10-minute PowerPoint presentation highlighting a specific AI application, demonstrating its functionality, impact, and relevance to society or their field of interest.

Sign up to AI-moment*
https://docs.google.com/spreadsheets/d/1sOT9f2pPNL5I8Z3sI BwXmKd8aOQWHit-XS84mVQpWHo/edit?gid=0#gid=0

* Please submit your PowerPoint presentation to the instructors the class before your scheduled AI moment.
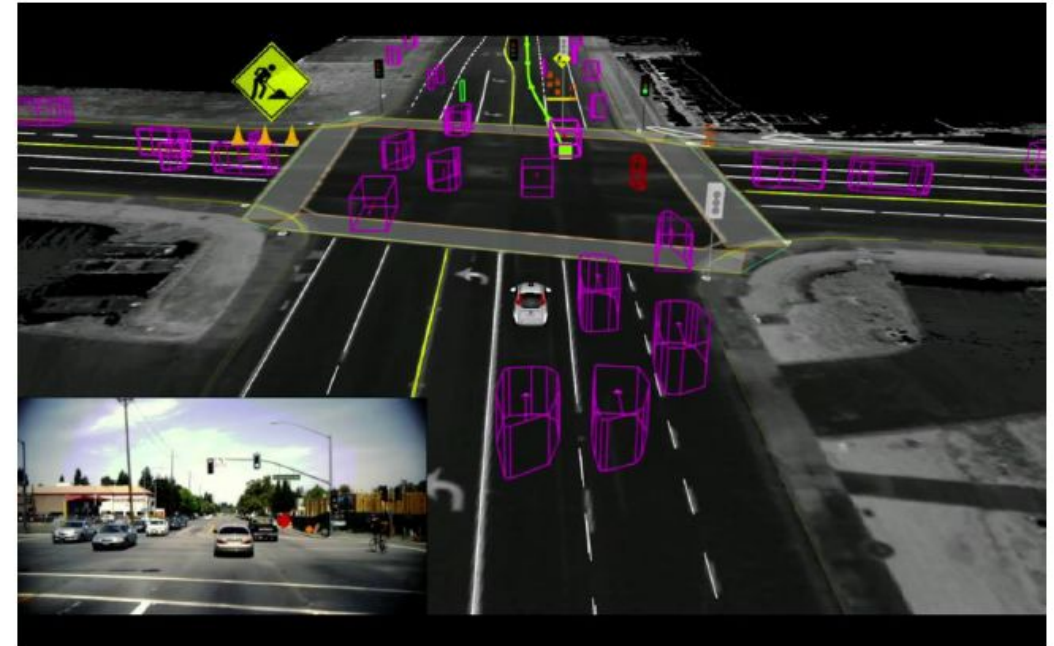
AI in Autonomous Vehicles

By Anish

How do they work?

- Three major sensors: cameras, radar, and lidar
- Lidar calculate distance with pulsed lasers
- Radar help camera sensors in poor visibility
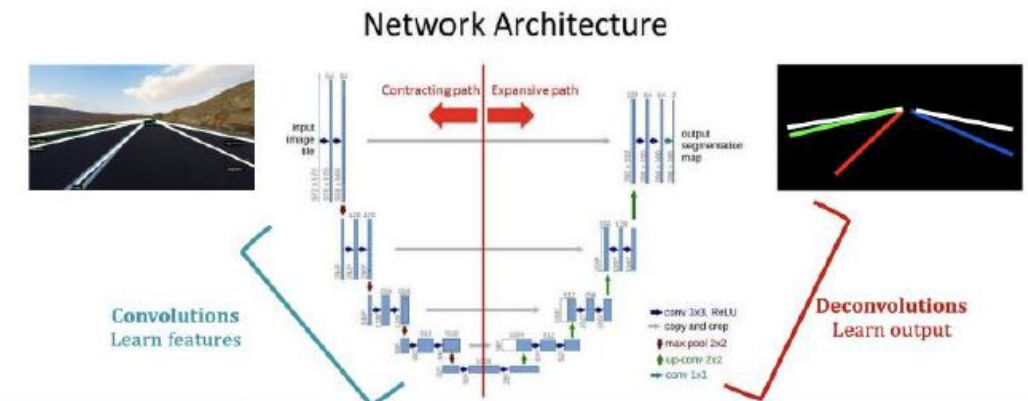- Cameras provide visual of the world
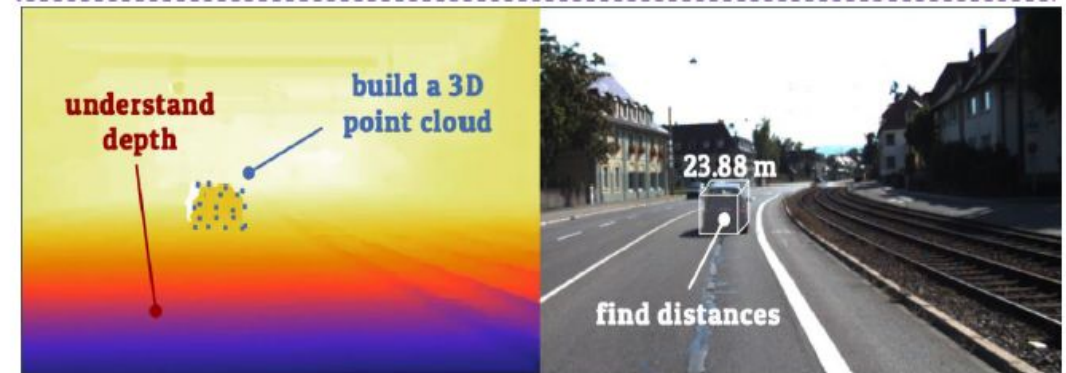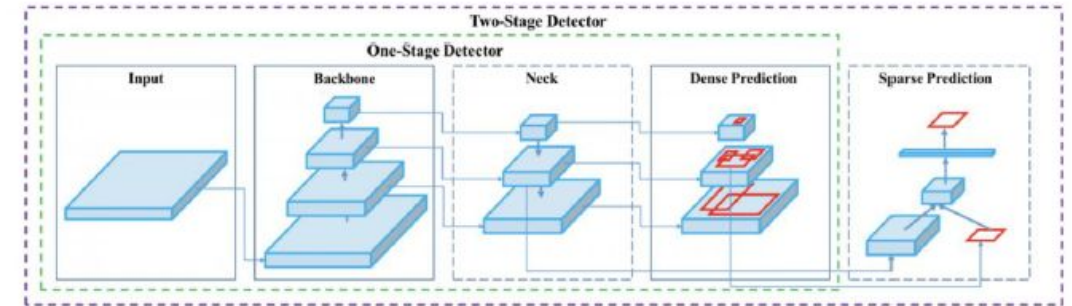
Computer Vision

- 3D Map creation
  - Minimize risk
  - Alternate Routes in case of collision
- Deployment of airbags
  - Airbags in advance
- Box detection of surrounding cars
- Low light mode driving
  - Switch between normal and light modes
- Data for training

Machine Learning Methods

- Object Detection
  - YOLOv4 Two Stage Detector Algorithm
  - 3D Bounding Boxes
- Stereo Vision
  - Detection with 2 cameras
- Lane Line Detection
  - U-Net architecture for lane lines
- SegNet - Convolutional Encoder-Decoder
  - Segmentation output
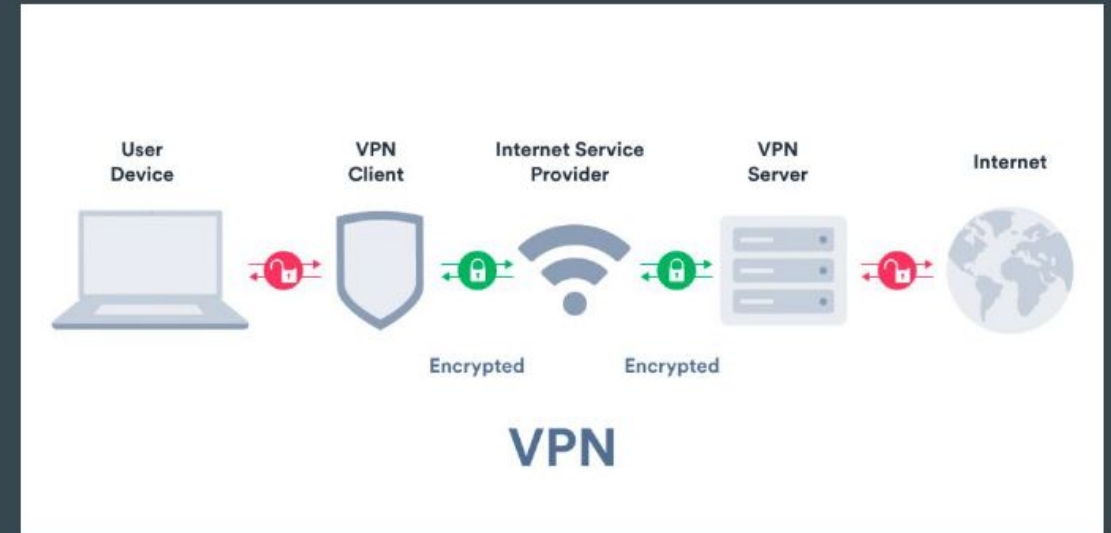
AI in Cybersecurity

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Gautham Rajesh

Malware

- On average, around 230,000 unique malware files are created every day, causing problems for antivirus software (and costing $2.4 million to defend) ([source](#))

- AI can be used to help detect new malware with different methods
  - Behavioral detection, pattern matching, even using NLP on news articles describing current threats

VPN Protection

- VPNs have become an effective method to secure an internet connection
  - Over 68% of people used a VPN in 2019 for either work or personal use ([source](#))
  - However, they could be easily intercepted, especially if their virus definitions aren't updated
  - AI can be used as an alternative to constantly updating definitions by using detecting abnormal changes to the VPN's state

Bots

- Almost 40% of internet traffic in the first half of 2021 came from malicious bots
- AI can help reduce this with analysis of normal web traffic and noticing anomalies with bot traffic
  - This can then be used to stop new bot traffic
- IBM QRadar helps companies assess and analyze incidents like this