

Projeto/Estágio 2024/2025

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Semi-automatic Image Tagging for ML Workflows: a GUI for Industrial Applications

This project was developed with the aim of facilitating the tagging of thousands of images. To address this challenge, an interface (Figure 1) was created that integrates a pattern recognition ML. This AI name is Darknet YOLOv4. The application was meant to be used in industrially created products, but due to the lack of images given by the company, cats were used.

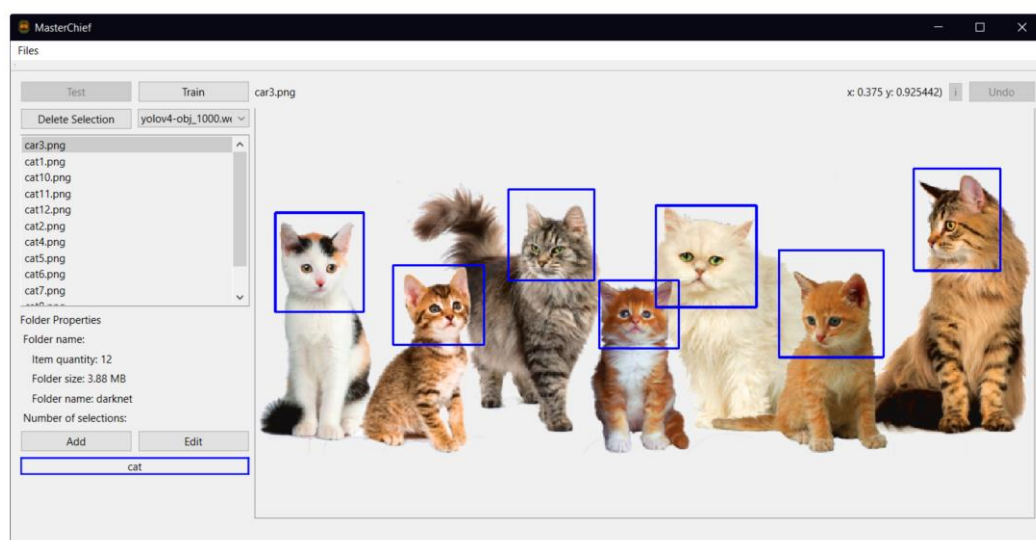


Figure 1 Application Interface

Figure 2 represents the general workflow when starting a project.

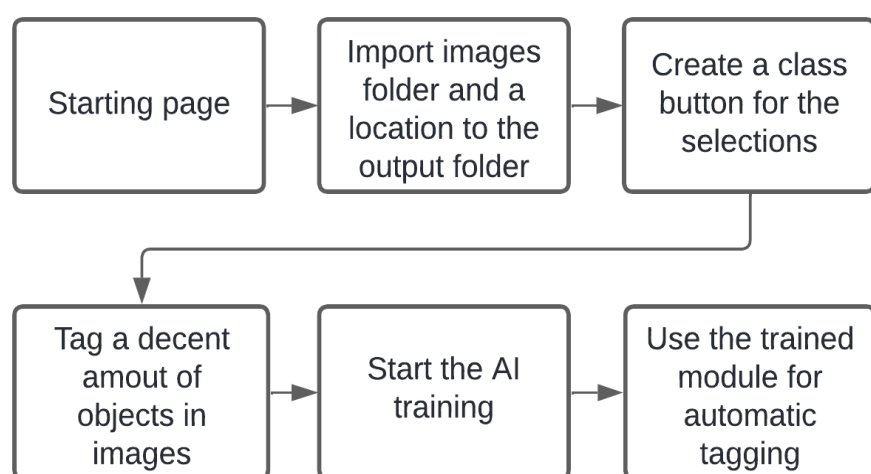


Figure 2 Application workflow

While the model is training, a graph known as the "loss chart" is generated, Figure 3. This chart is a critical tool in evaluating the training process of the YOLOv4 model. It plots the loss values over successive iterations, providing insight into how well the model is learning to identify patterns in the data. Loss represents the error between the model's predictions and the actual labels, with lower values indicating better performance.

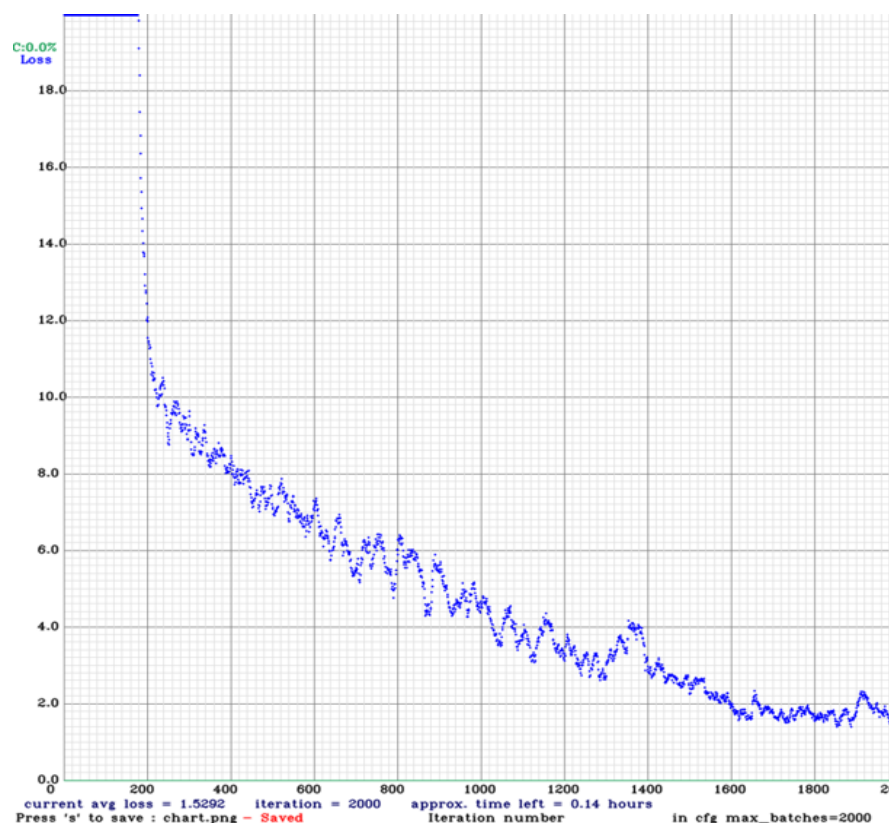


Figure 3 Loss chart

To obtain the AI-generated tags for an image, the model first makes a prediction. This prediction is then processed into an output file, which is subsequently parsed to extract the coordinates of the detected objects. These coordinates define the regions of interest identified by the AI, Figure 4.

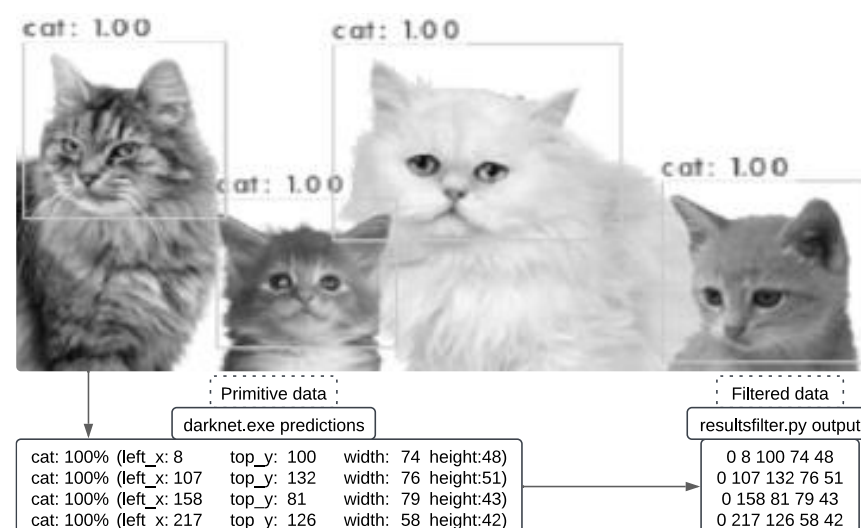


Figure 4 AI Tagging filtering

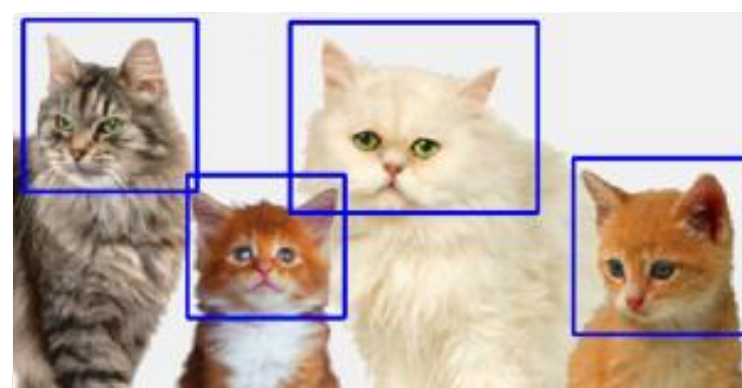


Figure 5 AI Tagging filtering in the interface