PROJECT REQUIREMENTS

Project Name	Copy-Waste

Functional Requirements

Copy-Waste is an automated end-to-end pipeline which will be used to detect new rare and severe contamination in recycling.

1. Synthetic generation of new contaminant datasets using the copy paste algorithm
2. Train machine learning models in Mask R-CNN to detect the new contaminant
3. Evaluation of Model accuracy and precision using real data, as compared to synthetic data
4. Launch the new detection model to the production environment
5. Live model training using collect images of detected contaminants
6. Provide alerts on the front-end dashboard when rare or severe contaminants are detected
7. Provide thorough analysis of each recycling collection day

Technical/Performance Requirements

1. The pipeline must be automated and not require manual correction through each stage
2. The pipeline should complete dataset generation, model detection, evaluation within a timespan of 1 day
3. Control whether a model is stable to be published into the production environment
4. Provide alerts on the dashboard as soon as a rare and severe contaminant is detected.
5. Store the detected rare and severe contaminant and initialize process to re-train and strengthen the object detection model
6. Over detect as opposed to under detect contaminants as they can be hazardous