Ethical Considerations of Autonomous Vehicles

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The Internet of Things

2017

8.5 billion connected devices

2025

Over 21.5 billion IoT devices

Gartner. (2017)

89,518

ROAD CASUALTIES, 2017

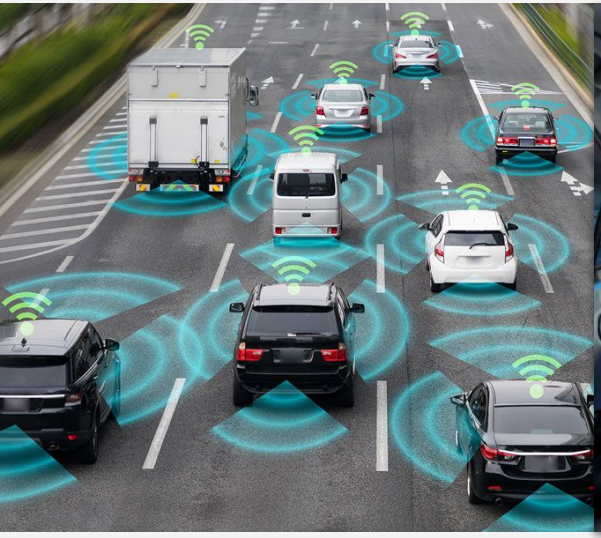
According to the Department of Transport

90%

REDUCTION IN ACCIDENTS

McKinsey & Co.

Autonomous Vehicles (AVs)



Cybersecurity

According to
Gadgets and Gizmos

73%

Americans have been
victims of cyber crime

ACCORDING TO WIRED

Hackers Remotely Kill a Jeep on the Highway

Controlling the radio channel to the windshield wipers, to the brakes of the car

Internet-connected computer feature which controls the vehicle's entertainment, navigation, enables phone calls, and offers a Wi-Fi hot spot

Privacy > Profit

or

Profit > Privacy

Privacy

Full-autonomy: what will people do?

Monetizing your data.

Is this something people are going to have to adjust to and will slowly become more common in society?

Government Accountability Office (US) Report

None Had Easy-To-Read Privacy Notices And Most Don’t Explain Data Sharing And Use Practices

There is a risk of attacks

Security and Privacy in Mind

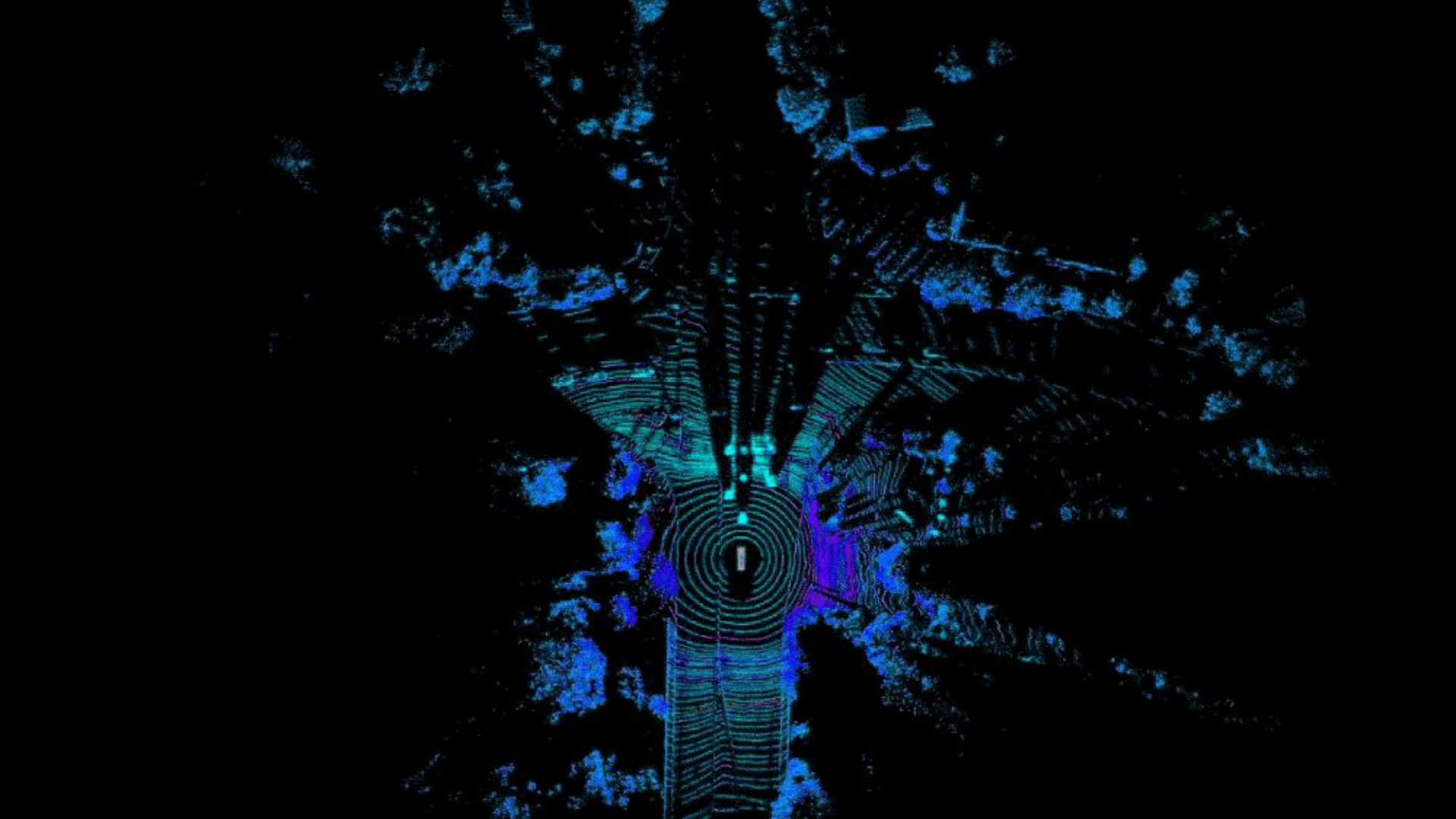
Connected devices are prone to attacks

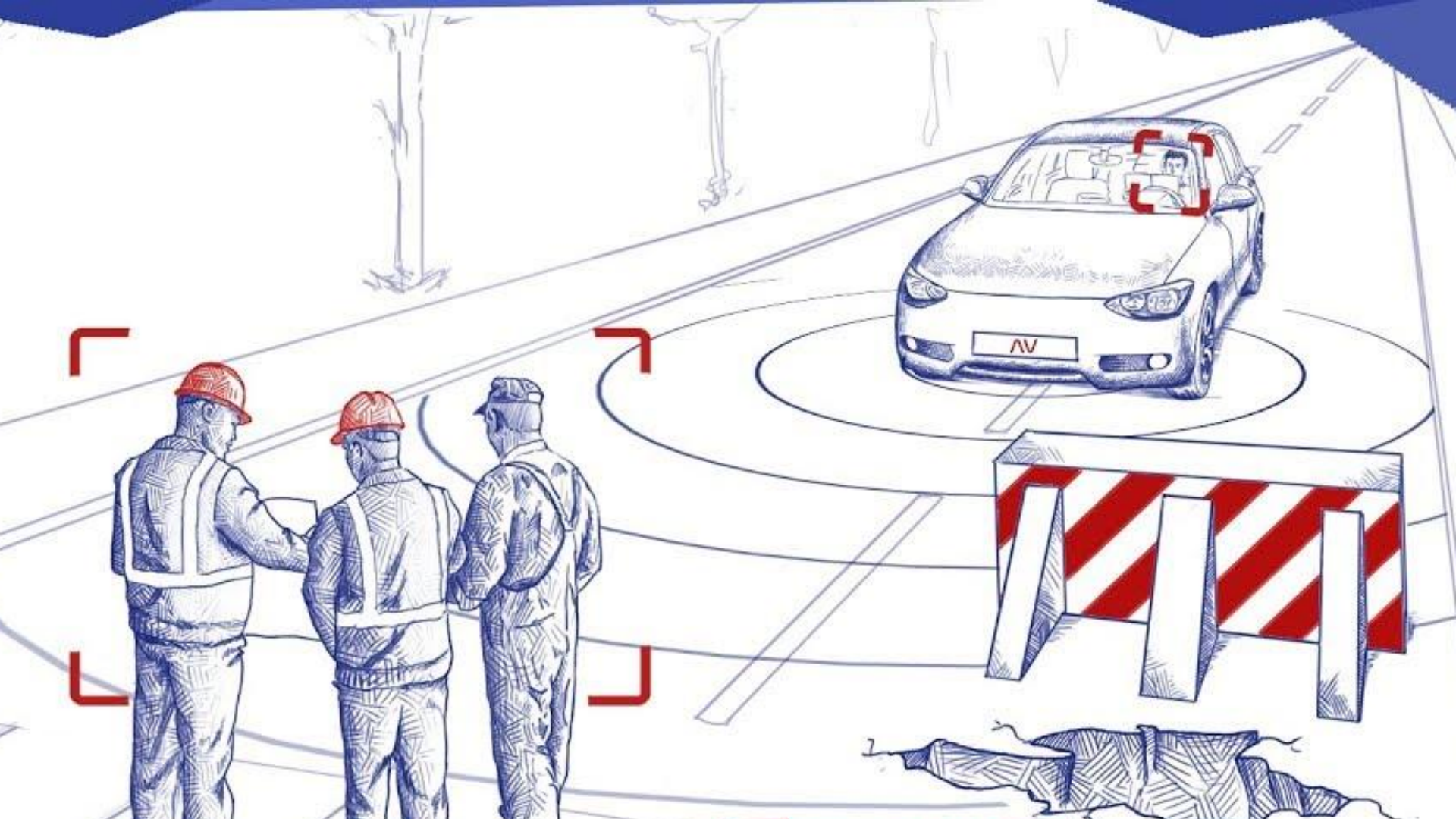
Computer professionals have the option to design secure and private systems

If they want to

Professional Considerations

The decision to move the control of vehicles to machines will partly fall on computer professionals.





Algorithms will need to decide

Option 1

Continue heading straight, proceeding to hit and kill the 3 pedestrians.

Option 2

Take a turn into a wall or obstacle, killing the rider.

Option 3

Turn onto the pavement, killing a pedestrian.

Option 1

A Duty Based Approach

Deontological theories can be used to justify the outcome of the event.

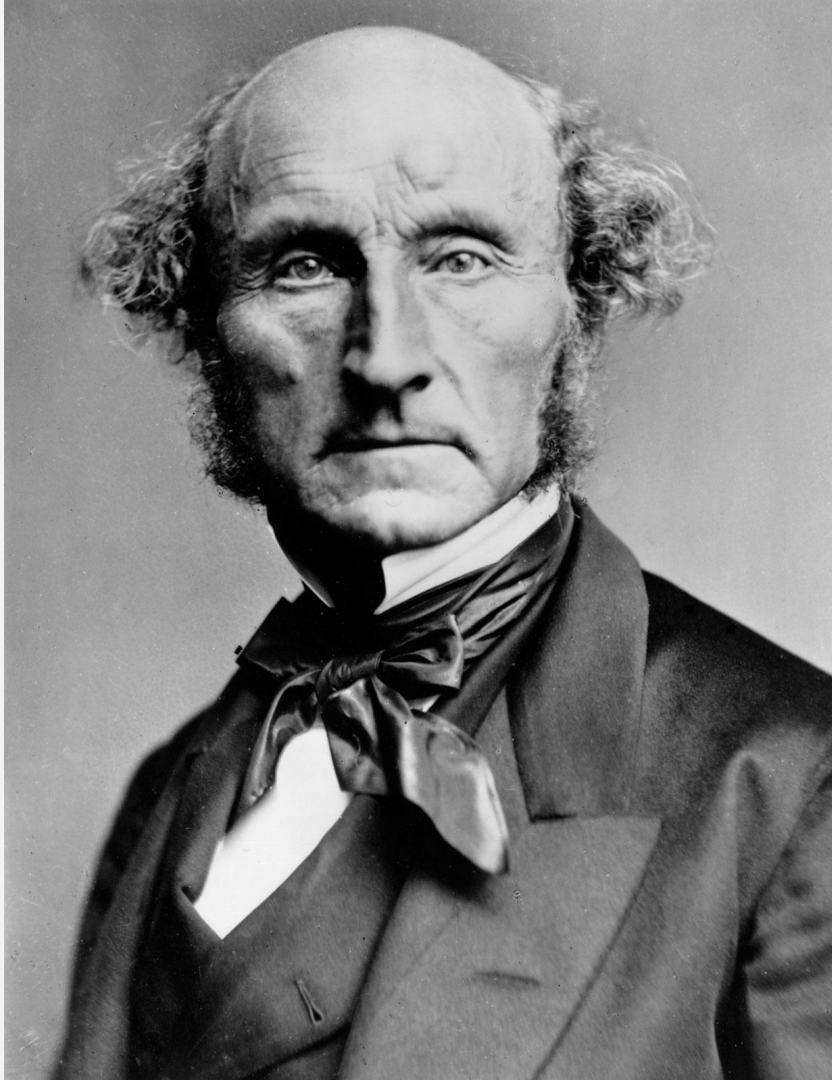
Deliberation is key in deciding between conflicting duties.

Option 2 & 3

An Utility Based Approach

Utilitarian based decisions aim to maximise overall happiness.

76% say it would be moral to sacrifice one passenger to save ten pedestrians.



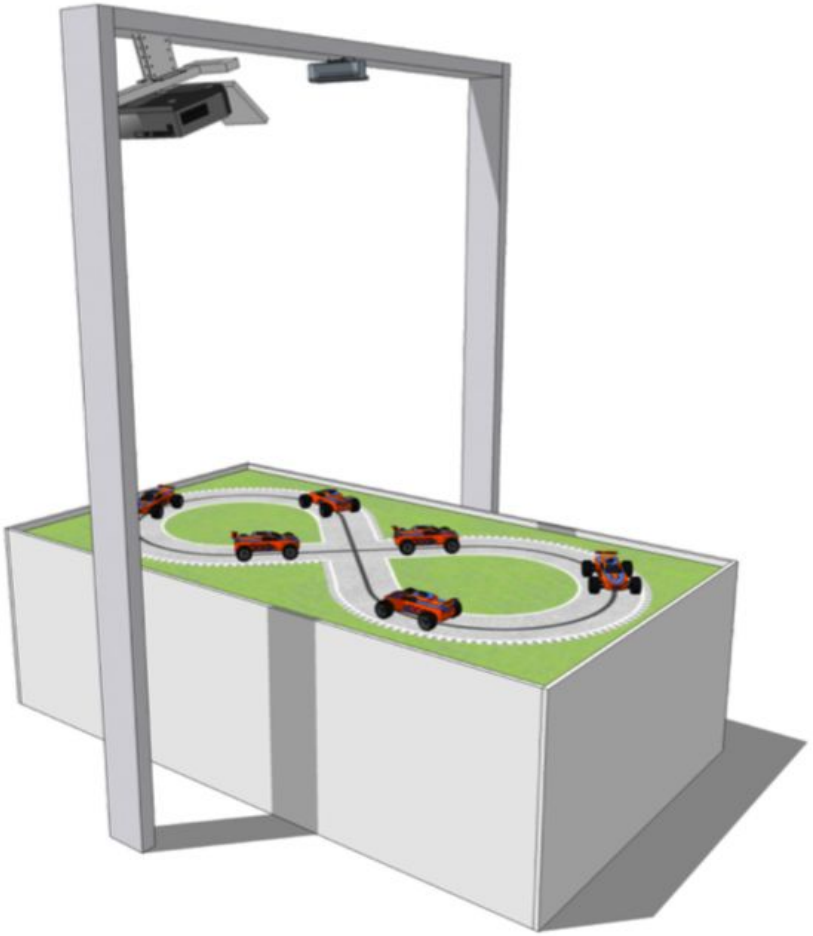
Should machines drive us?

Connectivity Could Be the Answer

IoT connectivity could affect every aspect of our lives, including our safety.

No collisions happened on 4G and 5G testbeds.

These are small scale experiments.



Thank you

(drive safe)