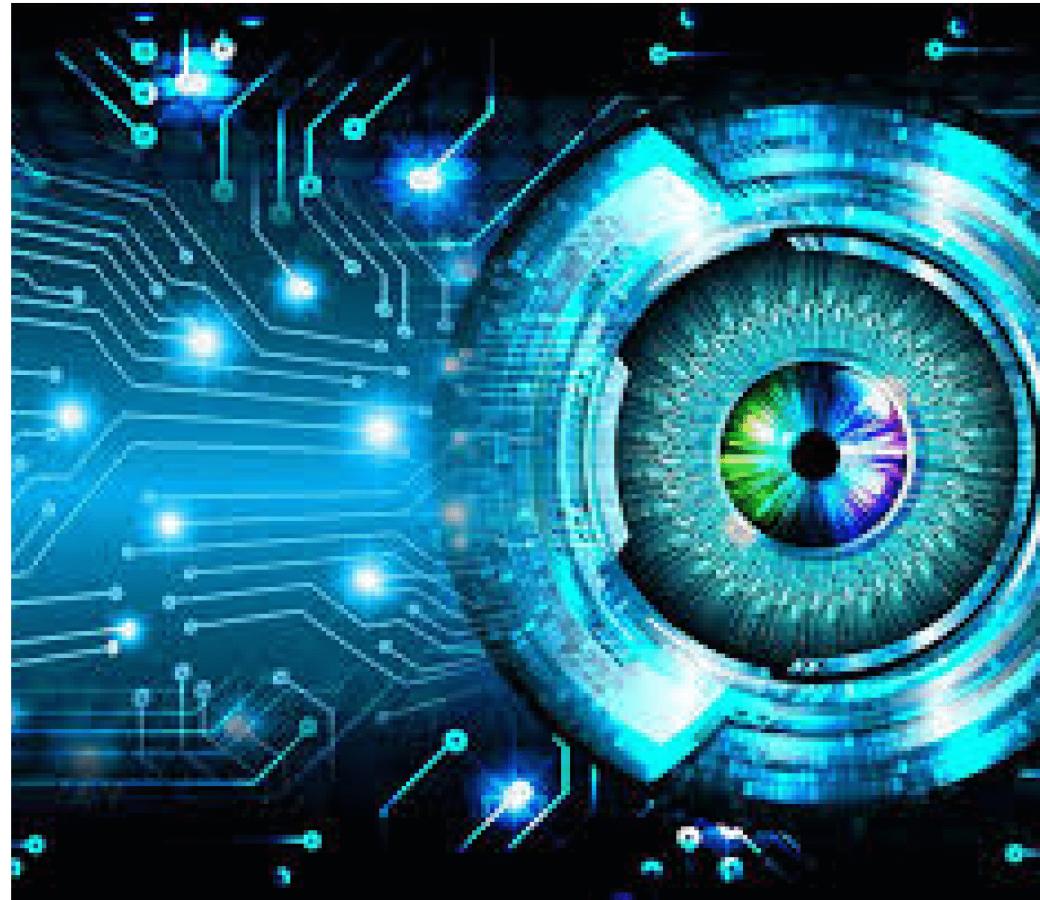


# Intro to Computer Vision



# What is Computer Vision?



Vision is about discovering from images what is present in the scene and where it is.



In Computer Vision a camera (or several cameras) is linked to a computer. The computer interprets images of a real scene to obtain information useful for tasks such as navigation, manipulation and recognition.

Slide Credit:

[cs.nyu.edu/~fergus/teaching/vision/1\\_Intro.pdf](http://cs.nyu.edu/~fergus/teaching/vision/1_Intro.pdf)



What I see



What a computer sees

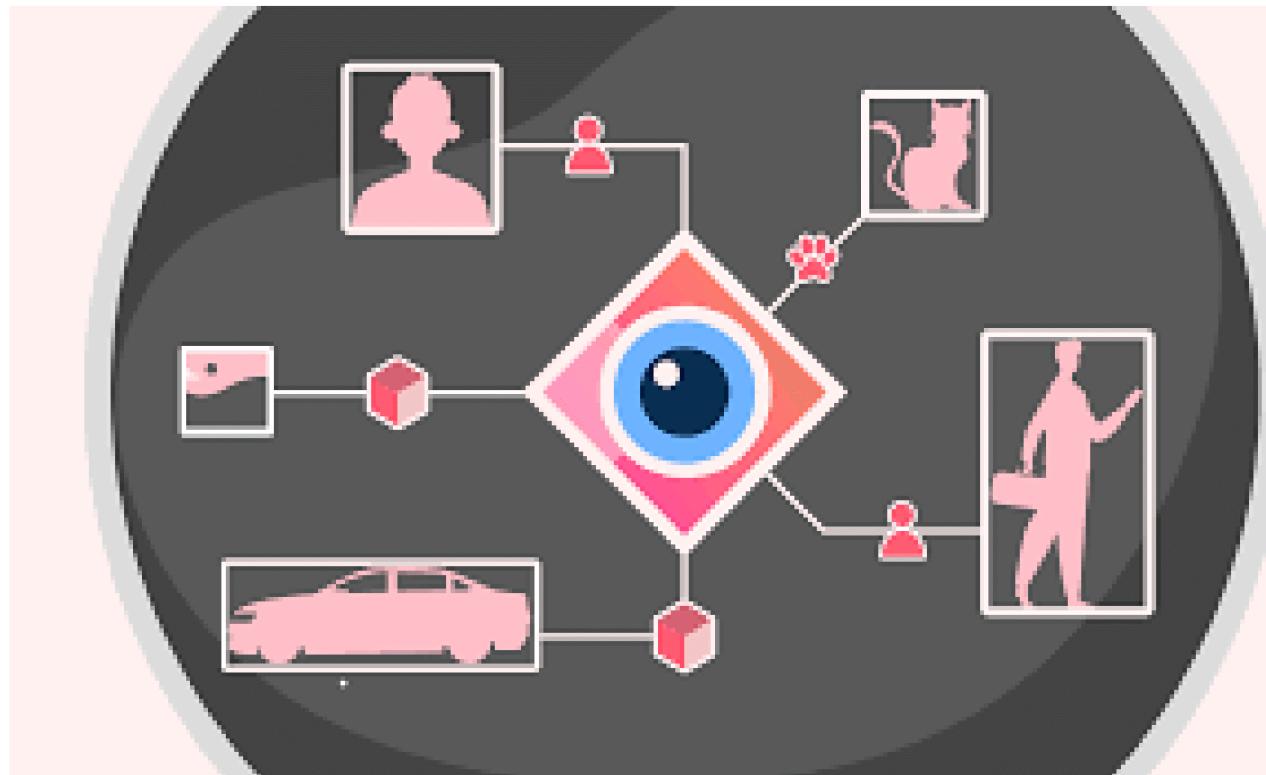
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49 49 99 40 17 81 18 57 60 87 17 40 98 43 69 48 04 56 42 00  
81 49 31 73 55 79 14 29 93 71 40 67 53 88 30 03 49 13 36 65  
52 70 95 23 04 60 11 42 69 24 68 56 01 32 56 71 37 02 36 91  
22 31 16 71 51 67 63 89 41 92 36 54 22 40 40 28 66 33 13 80  
24 47 32 60 99 03 45 02 44 75 33 53 78 36 84 20 35 17 12 50  
32 98 81 28 64 23 67 10 26 38 40 67 59 54 70 66 18 38 64 70  
67 26 20 68 02 62 12 20 95 63 94 39 63 08 40 91 66 49 94 21  
24 55 58 05 66 73 99 26 97 17 78 78 96 83 14 88 34 89 63 72  
21 36 23 09 75 00 76 44 20 45 35 14 00 61 33 97 34 31 33 95  
78 17 53 28 22 75 31 67 15 94 03 80 04 62 16 14 09 53 56 92  
16 39 05 42 96 35 31 47 55 58 88 24 00 17 54 24 36 29 85 57  
86 56 00 48 35 71 89 07 05 44 44 37 44 60 21 58 51 54 17 58  
19 80 81 68 05 94 47 69 28 73 92 13 86 52 17 77 04 89 55 40  
04 52 08 83 97 35 99 16 07 97 57 32 16 26 26 79 33 27 98 66  
88 36 68 87 57 62 20 72 03 46 33 67 46 55 12 32 63 93 53 69  
04 42 16 73 38 25 39 11 24 94 72 18 08 46 29 32 40 62 76 36  
20 69 36 41 72 30 23 88 34 62 99 69 82 67 59 85 74 04 36 16  
20 73 35 29 78 31 90 01 74 31 49 71 48 86 81 16 23 57 05 54  
01 70 54 71 83 51 54 69 16 92 33 48 61 43 52 01 89 19 67 48
```

The goal of  
computer vision

To bridge the gap  
between pixels and

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## Some Computer Vision Applications



## Industrial robotics

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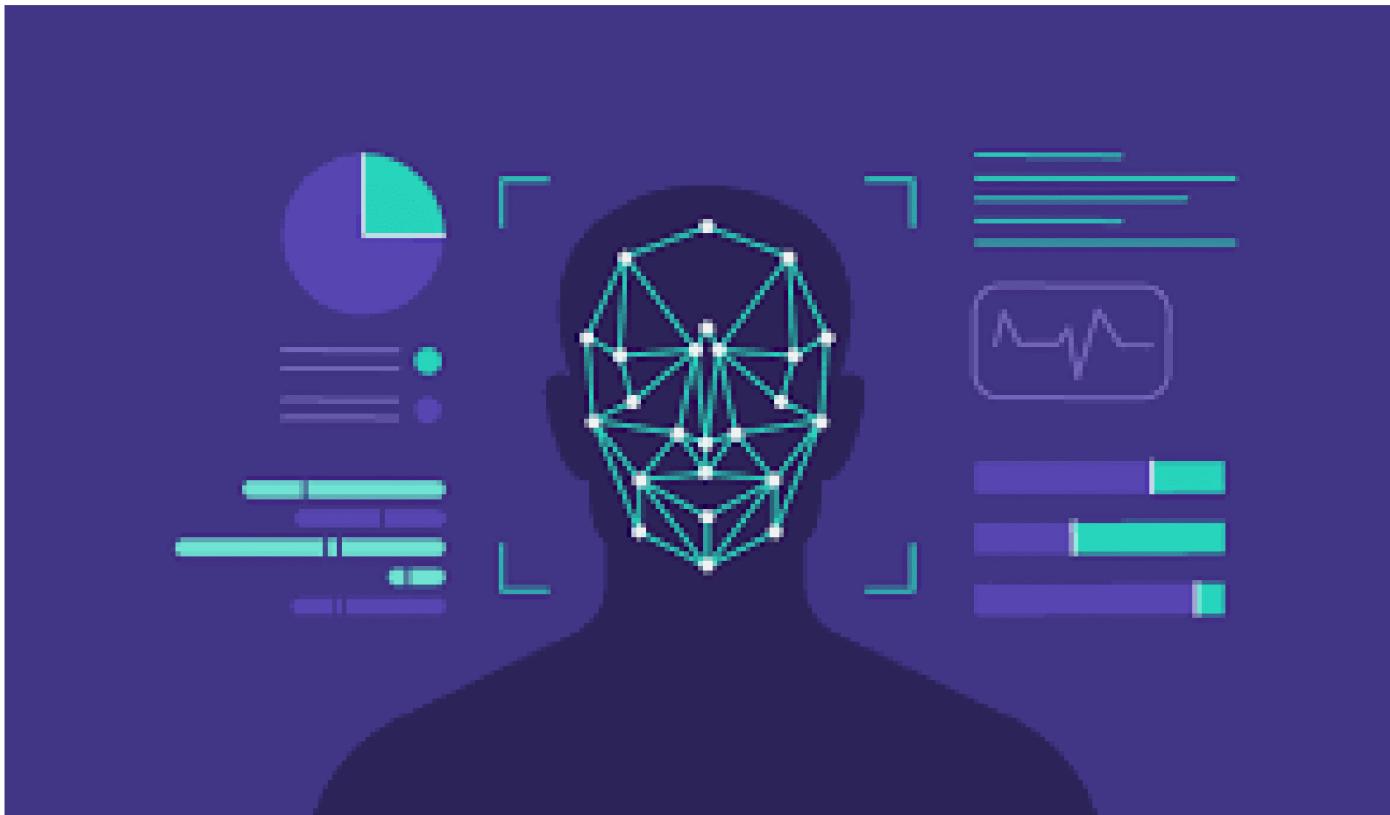


||

## Self driving cars

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## Security

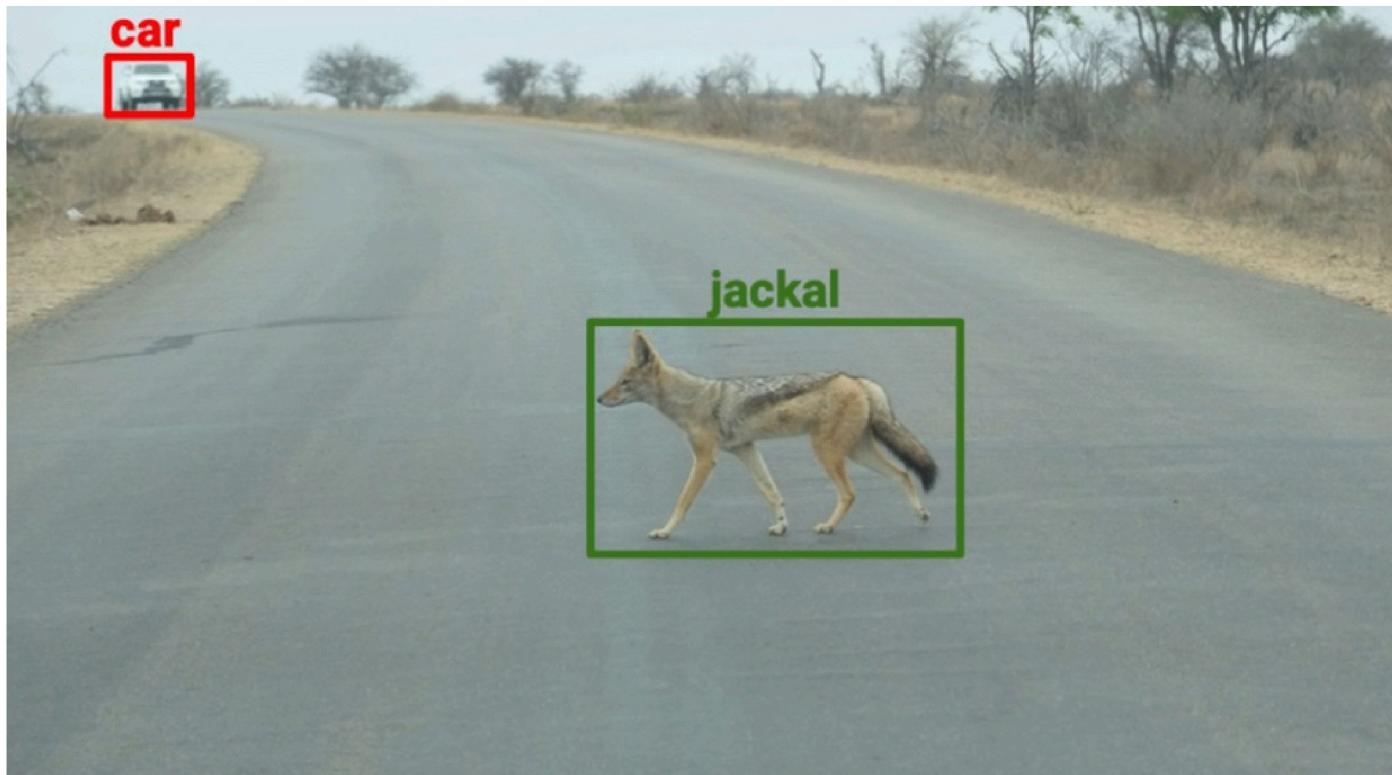
e.g. facial recognition in airports

Slide credit: [cs.nyu.edu/~fergus/teaching/vision/1\\_Intro.pdf](http://cs.nyu.edu/~fergus/teaching/vision/1_Intro.pdf)



## Some Computer Vision Tasks





||| Object recognition  
and localization  
(detection)

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**Q: Is this an outdoor scene?**

**A: Yes**

**Q: What is the weather like?**

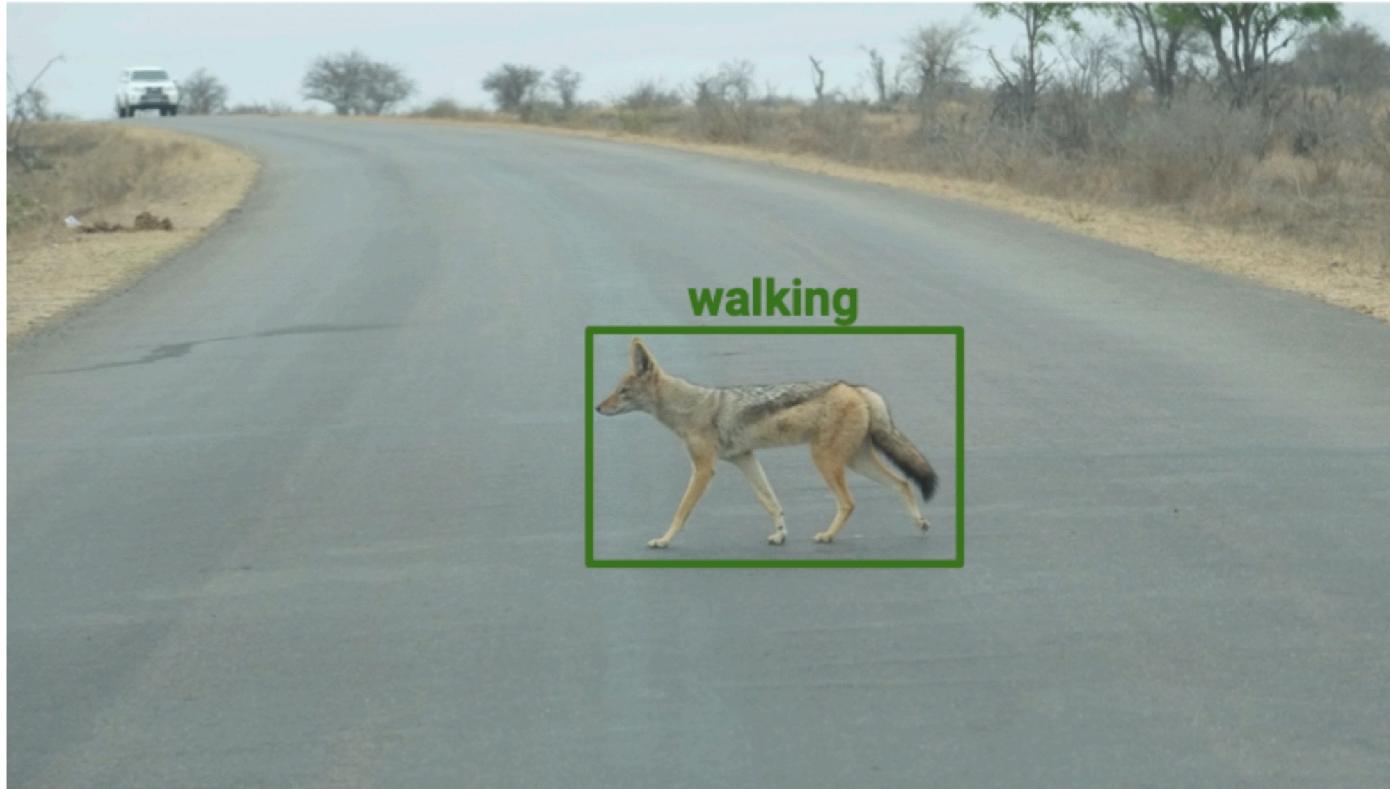
**A: Cloudy but dry**



## Visual question answering

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Activity  
recognition

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Pose  
estimation

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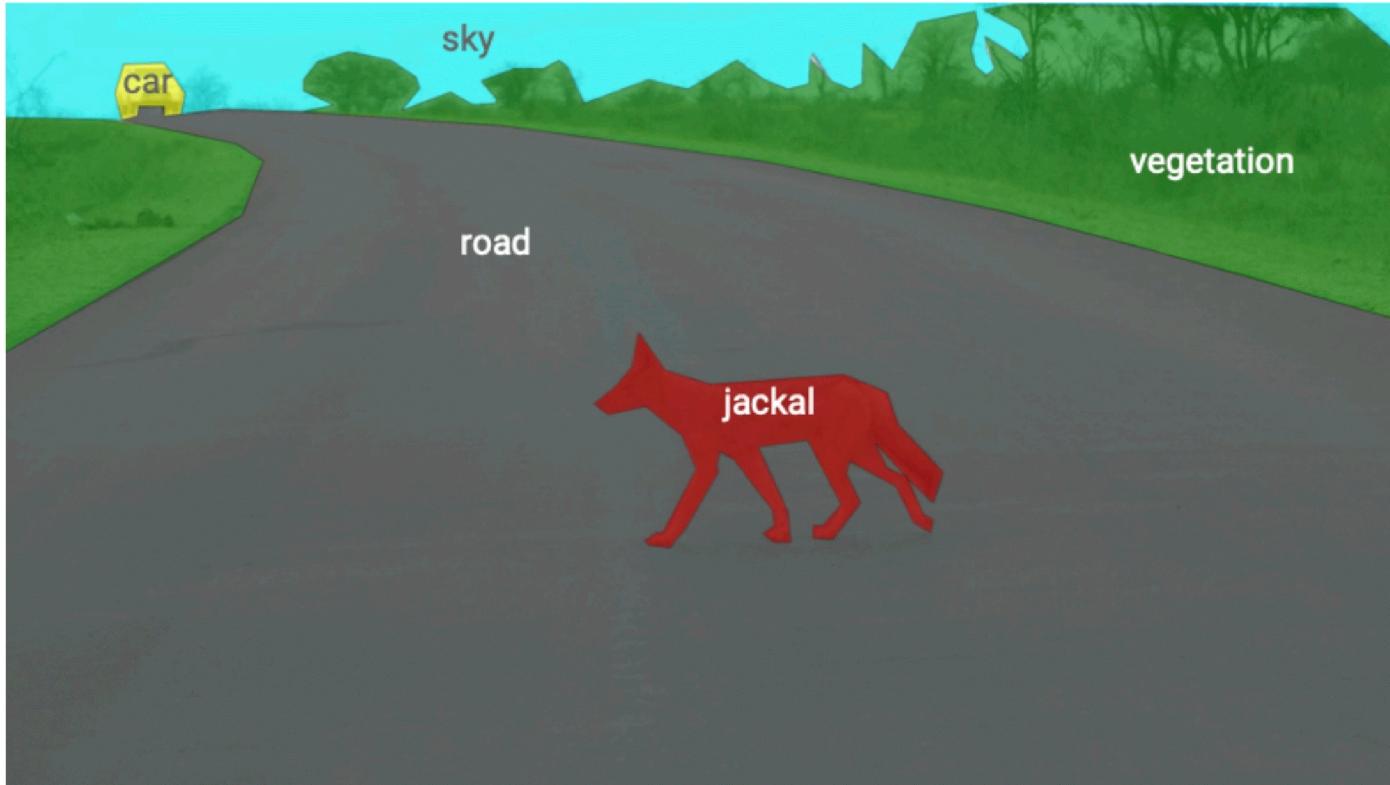
A jackal walking across a rural asphalt road



Captioning

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Semantic  
segmentation

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Depth  
estimation

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3D shape  
estimation

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Why to learn  
Computer  
Vision?





# Industry aggressively hiring CV graduates, or even students!

(dominant industrial presence at conferences for recruitment)

Slide credit: [What is computer vision?](#)

High industry  
demand





Workshop time



TORPEDO™  
R O V

?

Any Questions?

