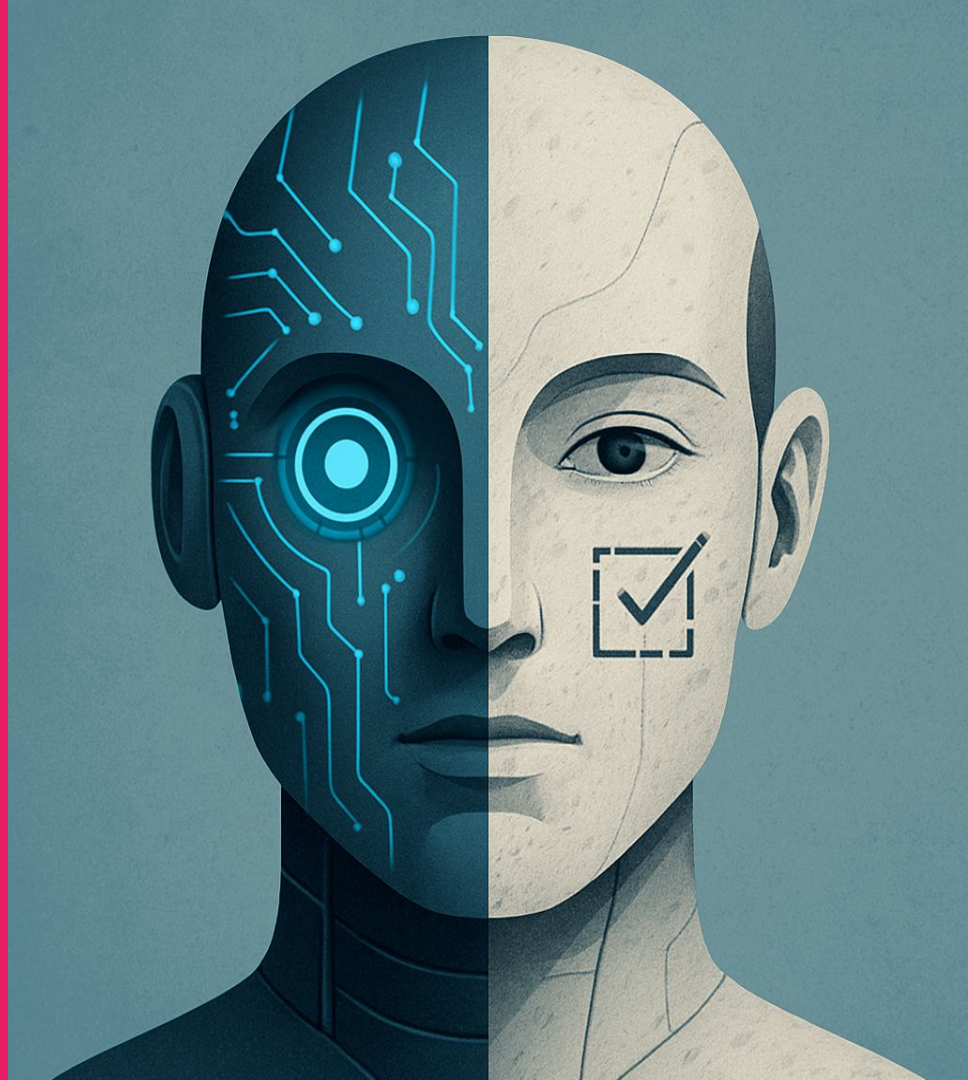
DUALSIGHT

Multi-Task Image Classifier for Content Verification

By : Abdellahi El Moustapha



Problematic

The Fragmented Image Classification Landscape

Object Detection Models

- ✖ Focus solely on object identification
- ✖ Provide bounding boxes and labels
- ✖ No authenticity verification
- Examples: YOLO, Faster R-CNN

Authenticity Classification Models

- ✖ Detect AI-generated vs. real images
- ✖ Binary classification only
- ✖ No object-level insights
- Examples: ResNet classifiers, Vision Transformers

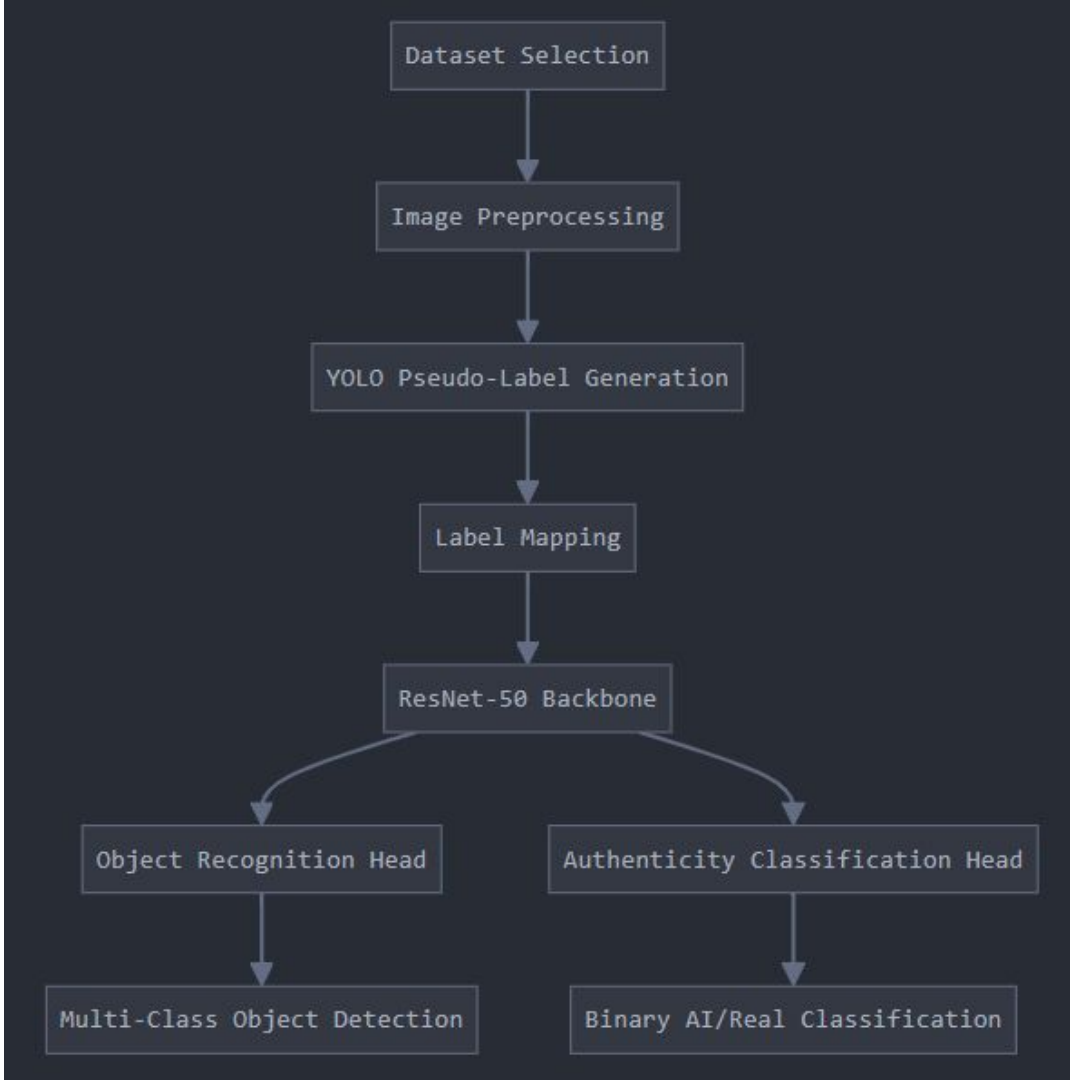
Critical Gaps

- 🚨 **No Holistic Image Understanding**
- Isolated Analysis: Objects vs. Authenticity
- Limited Contextual Information
- Incomplete Digital Content Verification

The Fundamental Challenge

Existing models provide fragmented insights, lacking a comprehensive approach to understanding digital imagery across multiple dimensions.

DualSight Project Data Pipeline



DualSight: Multi-Task Image Classifier

Model Architecture

Backbone: ResNet-50

Output Heads:

- Object Recognition (Multi-Class)
- Authenticity Classification (Binary)

Dataset: Hemg/AI-Generated-vs-Real-Images

Subset: 152,710 images

Performance Metrics

Binary Classifier (AI vs. Real)

Accuracy: 85-89%

Object Recognition

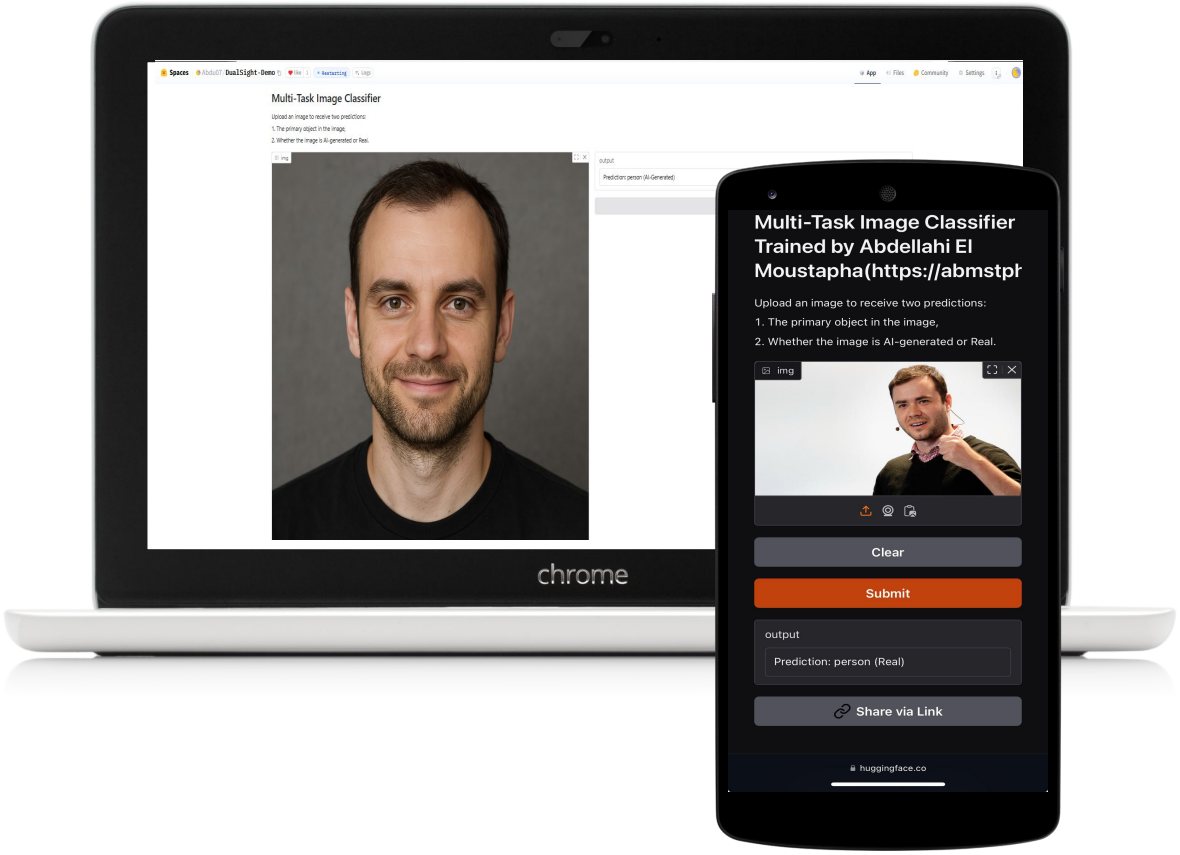
Performance Varies

Challenges with Pseudo-Labeling

Key Innovations

- YOLO Pseudo-Labeling
- Multi-Task Learning
- Gradio Web Interface

DualSight On Hugging Face



ONLINE LIVE DEMO

https://huggingface.co/spaces/Abdu07/DualSight-Demo