



MSP tech club - Helwan University

# MACHINE LEARNING MSP WORKSHOP



# WHAT IS ARTIFICIAL INTELLIGENCE?

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# TYPES OF AI?

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01

## Weak AI

Narrow AI  
or  
Artificial Narrow Intelligence  
(ANI)

02

## Strong AI

- Artificial General Intelligence (AGI)
- Artificial Super Intelligence (ASI)





01

## WEAK AI NARROW AI OR ARTIFICIAL NARROW INTELLIGENCE (ANI)

It is an AI that is trained and focused to perform specific tasks.

It drives most of the AI that surrounds us today.



02

## STRONG AI

1. ARTIFICIAL GENERAL INTELLIGENCE (AGI)
2. ARTIFICIAL SUPER INTELLIGENCE (ASI)

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- AGI is a theoretical form of AI where a machine would have an intelligence equal to humans; It would have a self-aware consciousness that can solve problems, Learn , and plan for the future.
  - ASI would surpass the Intelligence and ability of the human brain



## SUB FIELDS OF AI

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## Artificial Intelligence

### Machine Learning

#### Deep Learning

The subset of machine learning composed of algorithms that permit software to train itself to perform tasks, like speech and image recognition, by exposing multilayered neural networks to vast amounts of data.

A subset of AI that includes abstruse statistical techniques that enable machines to improve at tasks with experience. The category includes deep learning

Any technique that enables computers to mimic human intelligence, using logic, if-then rules, decision trees, and machine learning (including deep learning)



# WHAT IS MACHINE LEARNING?

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Machine Learning (ML) is a discipline of AI that provides machines with the ability to automatically learn from data and past experiences while identifying patterns to make predictions with minimal human intervention.

ML methods enable computers to operate autonomously without explicit programming.

ML applications are fed with new data, and they can independently learn, grow, develop, and adapt.



# PROJECTS ON AI

- Spam Filtering
- Breast Cancer Prediction
- House Price Prediction
- Calories Burned Prediction
- Age and Gender Detection
- Gender Classification
- Heart Disease Prediction
- Pneumonia Detection





# WHAT IS DEEP LEARNING?

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Deep Learning is a type of computer technology inspired by the way our brains work.

It involves using artificial neural networks with many layers to help computers understand and learn from data, like recognizing faces in photos or understanding spoken language.

It's what makes some AI systems very good at tasks like image and speech recognition.



# SUB APPLICATIONS OF DL

- Computer Vision (CV)
- Natural Language Processing (NLP)





# WHAT IS COMPUTER VISION?

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Computer vision is a field of AI that enables computers and systems to derive meaningful information from digital images, videos and other visual inputs - and take actions or make recommendations based on that information.

If AI enables computers to think, computer vision enables them to see, observe and understand.





# EXAMPLES ON COMPUTER VISION

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- **Image Classification:** Create a project that can classify images into different categories, for example: you can build a model that distinguishes between cats and dogs.
- **Object Detection:** Develop a system that can detect specific objects in images or a video feed. you could create an application that detects, and highlights faces in a live webcam stream.
- **Lane Detection for Autonomous Cars:** Build a simple lane detection system that can identify lanes on a road using computer vision. This is a small-scale version of what self-driving cars use.



# EXAMPLES ON COMPUTER VISION

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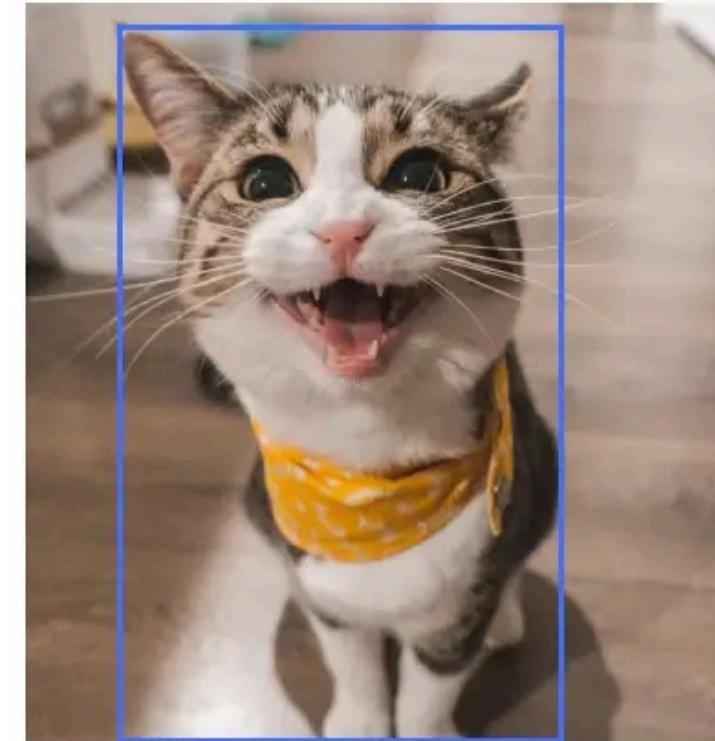
- **Handwriting Recognition:** Create a handwriting recognition system that can read and convert handwritten text into digital text.
- **Color Recognition:** Build a program that can identify and name the colors in an image. This is a great project for learning about color analysis in computer vision.
- **Fruit or Vegetable Ripeness Detector:** Create a system that can determine the ripeness of fruits or vegetables from images. this could be used in food quality control.

# IMAGE CLASSIFICATION



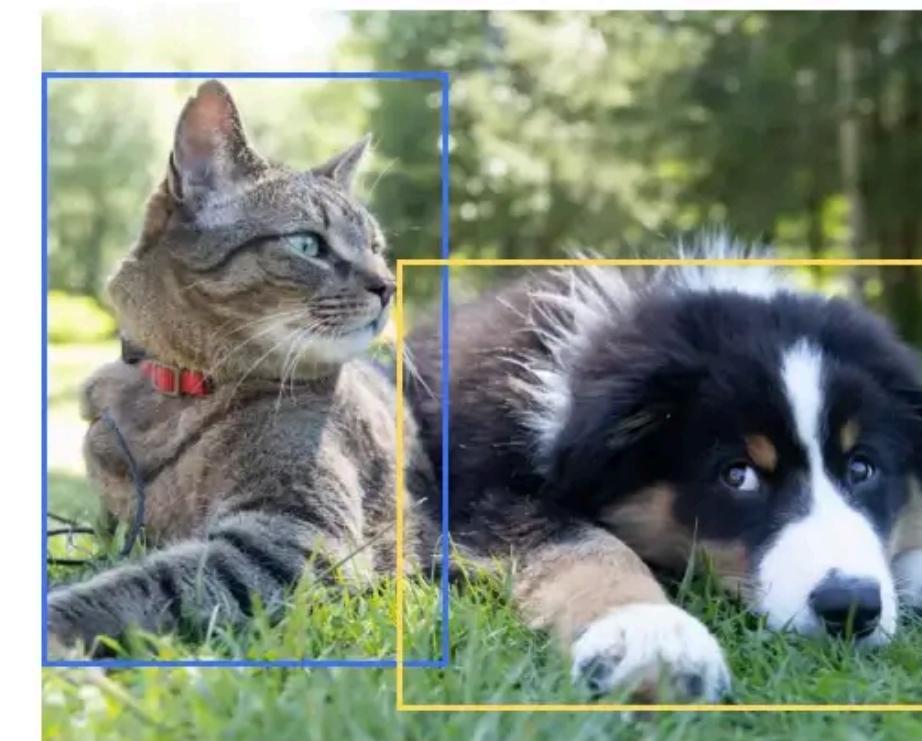
**Classification**

Cat



**Classification, Localization**

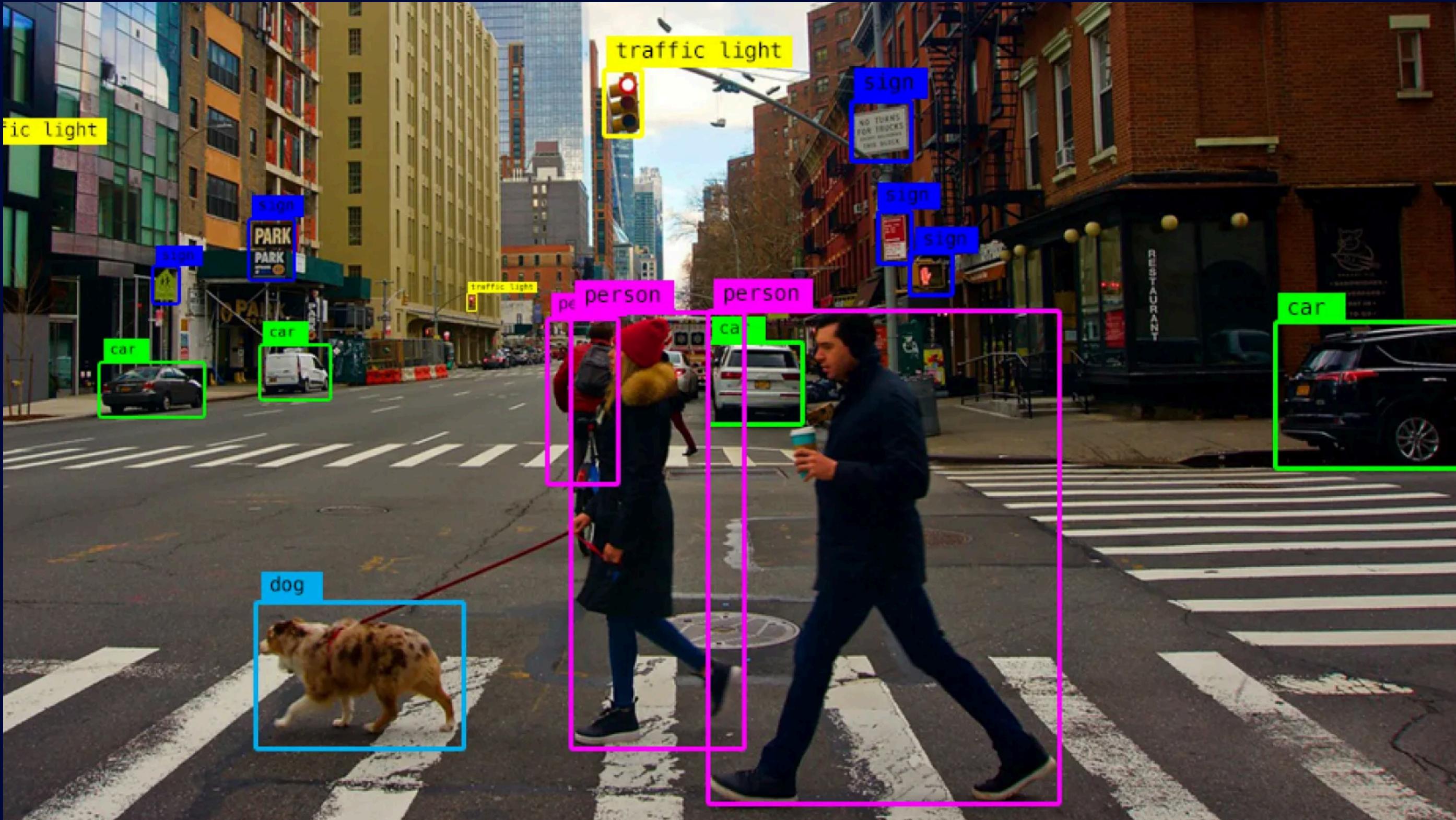
Cat



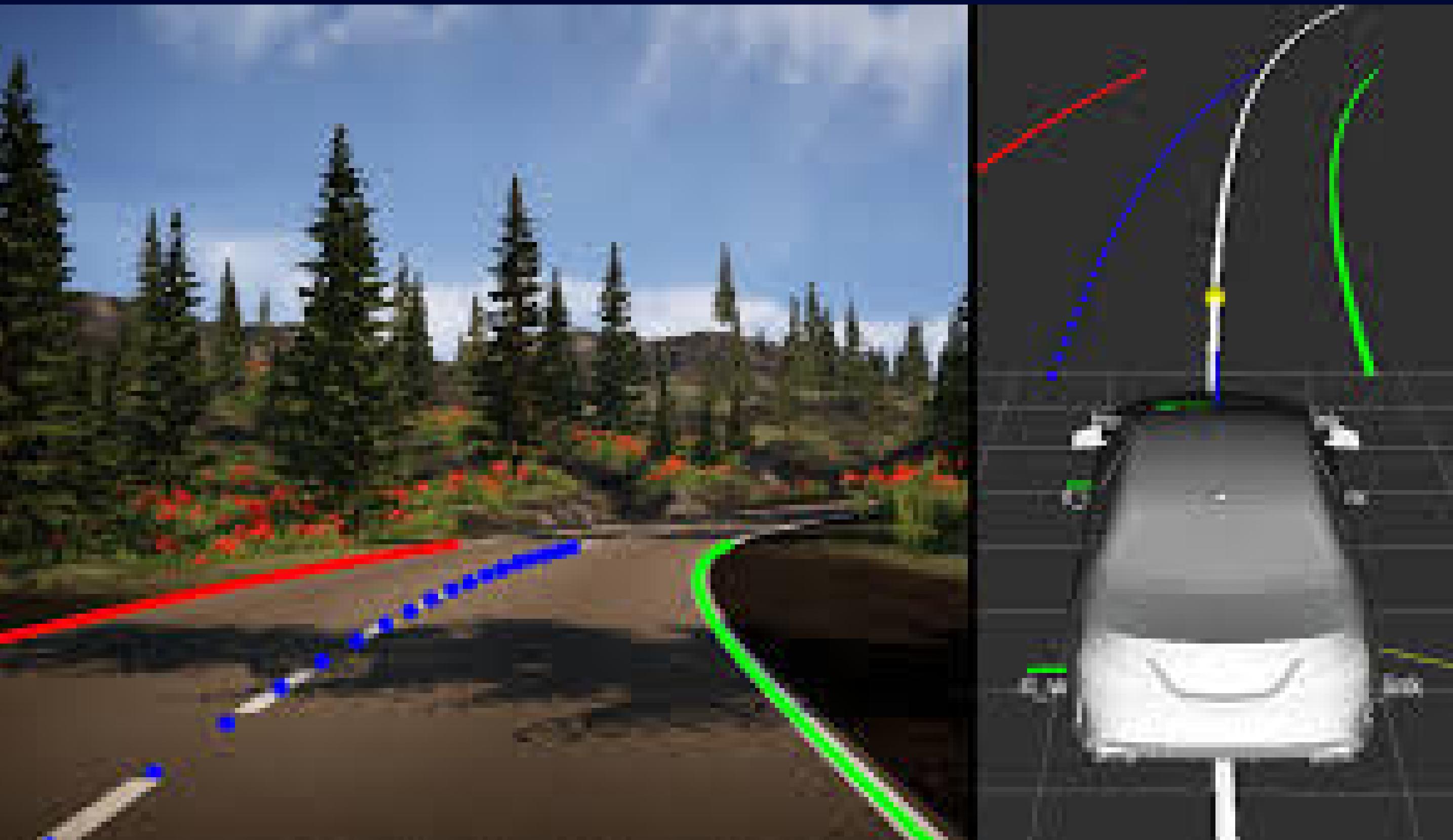
**Object Detection**

Cat, Dog

# OBJECT DETECTION



# LANE DETECTION FOR AUTONOMOUS CARS



# HANDWRITING RECOGNITION

Germteig.

In laue Milch, Germ hinein, rührt raus!  
Milch, von den 50 dkg Milch versprudeln,  
u. um Germ hui müssen u. aufgehen lassen.  
50 dkg Milch 1-2 dkg Germ  
3/8 l laue Milch, salzen  
Verfeinerung 2 Eier 4 dkg Butter oder Fett  
Panille, Zitronengeschmack.  
Für Milchbrot, Kipferl, Gugelhupf, Strudel.  
Mürber Teig.

Mürber Teig

25 dkg Milch 1 vol. Marger, 1 Ei, Zucker, salzen,  
10 dkg Butter oder Fett, Verfeinerung  
3 Dotter, (nach Butter - 15 dkg) Butter  
Rahm 1/10 l Rahm, Teig machen, u.  
Rahm obne 1/2 Hunde rufen lassen.  
Brei.  
2 l Milch = 20 dkg Grieß, Zitronengeschmack,  
salzen, Zuckern, gestürzten Grieß - 24 dkg Grieß,

Germteig.  
In laue Milch, Germ hinein, und etwas  
Mehl, von den 50 dkg Mehl versprudeln,  
u. am Herd lau machen u. aufgehen lassen.  
50 dkg Mehl 1-2 dkg Germ  
1/8 l laue Milch, salzen  
Verfeinerung 2 Eier 4 dkg Butter oder Fett  
Panille, Zitronengeschmack.  
Für Milchbrot, Kipferl, Gugelhupf, Strudel.  
Mürber Teig.  
25 dkg Mehl 1/2 l Wasser, 1 Ei, Zucker, salzen,  
10 dkg Butter od. Fett, Verfeinerung  
2 Dotter, (mehr Butter—15 dkg) statt  
Wasser 10 l Rahm, Teig machen, an  
kühllem Orte 1/2 Stunde rasten lassen.  
Brei.  
2 l Milch = 20 dkg Grieß, Zitronengeschmack,  
für.  
salzen, Zuckern, gestürzten Grieß - 24 dkg Grieß,



# WHAT IS NATURAL LANGUAGE PROCESSING (NLP)?

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NLP refers to the branch of computer science - and more specifically, the branch of AI - concerned with giving computers the ability to understand text and spoken words in much the same way human beings can.





# EXAMPLES ON NLP

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- Text classification
- Part-of-Speech Tagging (POS)
- Text Summarization
- Sentiment Analysis ( positive or negative review )
- Machine Translation
- Language Generation





## WHAT ABOUT THE FUTURE OF AI?

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# CAN AI REPLACE HUMAN JOBS?

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# THE ANSWER IN SIMPLE WAY IS **NOOOO!!!!**

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Did calculators replace math teachers' jobs when they were invented?  
Not at all; they simply made certain tasks easier and faster.

Similarly, with AI, It mostly replaces basic jobs that don't need creativity, while speeding up other tasks.



# HOW WILL AI RESHAPE THE FUTURE AND ITS JOBS?

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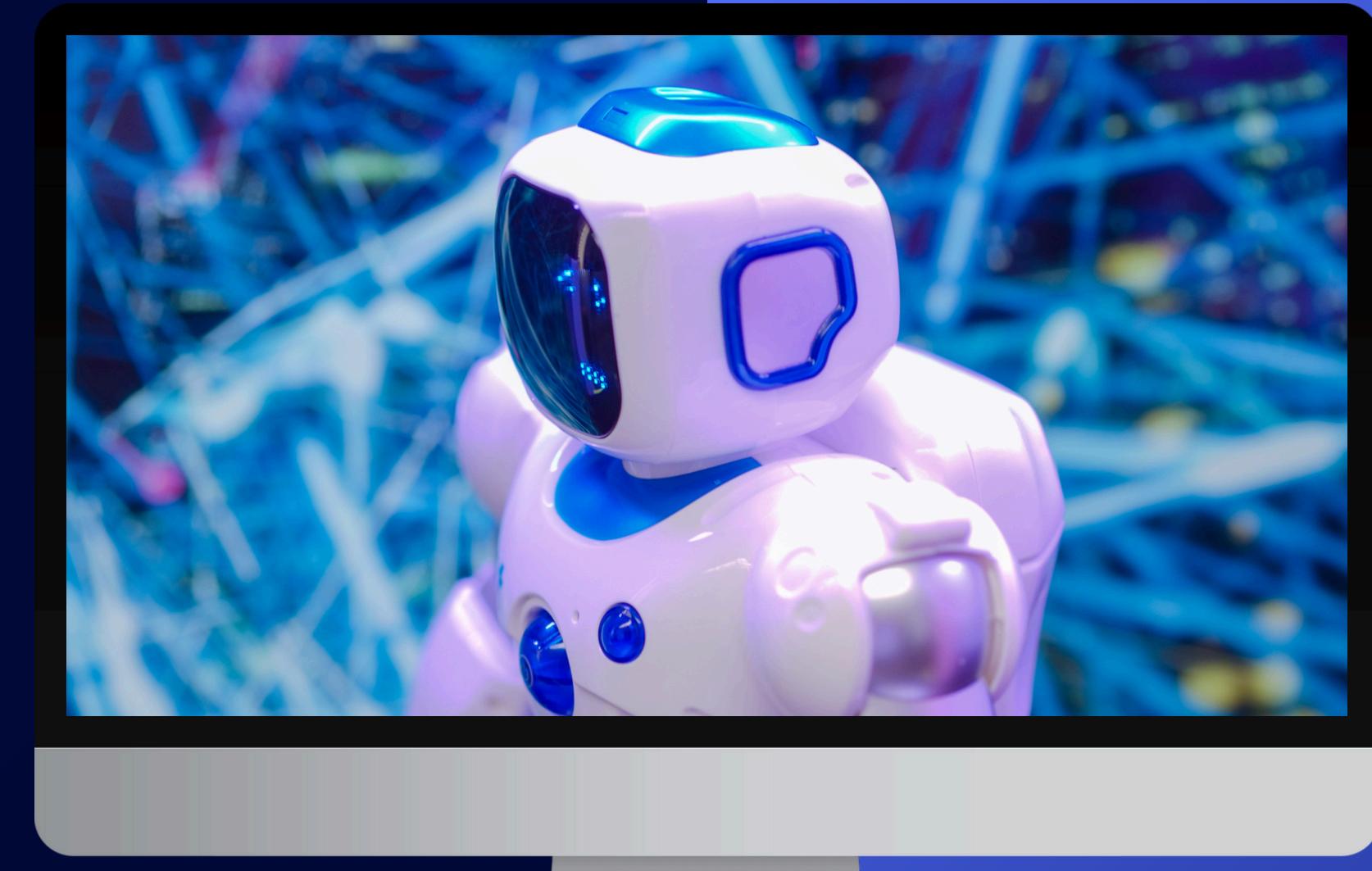
- Automation and job displacement
- Job Transformation
- New Job Creation
- Ethical and Regulatory Roles



# CONTACT ME

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THANK YOU  
FOR YOUR ATTENTION  
SEE YOU NEXT SESSION

A close-up, low-angle shot of a person's hand reaching towards a dark, metallic, and reflective device, possibly a robotic arm or a complex piece of machinery. The lighting is dramatic, with strong highlights and shadows, creating a futuristic and high-tech atmosphere. The colors are primarily dark blues, blacks, and metallic greys, with some glowing red and blue highlights on the device's surfaces.