EpochDev

Welcome 🔬🫁

EpochDev

Reach out to the EpochDev team! 🙋‍♂️

President

Amir

Teams

x22120921

Vice President

Teams

x23171286

Workshop officer

Teams

x21230684

Web officer

Temuulen

Teams

x23143509

Mentor volunteer

Temuulen

Teams

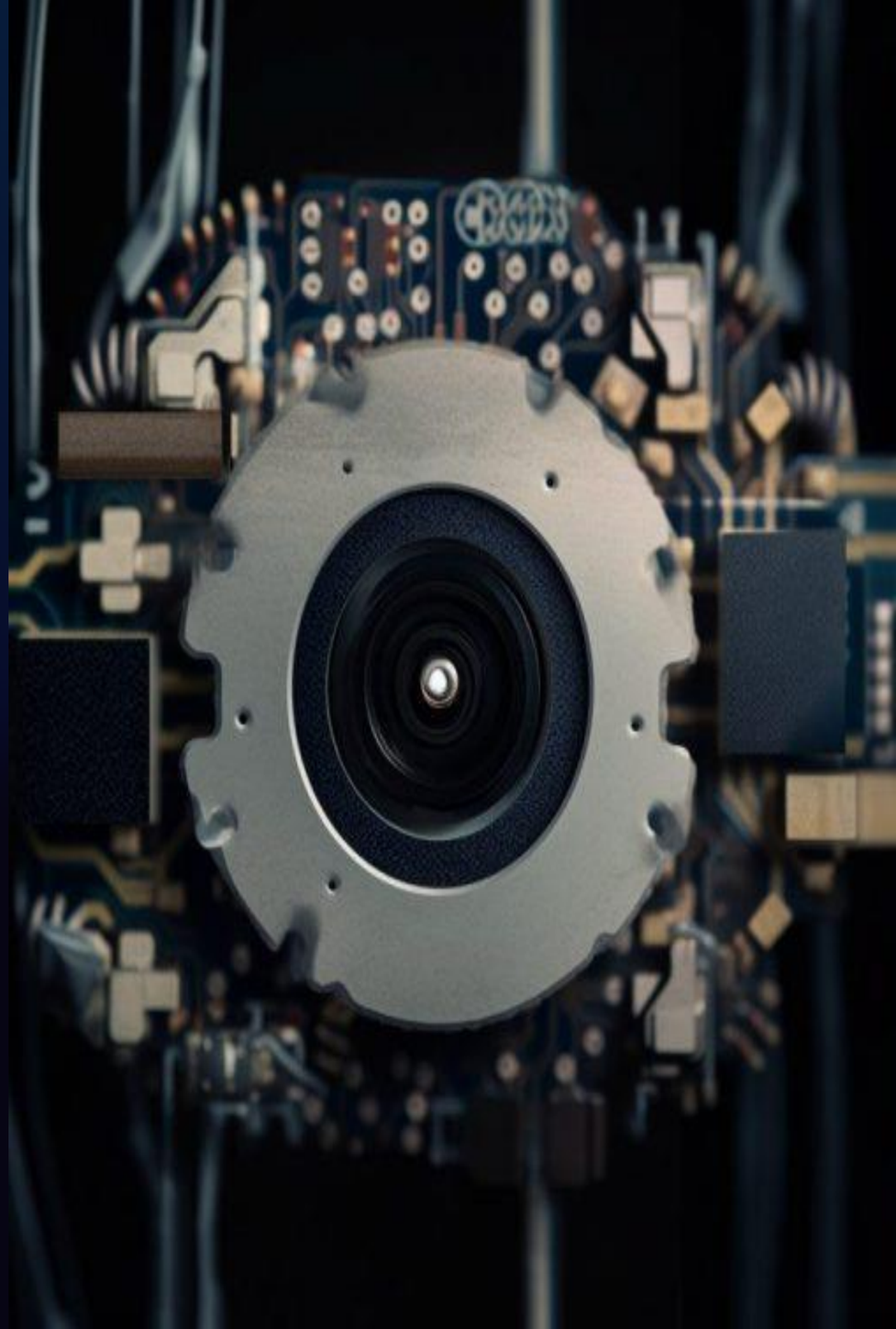
x24248037

EpochDev

Agenda

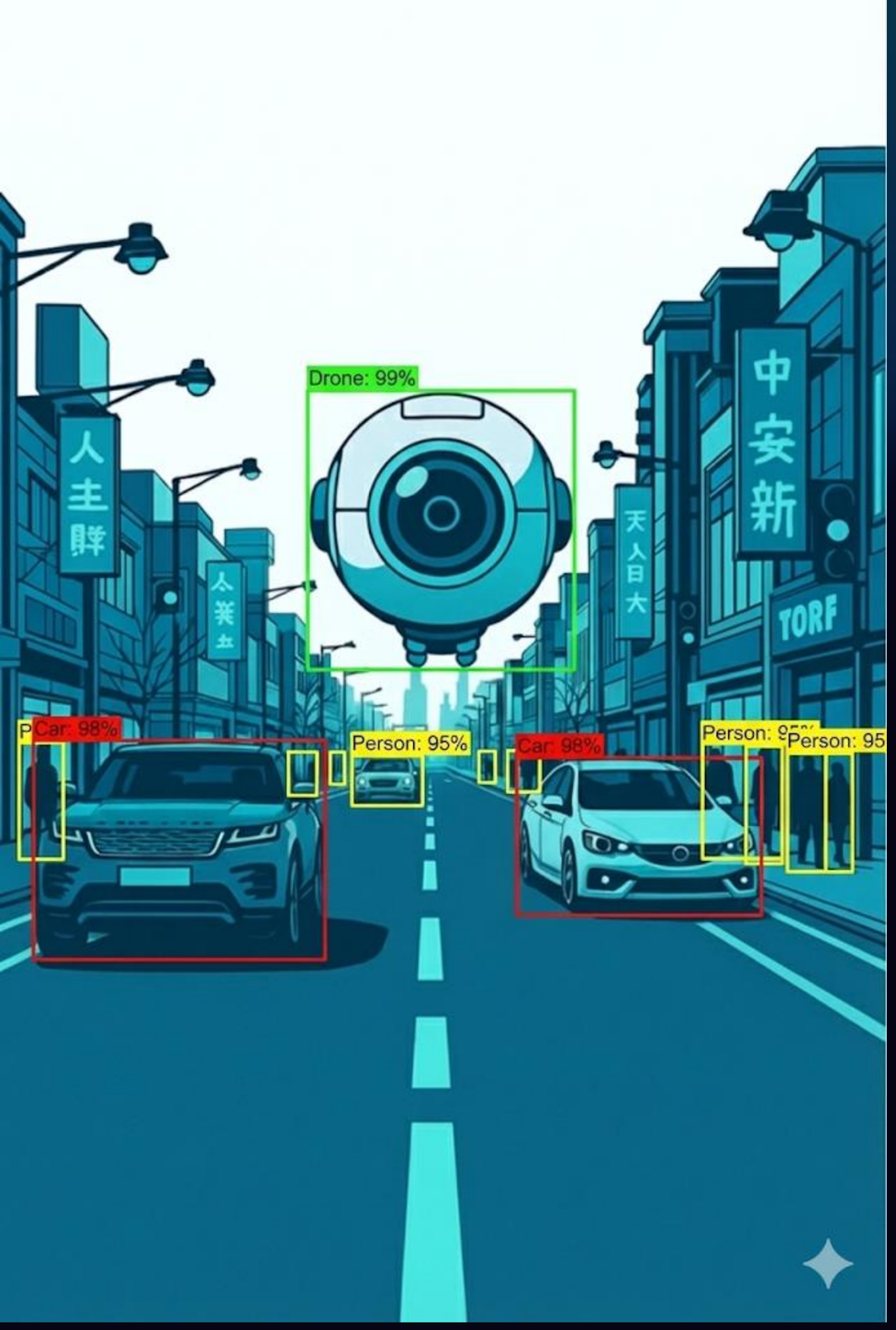
The eyes of AI 👁️

Object detection explained



Concepts you'll familiarise with:

- Object detection
- YOLO & Finetuning
- Football?????



What is Object detection?

Object detection is a computer vision task where the objective is to find objects in images and determine their class.

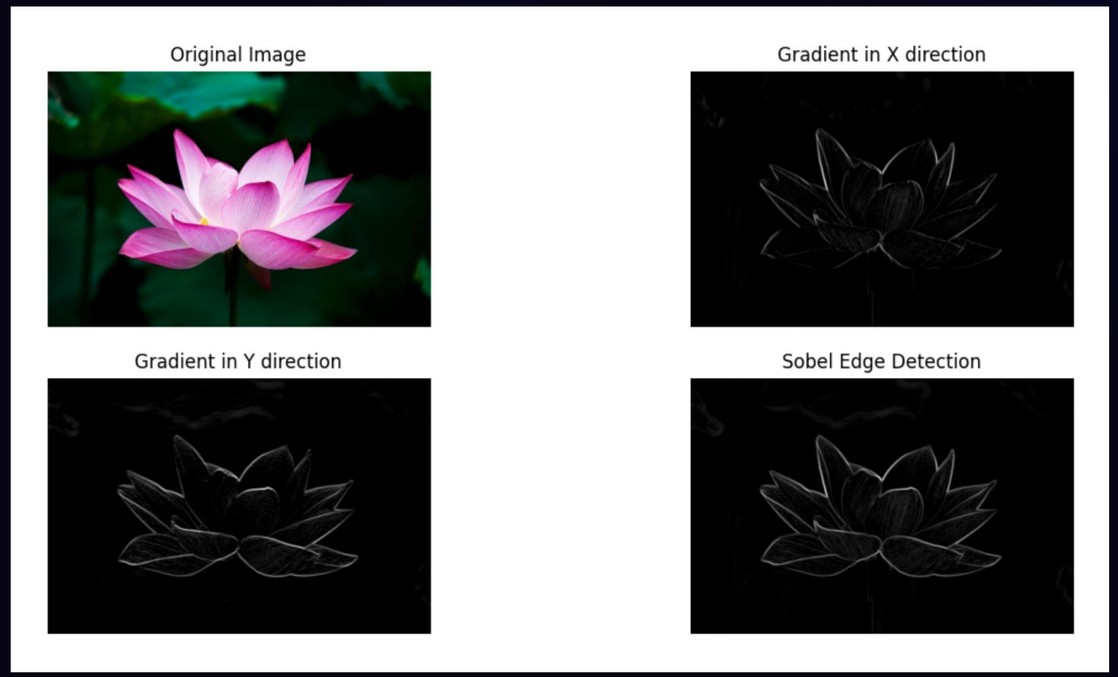
Finding object ——→ classifying object

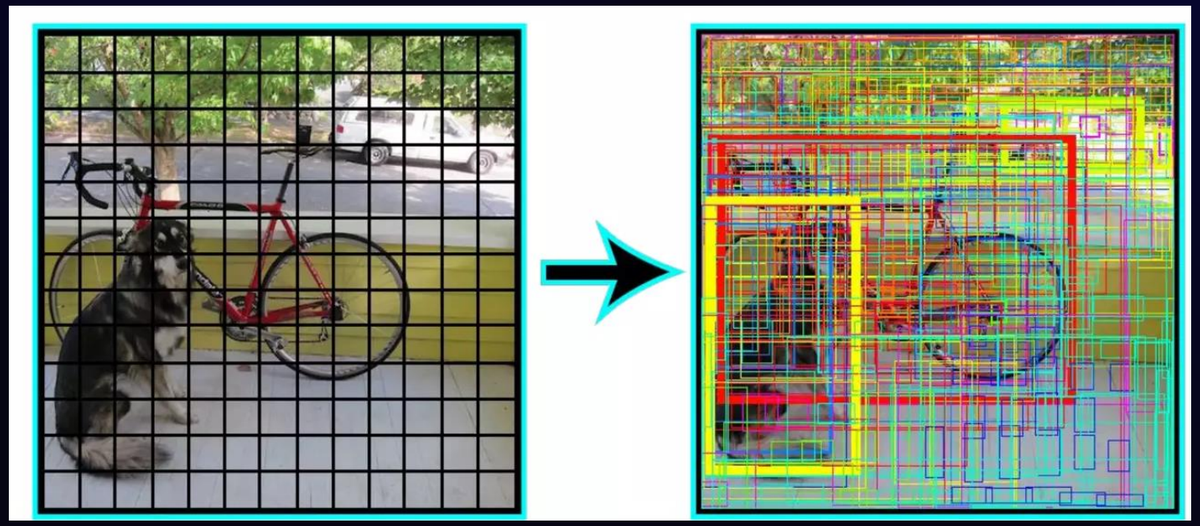
- Examples:
- Surveillance cameras
- Retail security (shoplifting)
- Healthcare detecting anomalies in imaging

How do machines find objects in images?

- Old fashion = edges, contrast, and filters, feature engineering!
- Nowadays = neural networks handle feature representation 😮

2012 Alexnet to change the game 🤯





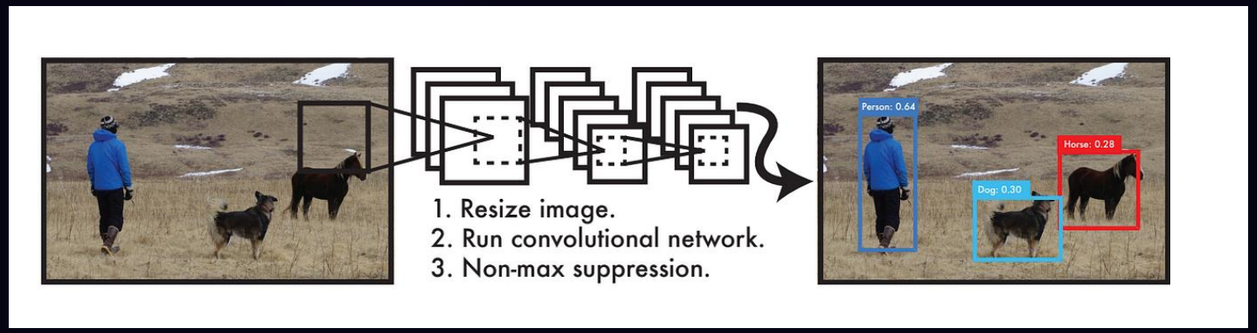
EpochDev

What is YOLO?

You Only Look once is an architecture design for object detection, it predicts the the location, and class of an object in a single pass, allowing for real time object detection

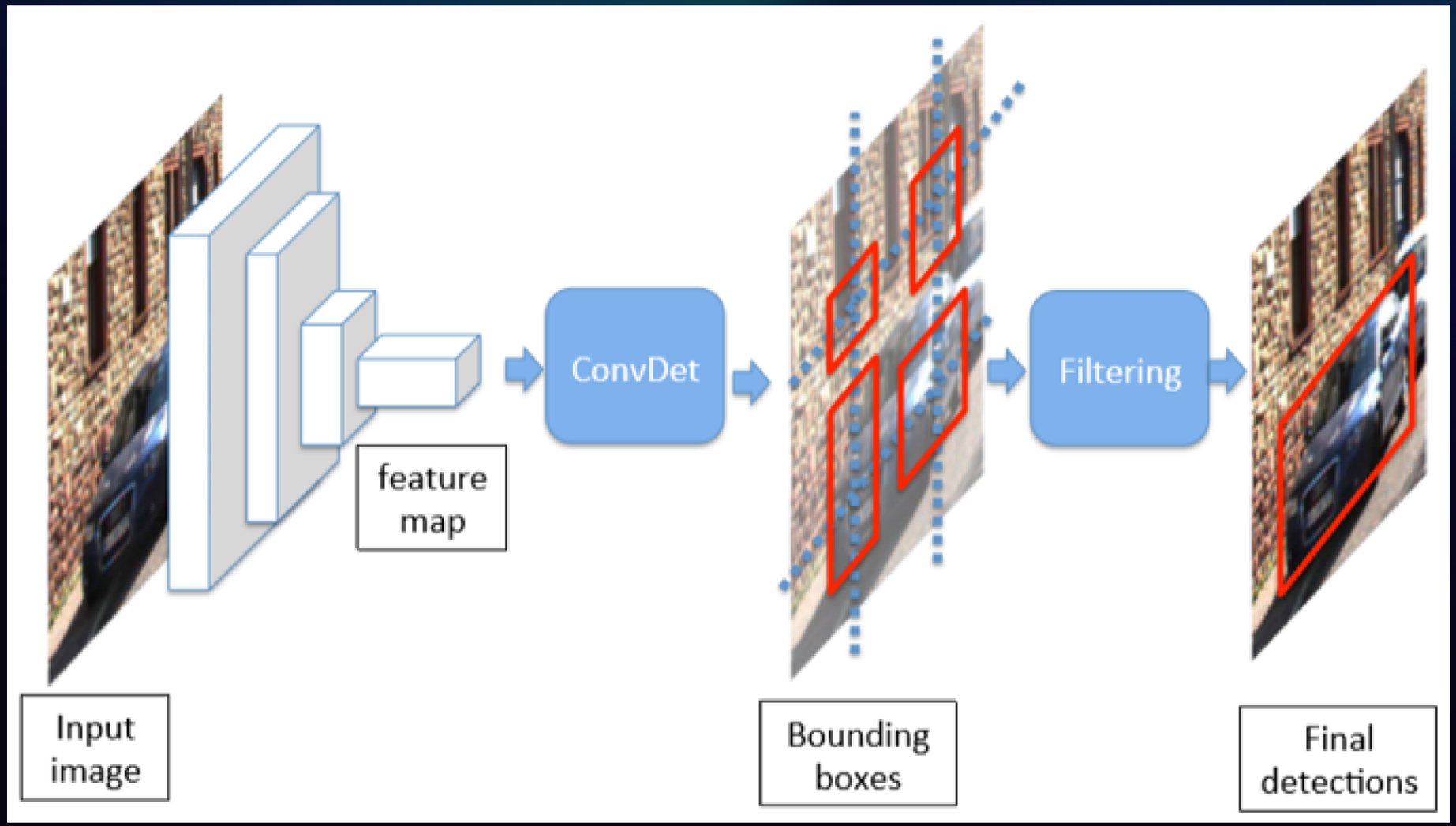
Combined **classification + localization** into one network.

Input	processing	output
Image	Convolution MLP	Bounding box class



How Does YOLO do it?

1. Convolution
2. Grid
3. MLP
4. Non-Maximum Suppression (NMS)



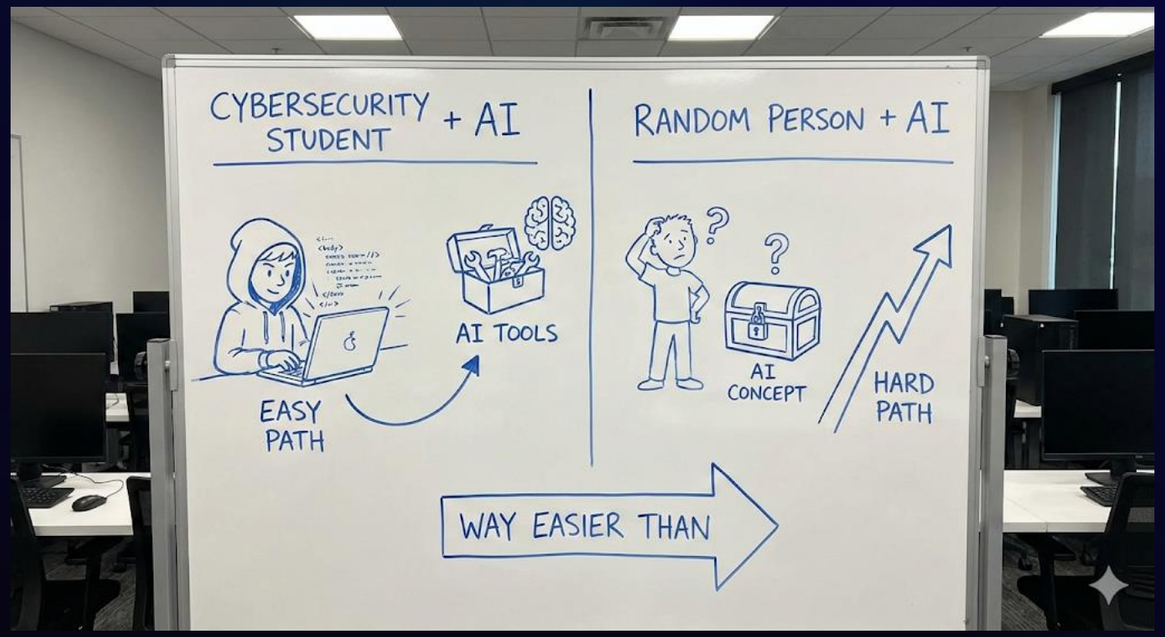
YOLO paper

What is finetuning

Take a model that is trained -> teach how to specialise on a task.

and why to do this?

- YOLO has been already trained in a lot of data
- We train way less than we would have to
- We get good results because of the prior



EpochDev

The data!

Classes:

- 0 = players
- 1= referee
- 2 = football

Total images = 163

- Train = 114
- Validation = 33
- Test = 16

· This dataset is available through [Roboflow universe](),

EpochDev

Questions & Answers

What surprised you most about how computers learn to see?

Are there any concepts you'd like to dive deeper into before we move into the hands-on part?

EpochDev

Code Walkthrough – What Are We Building?

Todays Project:

- Use the Roboflow dataset for hands-on learning
- Finetune YOLO for football object detection
- Walk through each part step by step: from data to evaluation

Walkthrough Plan

1. Import Libraries
2. Load Data
3. Build & Train the Model
4. Evaluate Model Performance

Pizzaaaaaa!

“Form your squad (max 3)

& mingle like a pro!”

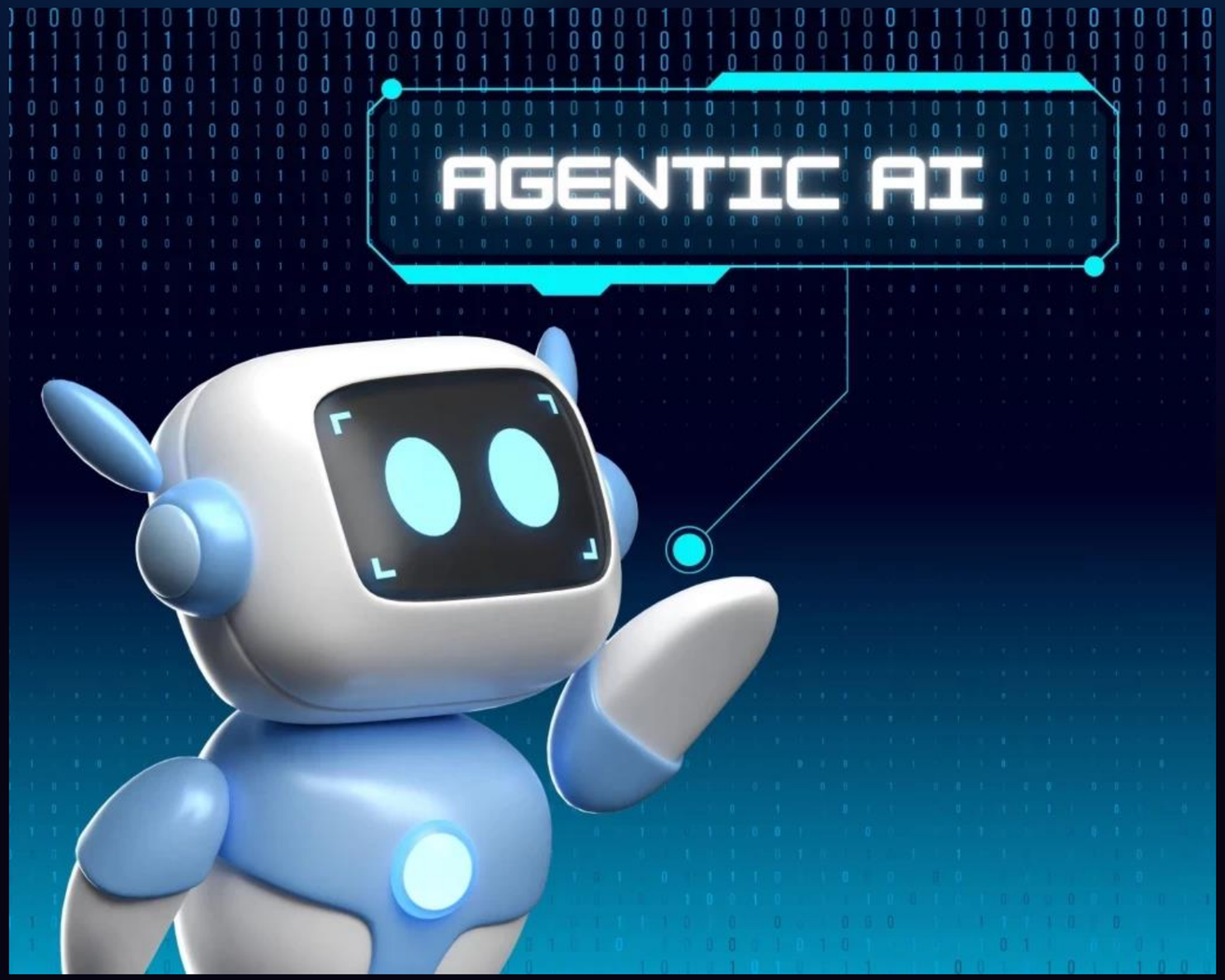
15:00

EpochDev

Developing time!🛠️

1. Dataset selection
2. Model finetunning
3. Github repo

The Agentic semester is coming!



EpochDev

Before you go 🚶‍♂️

1. Upload your code to GitHub
2. Share your LinkedIn profile to be mentioned in post
3. Give us feedback!

Thank you