SPICE ACADEMY FINAL PROJECT

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Space craters detector App

Sac Medina

Hamburg 12.11.2021
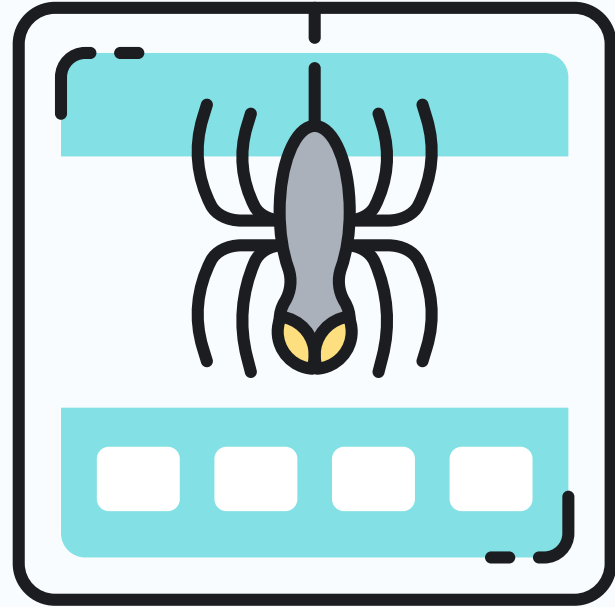
MOTIVATION

Moon as an **Inspiration**

&

Deep learning + App building

PRE-APP PROCESS
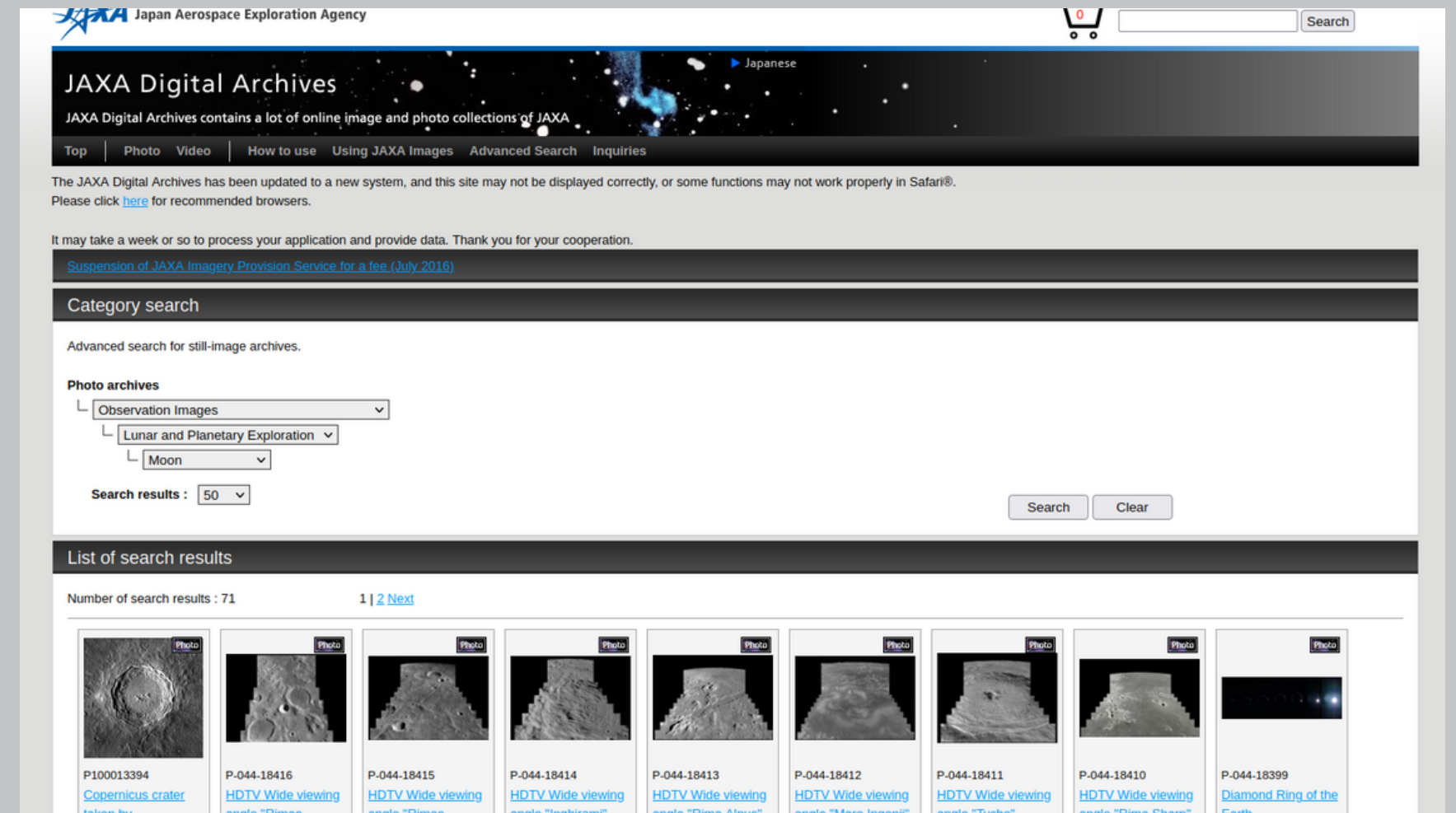

1- Web Scraping

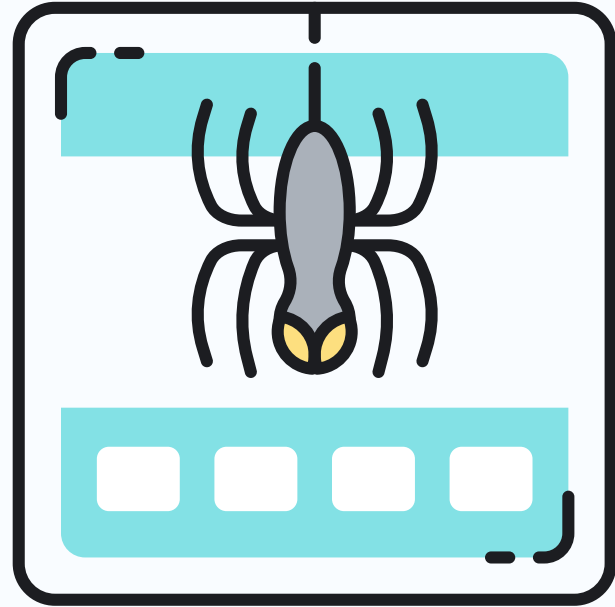
- Request

- BeautifulSoup

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- JAXA---Kaguya mission

- ESA--- SMART-1
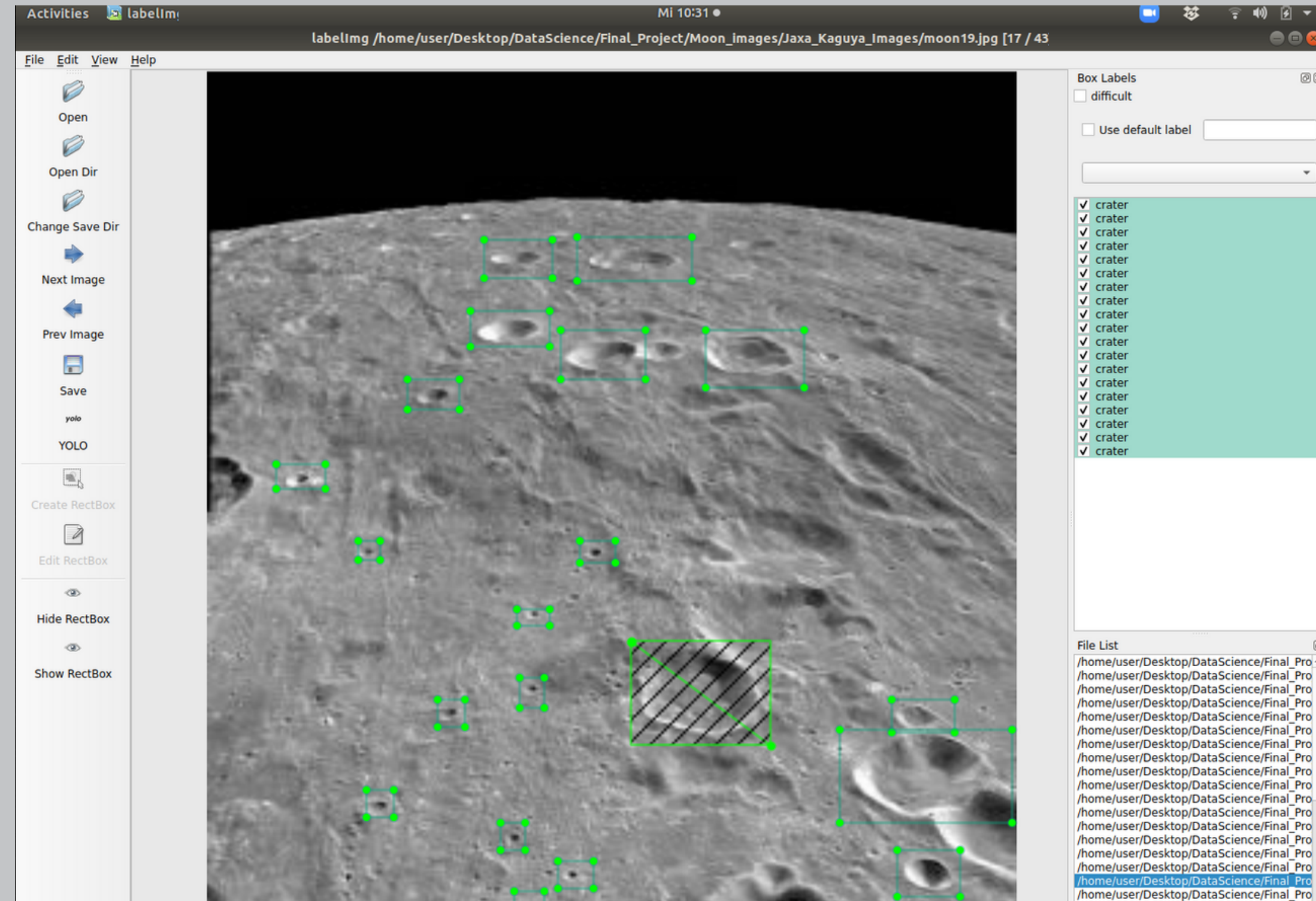
- NASA---APOLO 11

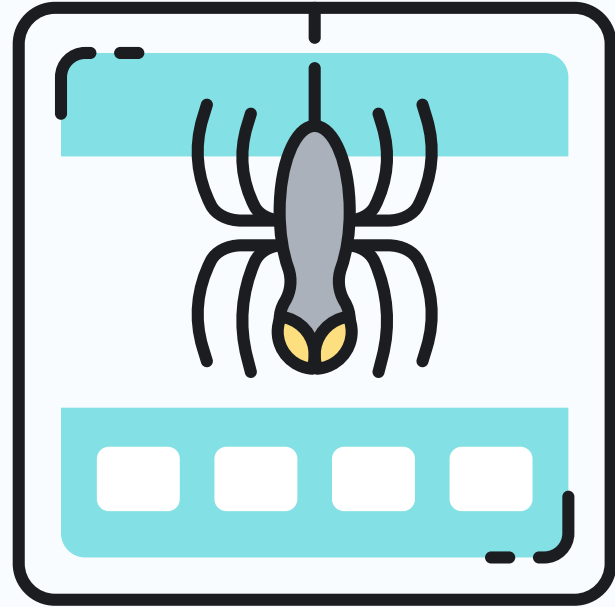# PRE-APP PROCESS

1- Web Scraping
python
- Resquest
- BeautifulSoup

2- Label craters
- labelImg

PRE-APP PROCESS

1- Web Scraping

- Request
- BeautifulSoup

2- Label craters

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3-Train a model

- Yolov5

YOLO (**'You Only Look Once'**) is an object detection algorithm that divides images into a grid system. Each cell in the grid is responsible for detecting objects within itself.

You Only Look Once: Unified, Real-Time Object Detection
Joseph Redmon, Santosh Divvala, Ross Girshick, Ali Farhadi

The detection network has 24 convolutional layers followed by 2 fully connected layers.

PRE-APP PROCESS

1- Web Scraping

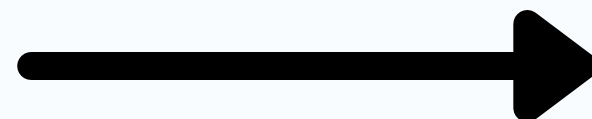- Request
- BeautifulSoup

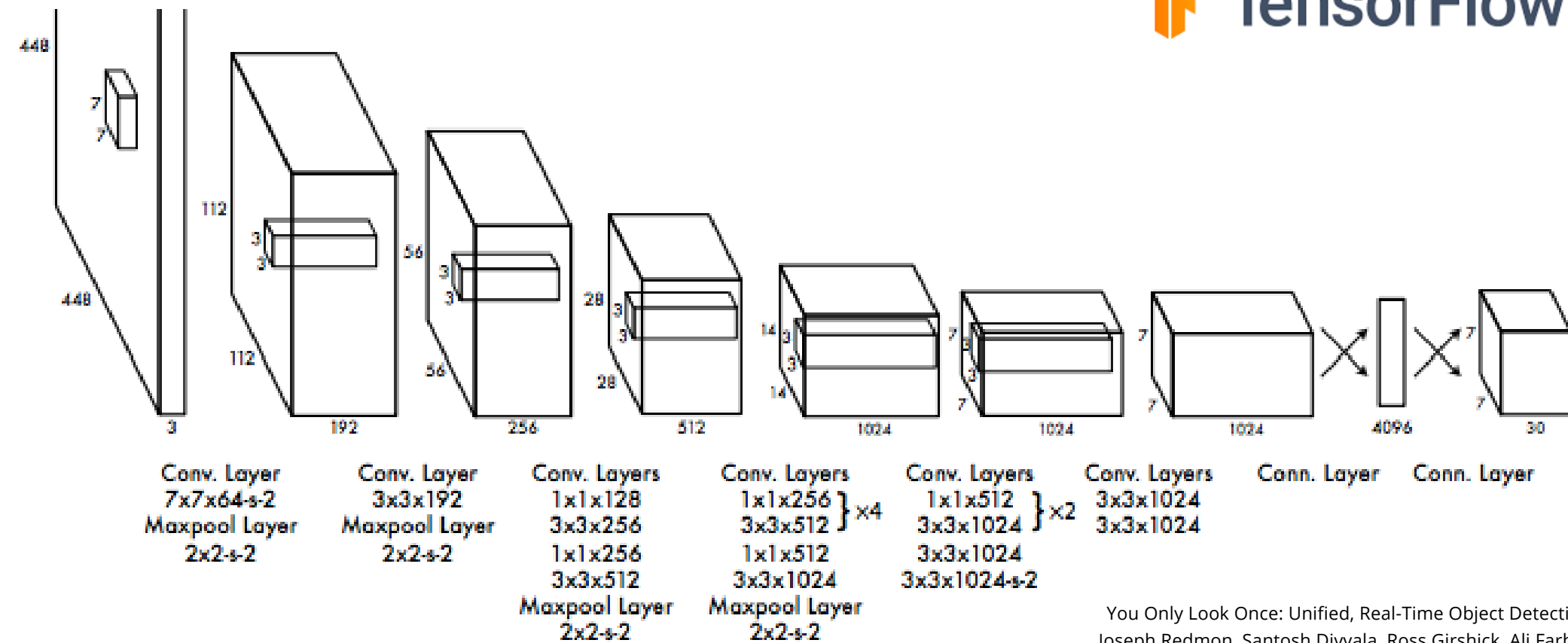## 2- Label craters
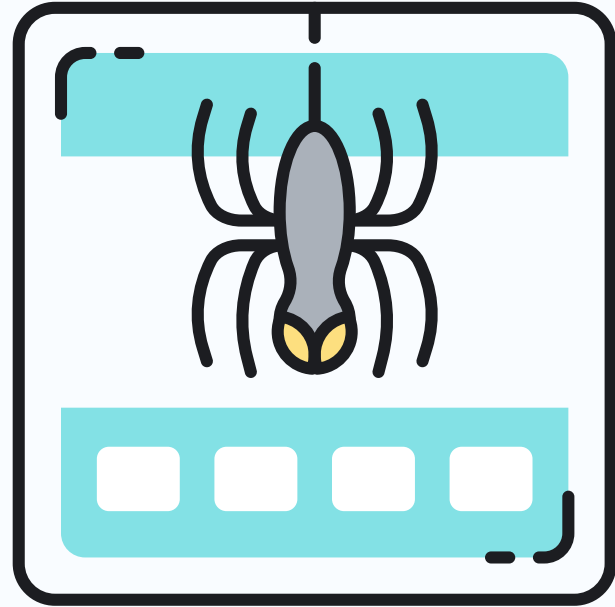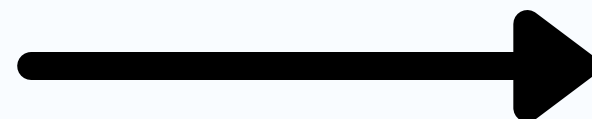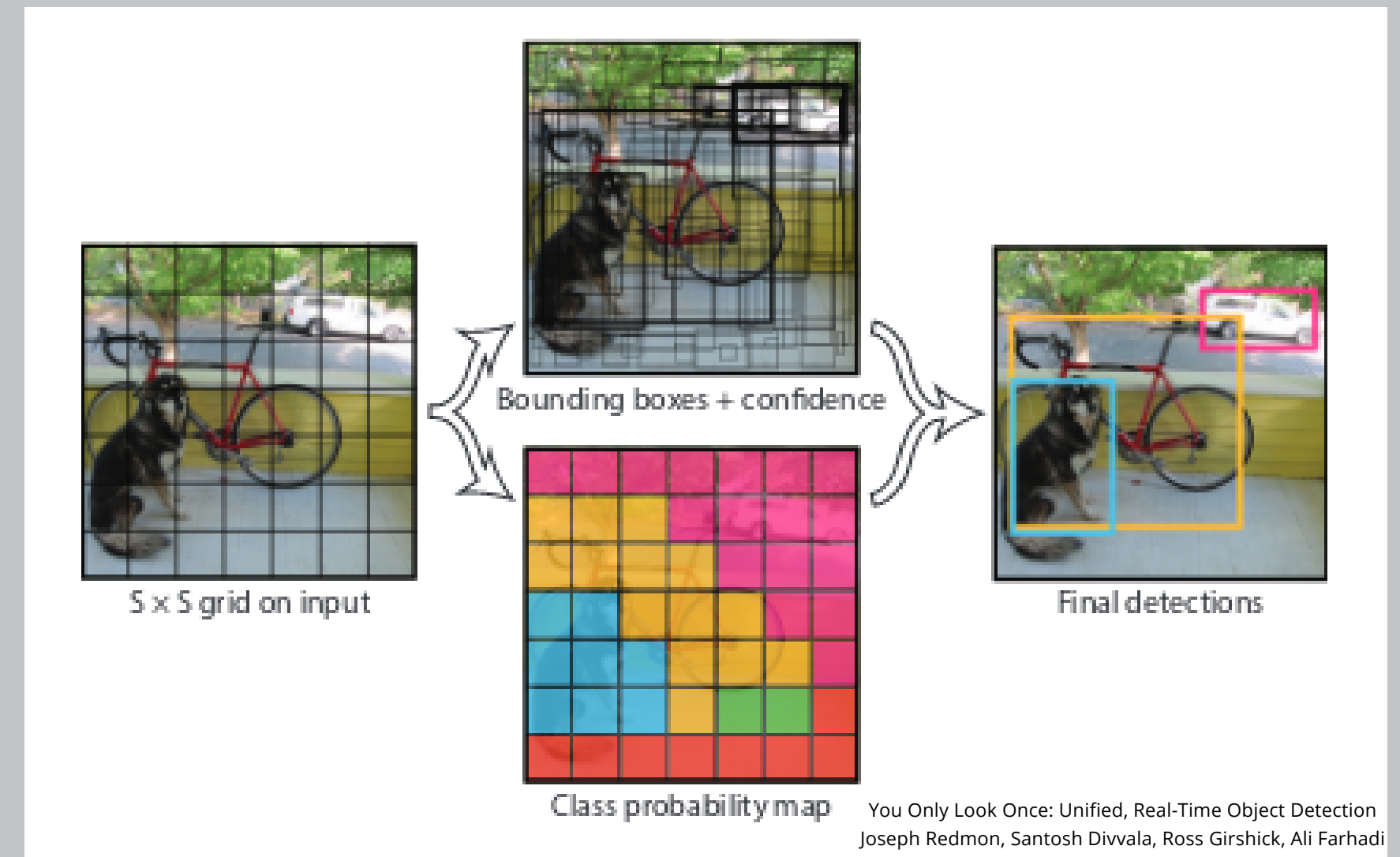
- labelImg

3-Train a model

- Yolov5

YOLO (**'You Only Look Once'**) is an object detection algorithm that divides images into a grid system. Each cell in the grid is responsible for detecting objects within itself.

Bounding boxes + confidence

S x S grid on input

Class probability map

Final detections

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BUILDING THE APP

Train **Yolov5** with
my lunar surface images

Save the results from these trainings

BUILDING THE APP

Train **Yolov5** with
my lunar surface images

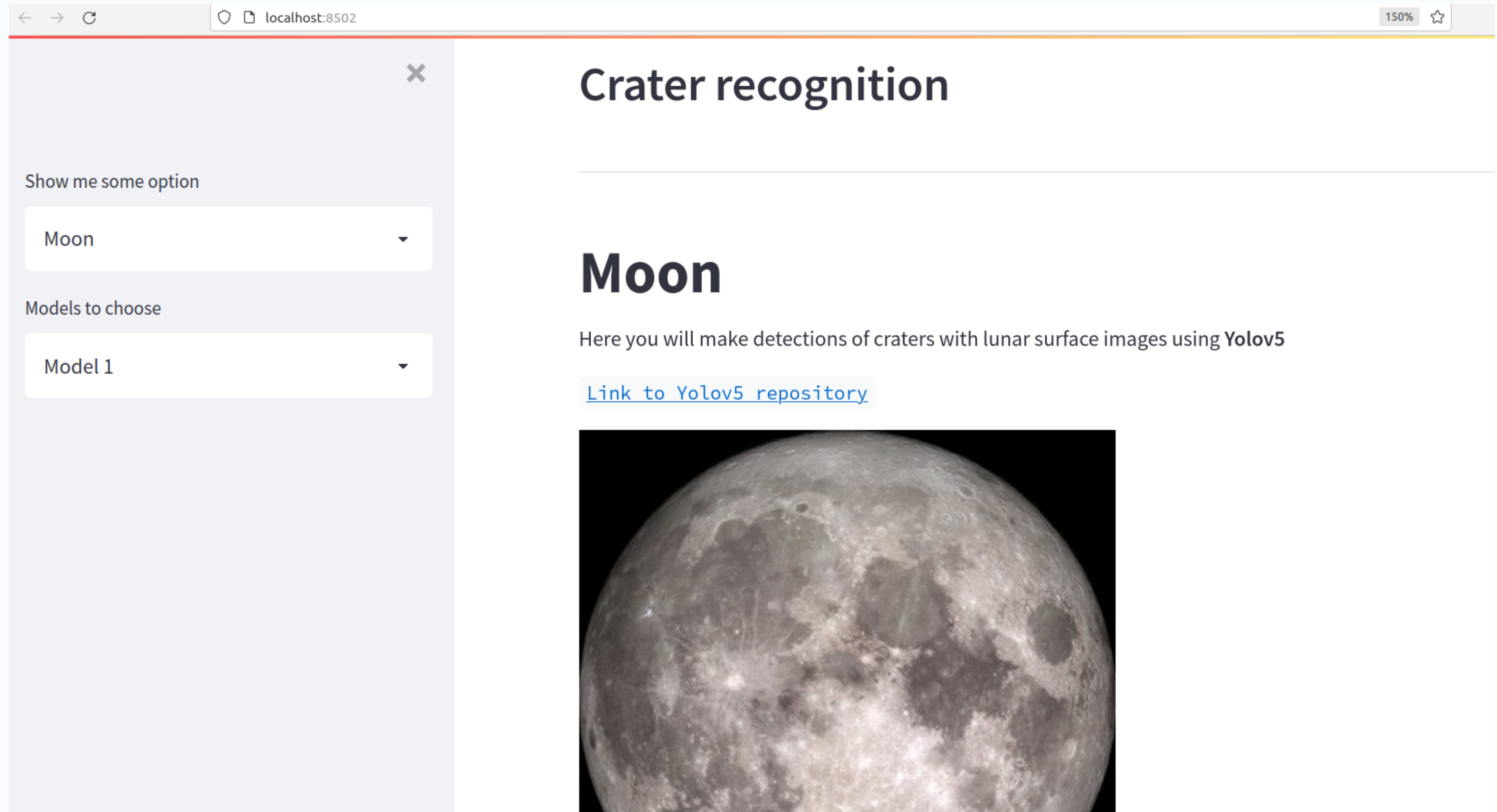Save the results from these trainings

Use **Streamlit** to make the App

Run the yolov5 prediction on
the uploaded image or video

Show the model metrics and detections

SHOW THE APP

Thank you!

- **MY TEACHERS:**
  - **UGUR URAL**
  - **CARMINE SOMMA**

- **MY CLASSMATES**

- **SPICED ACADEMY**

- **BUNDESAGENTUR FÜR ARBEIT**

- **MY FAMILY**

SPICED

PseudoSaffron Team