection models, and also, if the gap between synthetic and real data can be narrowed down, generate error detection models from synthetic data that works on real data.

Thesis work should include:

- Survey of relevant literature to find state of the art methods in synthetic data generation for computer vision, and select appropriate methods for this particular project.
- Planning of and carrying out the implementation of selected methods.
- Evaluate methods and explore suitable improvements.
- Write a master thesis report.

Conditions and requirements:

- Time span of the thesis work is 20 weeks.
- The majority of the thesis work should be carried out at Unibap AB office, Svartbäckgatan 5, 75320, Uppsala.
- Good programming skills in Python is required, good programming skills in C/C++ and earlier work within the field of computer vision is a plus.

Contact

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