IESTI05 – Edge AI

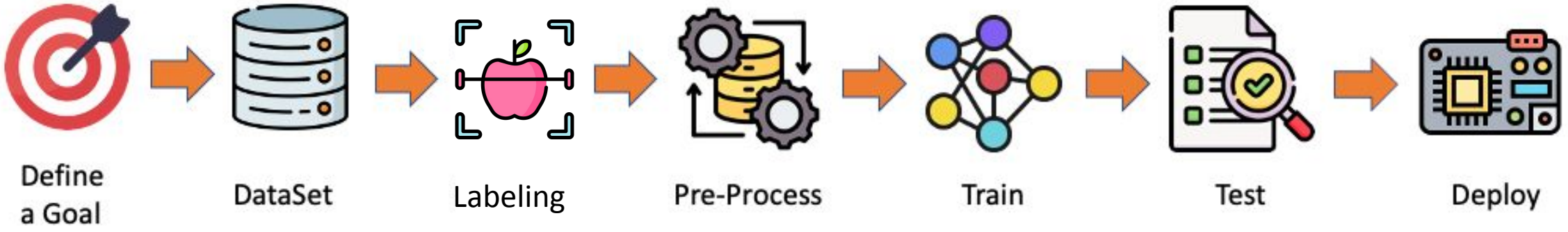
Machine Learning System Engineering

9. Object Detection Project: Goal, Data & Labeling

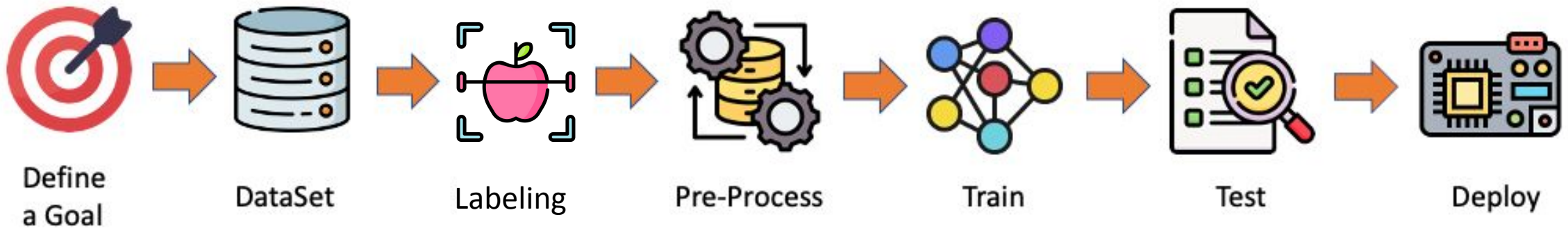
UNIFEI

Marcelo Rovai
Professor Honoris Causa

Machine Learning Workflow



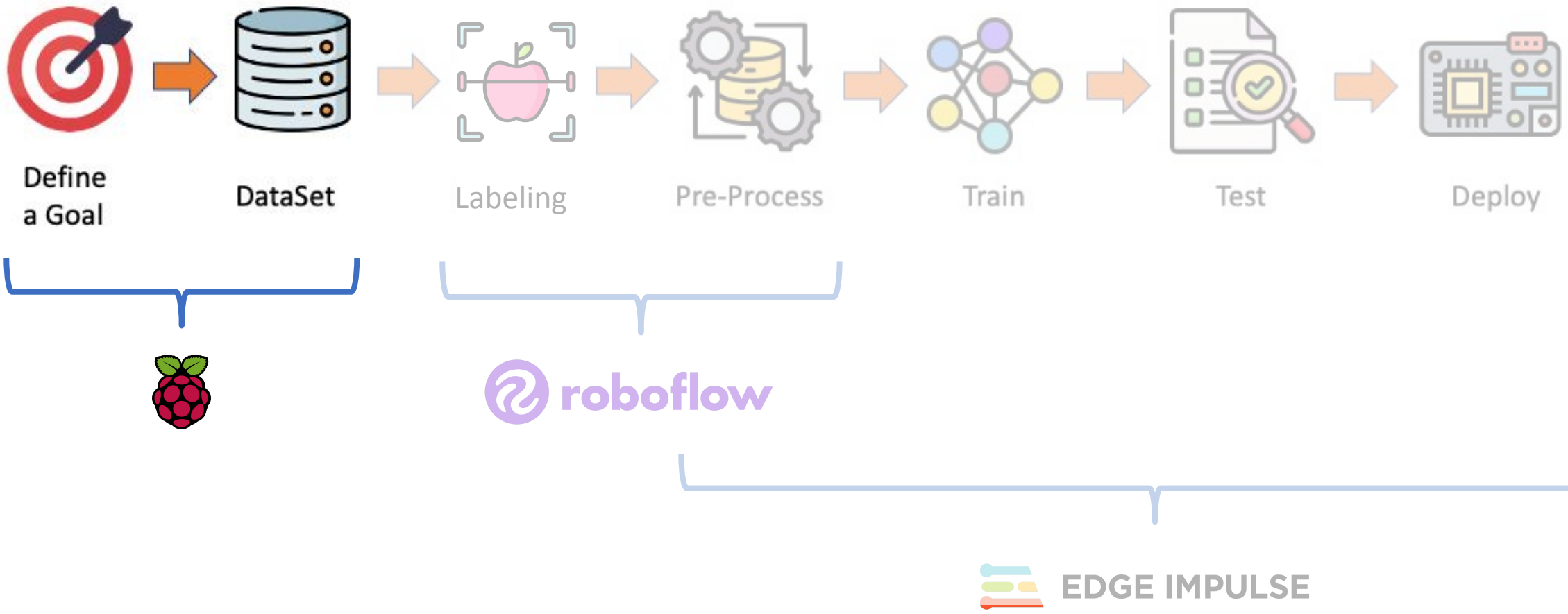
Machine Learning Workflow



roboflow

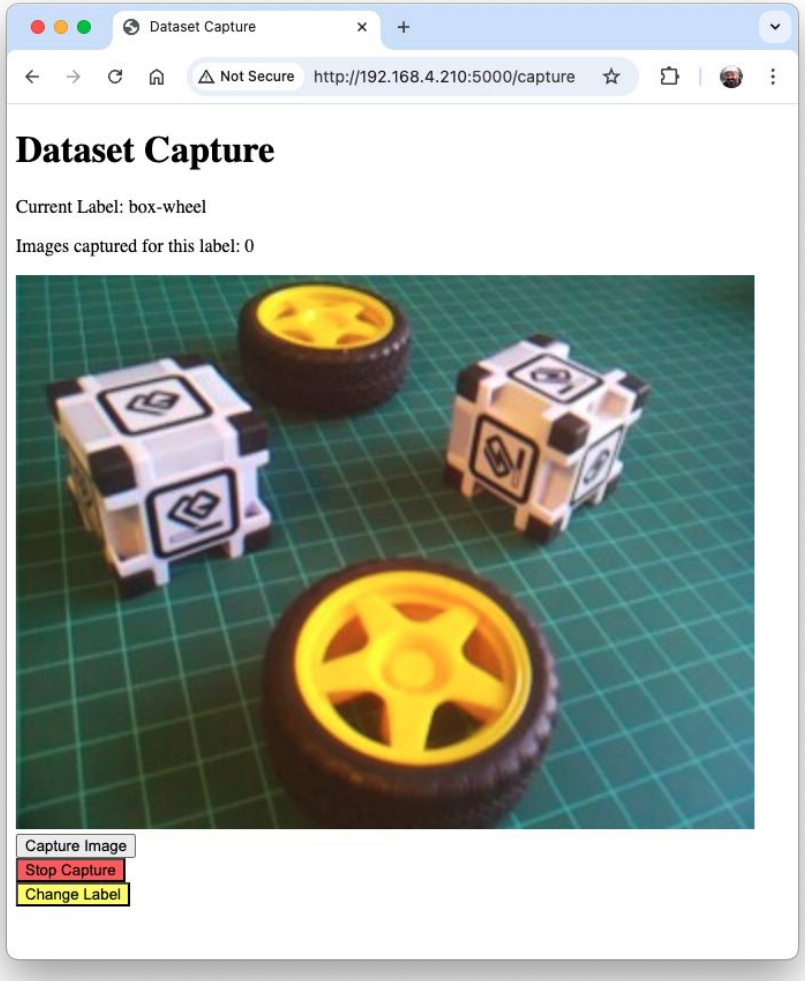
EDGE IMPULSE

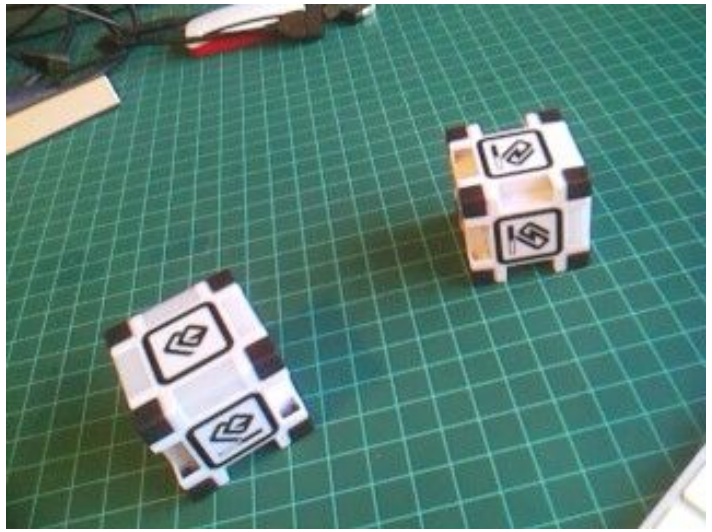
Machine Learning Workflow



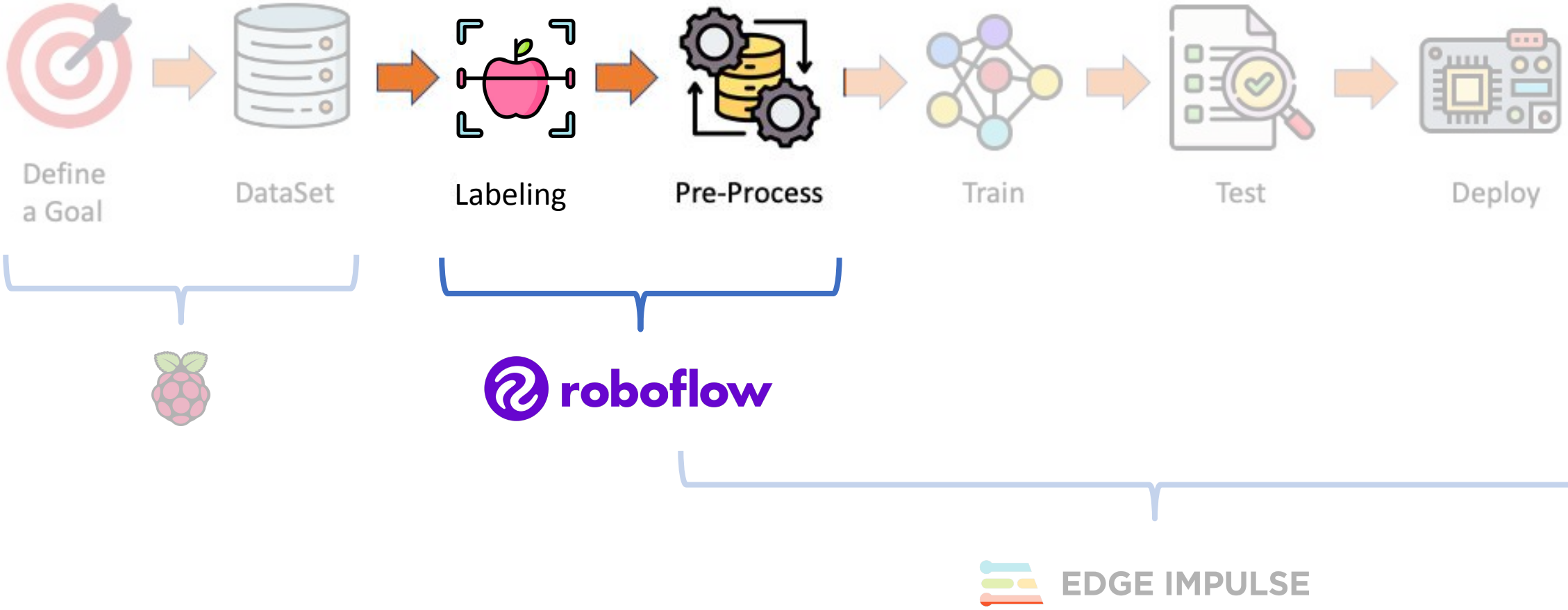
The Goal

Raw Dataset

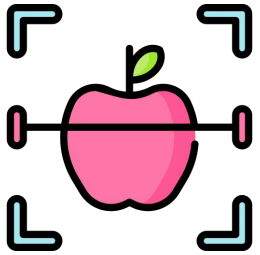

Dataset Capture
Not Secure
http://192.168.4.210:5000/capture
Dataset Capture
Current Label: box-wheel
Images captured for this label: 0
Capture Image
Stop Capture
Change Label

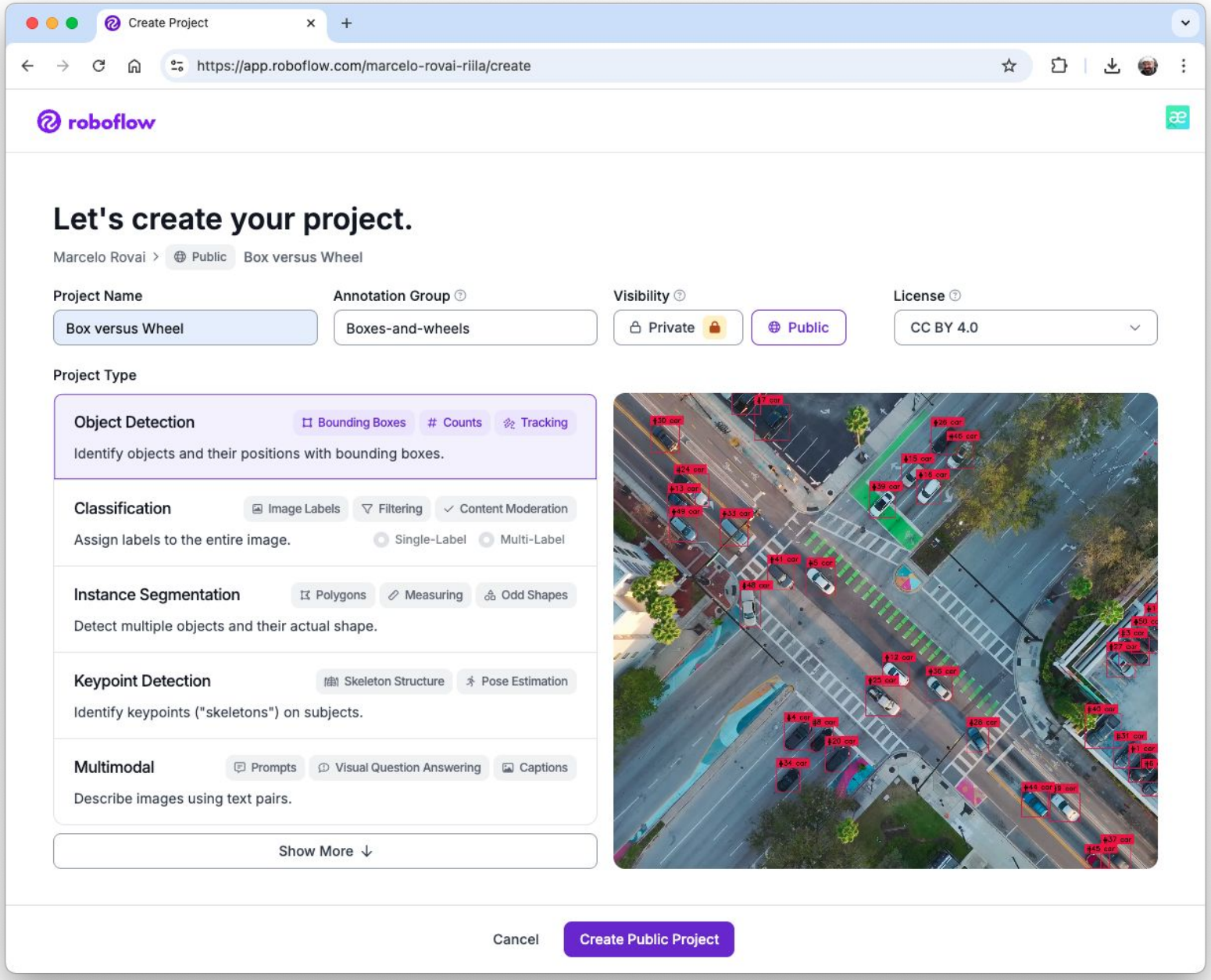


Machine Learning Workflow

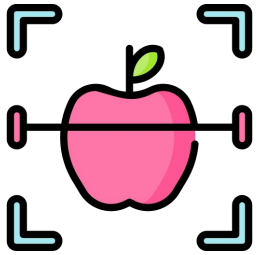


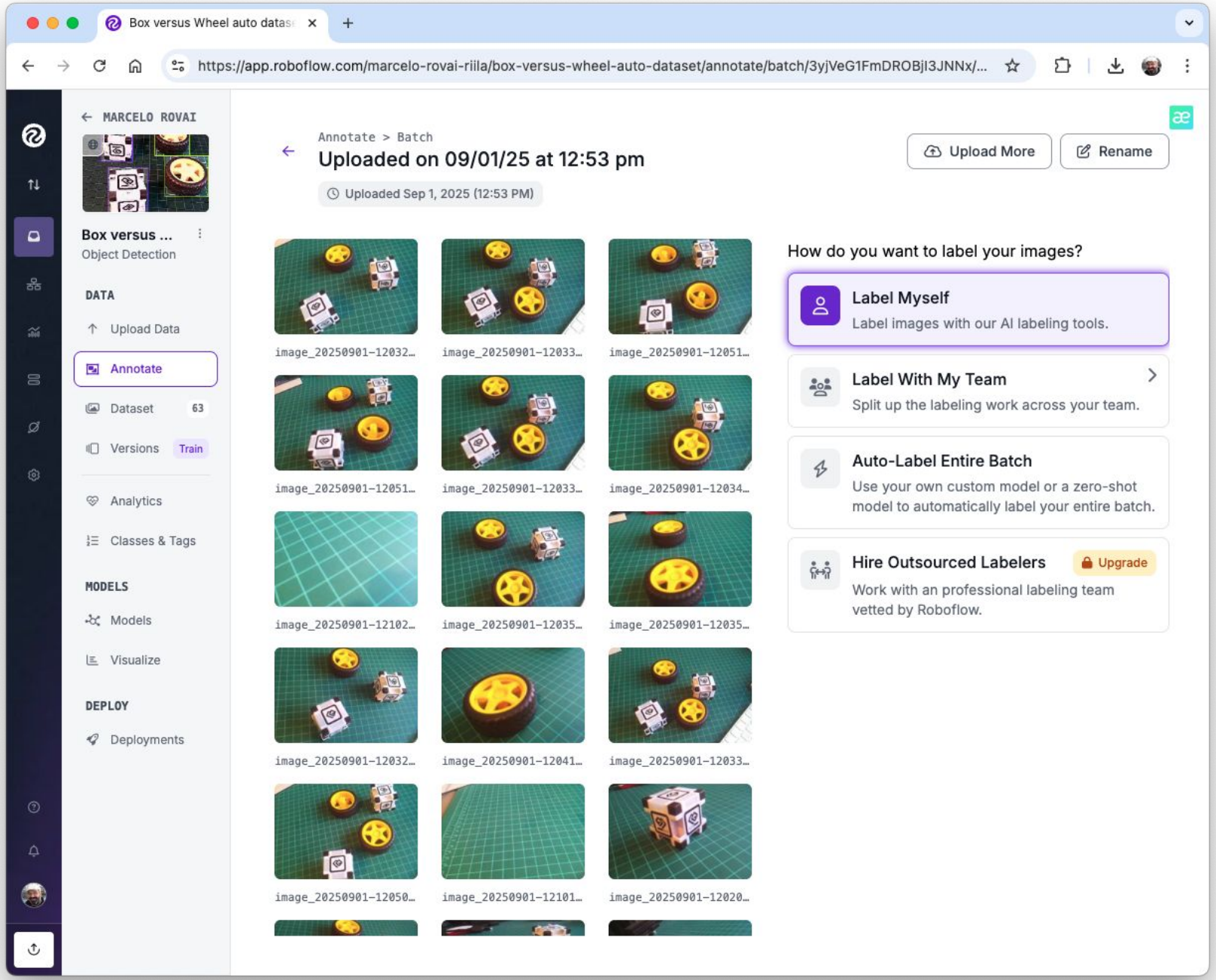
Labeling



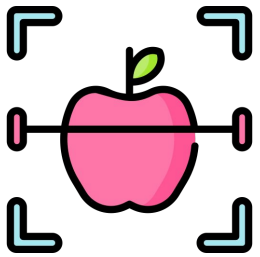

Create Project
https://app.roboflow.com/marcelo-rovai-riila/create
roboflow
Let's create your project.
Marcelo Rovai
Public
Box versus Wheel
Project Name
Box versus Wheel
Annotation Group
Boxes-and-wheels
Visibility
Private
Public
License
CC BY 4.0
Project Type
Object Detection
Bounding Boxes
Counts
Tracking
Identify objects and their positions with bounding boxes.
Classification
Image Labels
Filtering
Content Moderation
Assign labels to the entire image.
Single-Label
Multi-Label
Instance Segmentation
Polygons
Measuring
Odd Shapes
Detect multiple objects and their actual shape.
Keypoint Detection
Skeleton Structure
Pose Estimation
Identify keypoints ("skeletons") on subjects.
Multimodal
Prompts
Visual Question Answering
Captions
Describe images using text pairs.
Show More
Cancel
Create Public Project

Labeling

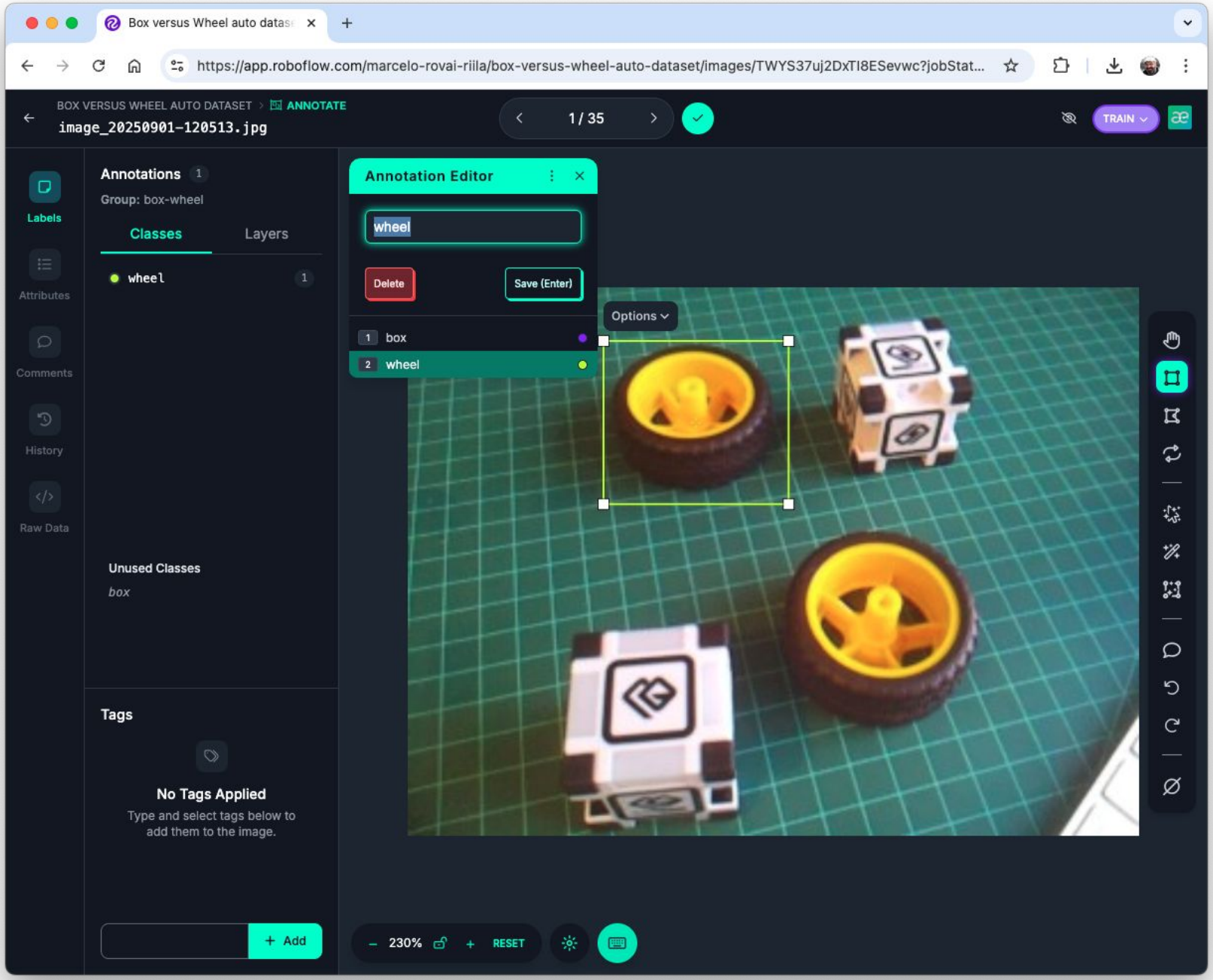



Box versus Wheel auto datas
https://app.roboflow.com/marcelo-rovai-riila/box-versus-wheel-auto-dataset/annotate/batch/3yjVeG1FmDROBjI3JNNx/...
MARCELO ROVAI
Box versus ...
Object Detection
DATA
Upload Data
Annotate
Dataset 63
Versions Train
Analytics
Classes & Tags
MODELS
Models
Visualize
DEPLOY
Deployments
Annotate > Batch
Uploaded on 09/01/25 at 12:53 pm
Upload More
Rename
Uploaded Sep 1, 2025 (12:53 PM)
How do you want to label your images?
Label Myself
Label images with our AI labeling tools.
Label With My Team
Split up the labeling work across your team.
Auto-Label Entire Batch
Use your own custom model or a zero-shot model to automatically label your entire batch.
Hire Outsourced Labelers
Upgrade
Work with an professional labeling team vetted by Roboflow.

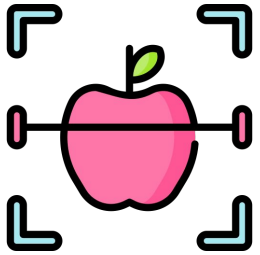
Labeling



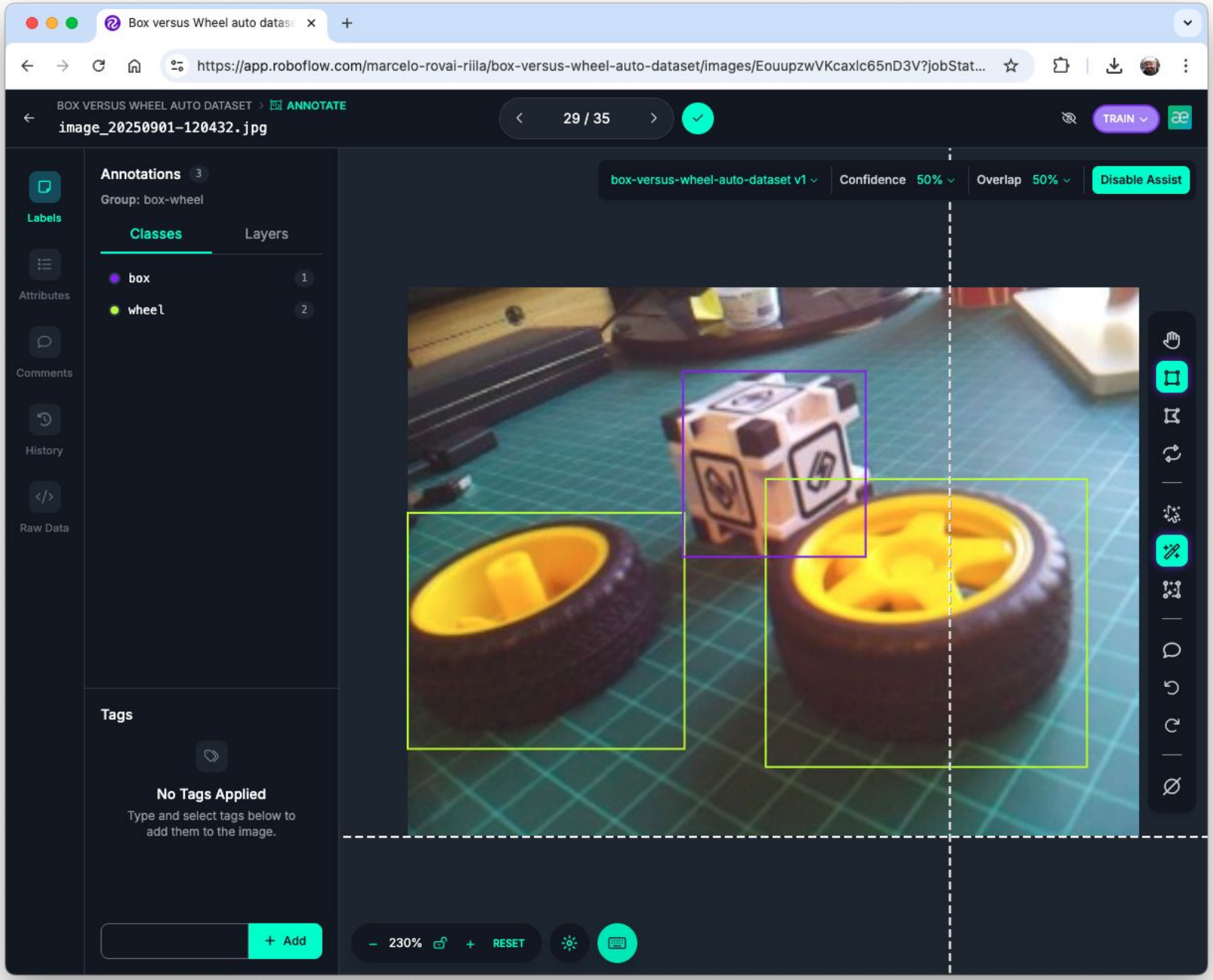
(Manual Labeling)



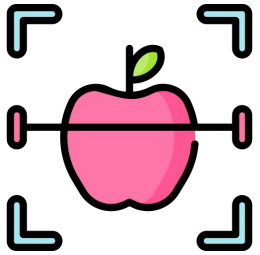
Labeling



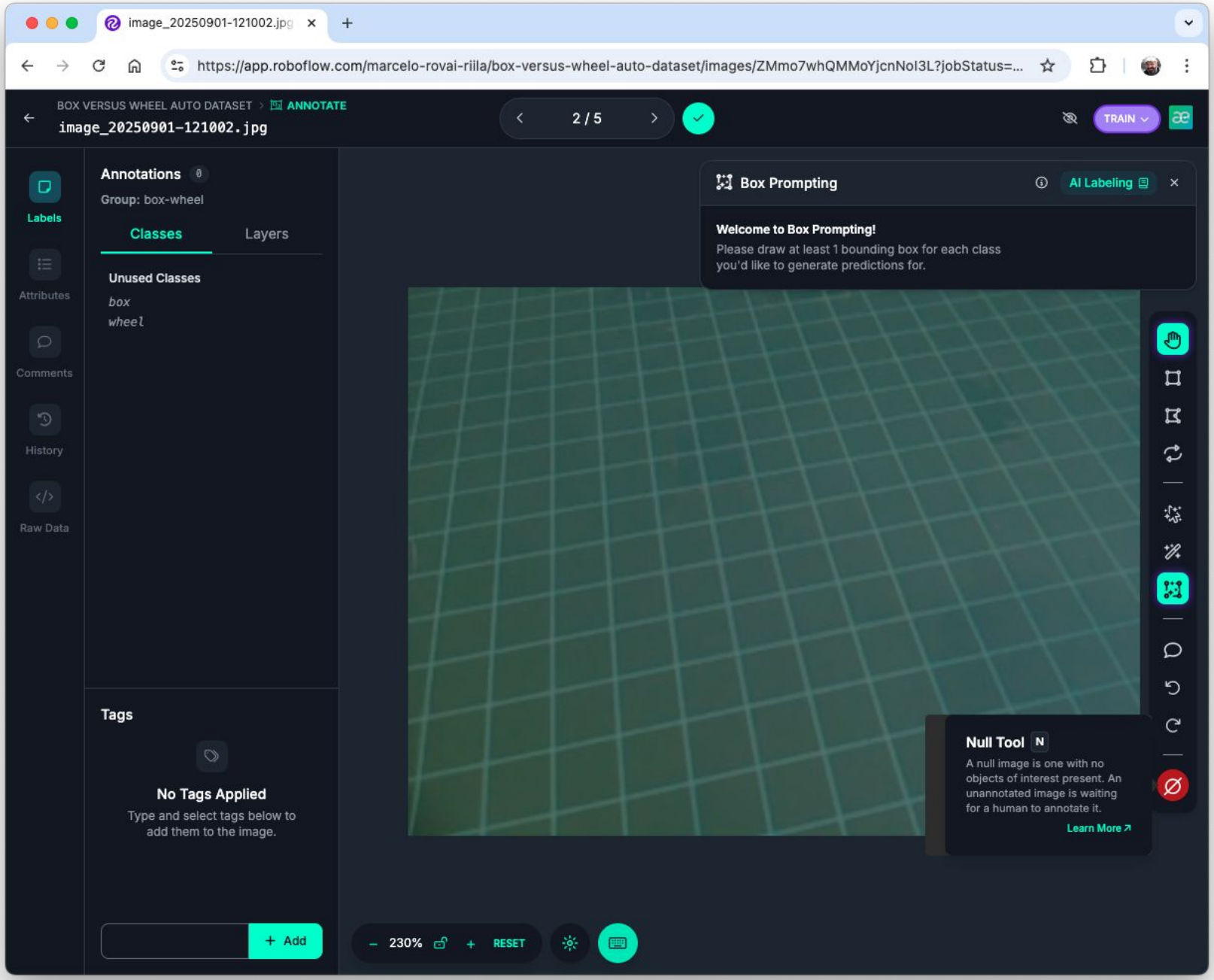
(Label Assist)



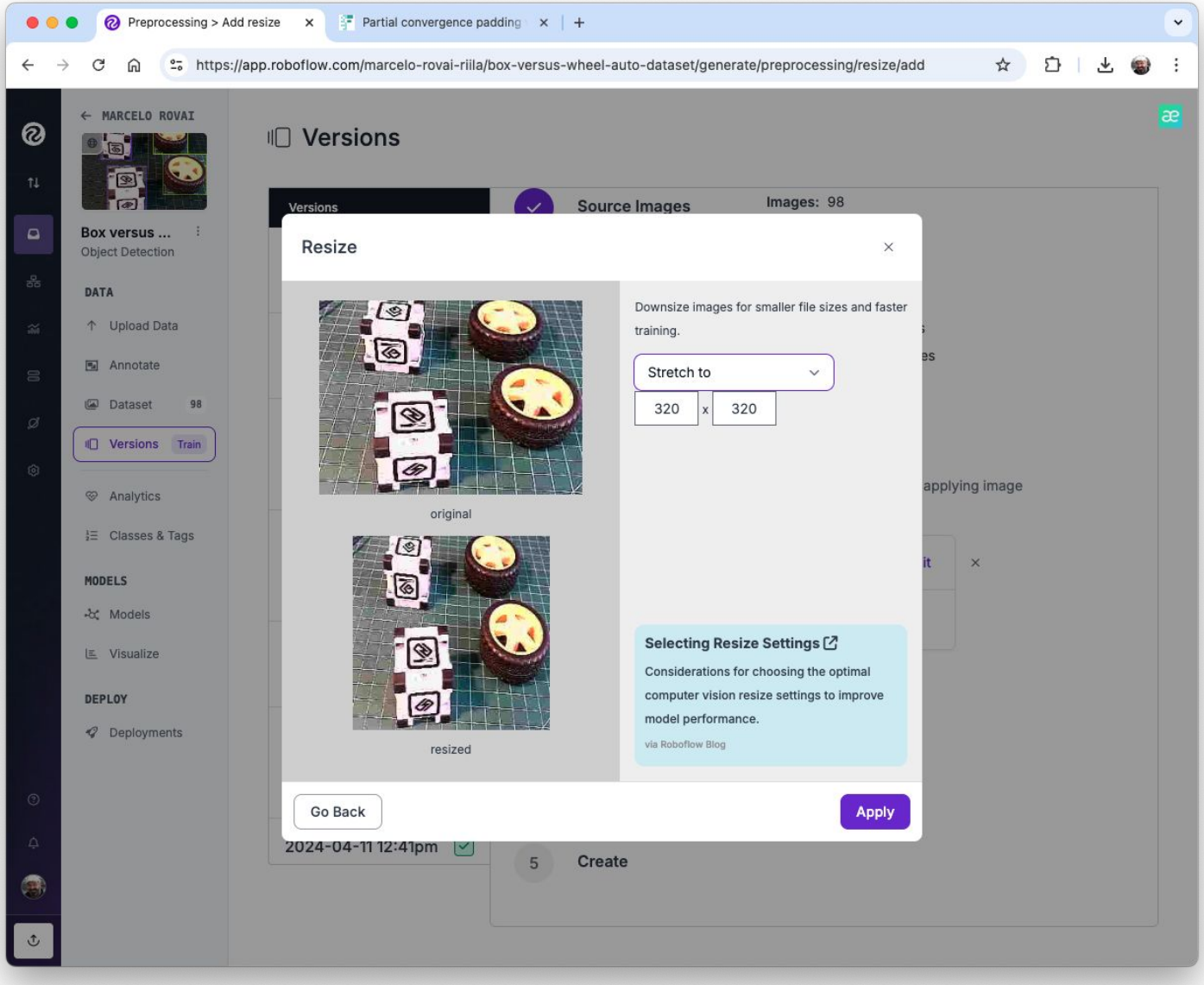
Labeling



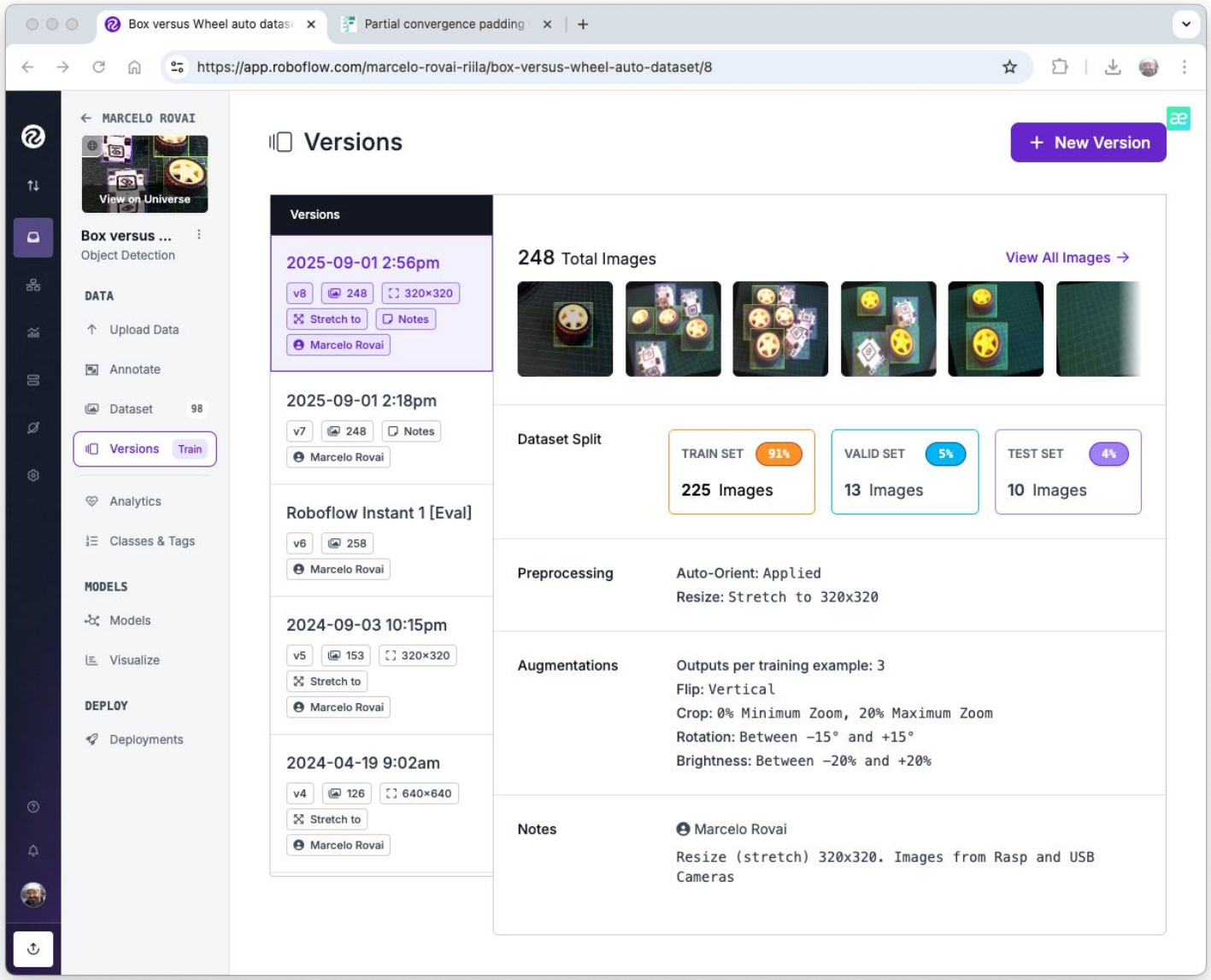
(Null Tool)



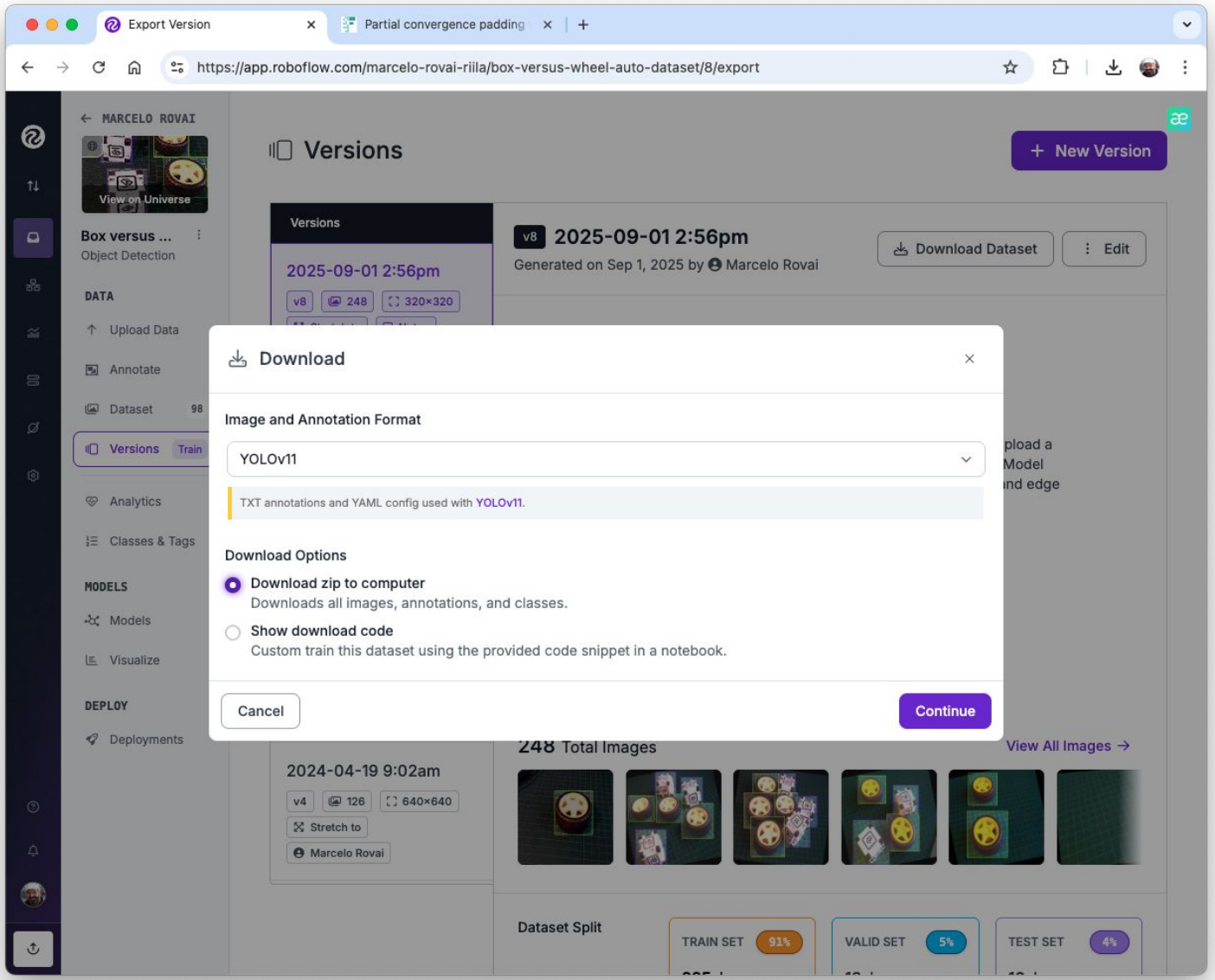
Pre-Processing



Pre-Processing



Annotated Dataset



Questions?

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rovai@unifei.edu.br

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