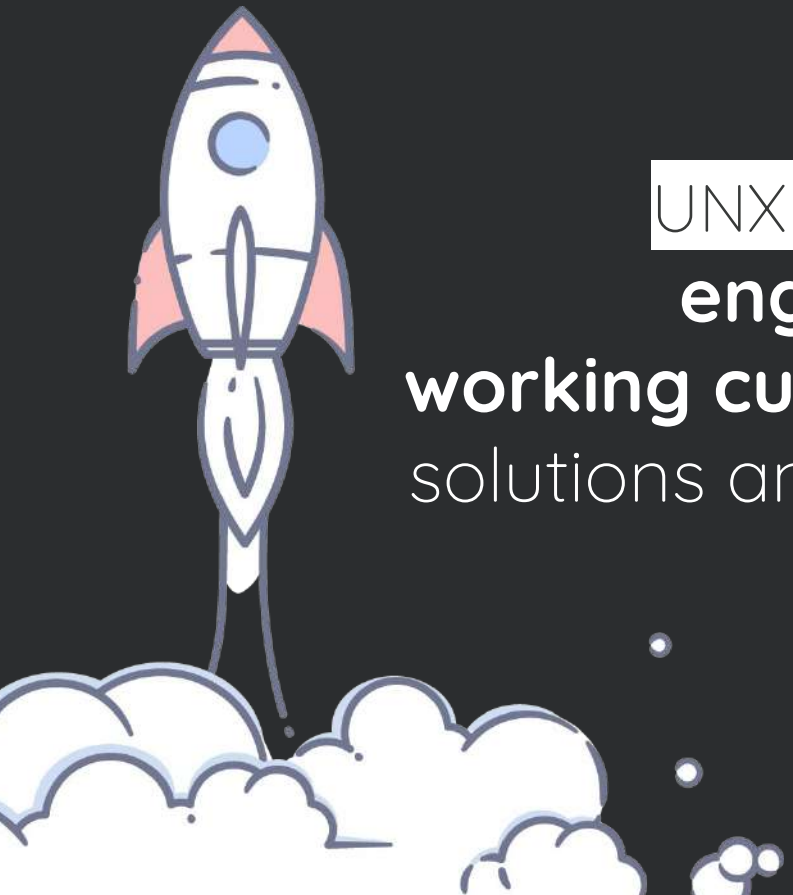
UNX Digital

Leading Digital Experiences

prominente

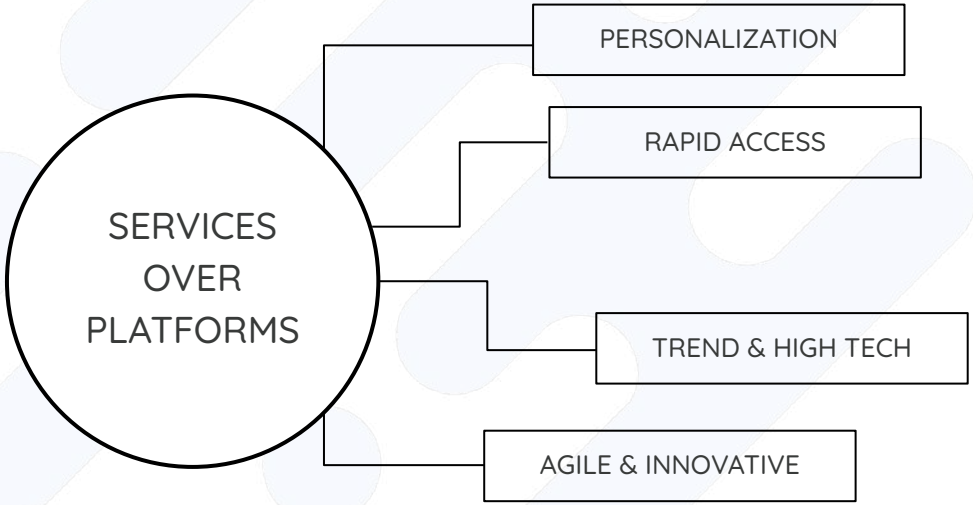
People, Data & Technology

Computer Vision Use Cases



UNX Digital combines **innovation**, **engineering** and **collaborative working culture** to transform needs into solutions and ideas into products based on **technology** and **design**.

The Strategy



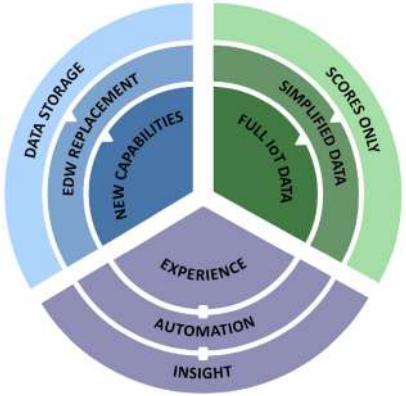
Microsoft Azure Google Cloud IBM Watson amazon NVIDIA

The Capabilities

Big Data

BD

Ours teams work hard to create meaningful, actionable and timely business insights



Internet of Things

IOT

New products involving activities, sensors data and processes

Artificial Intelligence

AI

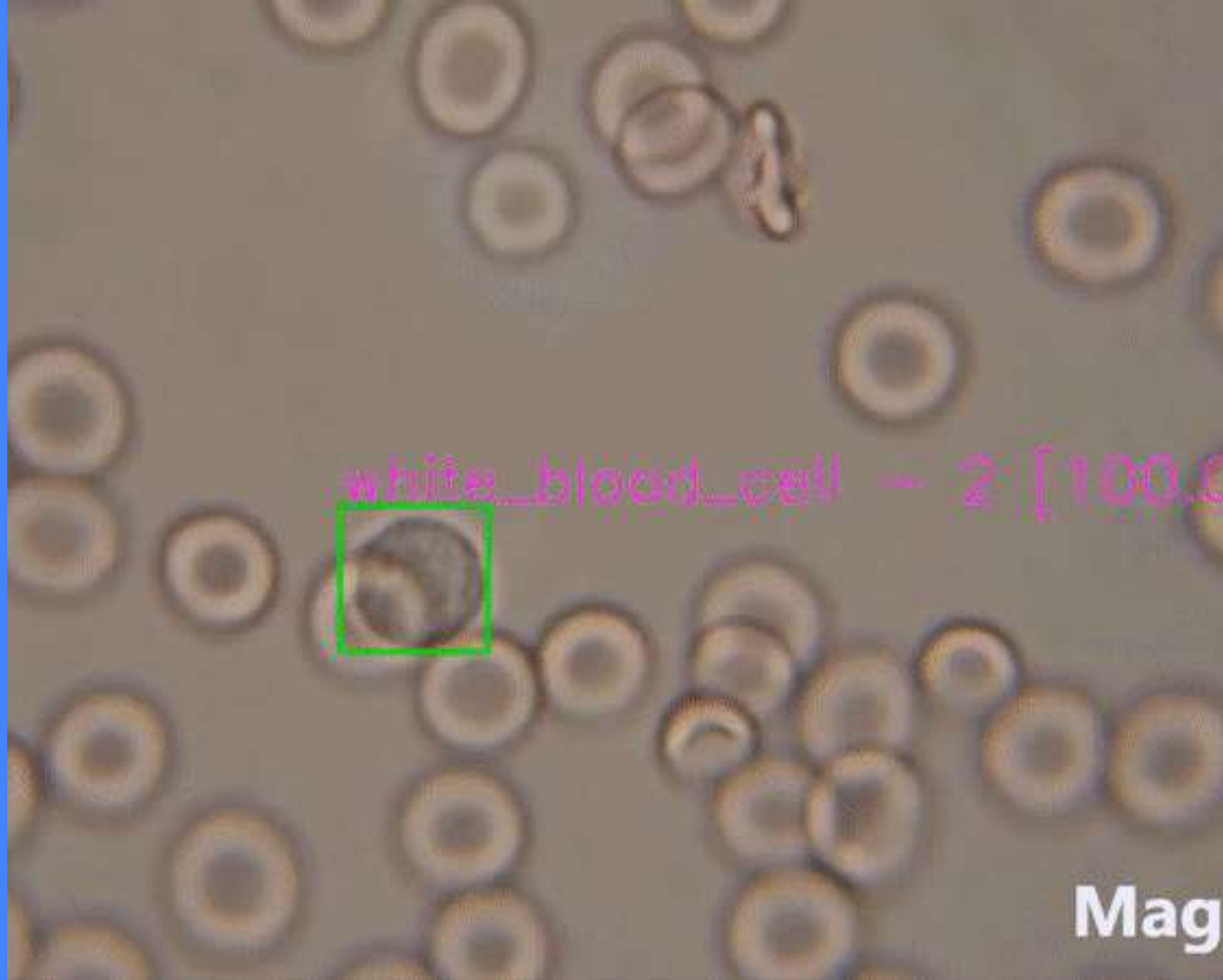
Machine Learning, Patterns Recognitions, Natural Language Processing and much more

All three of these emerging technologies are tightly intertwined

What Is the Value of Computer Vision?

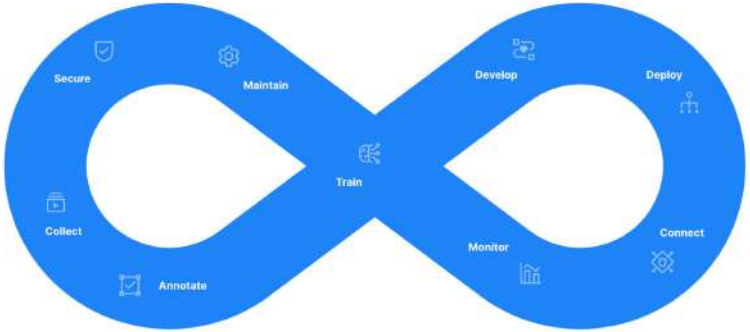
Computer vision systems are trained to inspect products, watch infrastructure, or a production asset to analyze thousands of products or processes in real-time, noticing defects or issues. Due to its speed, objectivity, continuity, accuracy, and scalability, it can quickly surpass human capabilities.

The latest deep learning models achieve above human-level accuracy and performance in real-world image recognition tasks such as facial recognition, object detection, and image classification.



The Framework

We **build** and **deploy** high-performance computer vision applications **faster** by abstracting and automating the entire lifecycle with our Nvidia based Video Intelligence Framework. Our framework can be deployed in **cloud, on-premise even on the NVIDIA Jetson™ family**, the most newer standard for entry-level edge AI and robotics.



The Framework

Edge, On-Premise & Cloud infrastructure

Build high-performance, cross-platform, scale cost-efficient, and robust computer vision solutions across different infrastructure topologies.

Scalable by-design

Move from prototype to production. Operate large-scale deployments with thousands of cameras. Use automated diagnosis and remote troubleshooting.

Privacy preserving AI

Build GDPR compliant computer vision, avoid storing or transferring any video data.

Custom applications

Teams can collaborate to build, deploy, and operate all their computer vision applications in one place.

Deep Learning

More than +30 pre-trained models ready to use in the apps. Collect training data, annotate the data, and train new Machine Learning models.

Cost savings

Reduce the sprawl of point tools, drive efficiency and agility. Decrease security risks, and reduce coding work.

aws partner network | NVIDIA | kubernetes

Computer Vision Applications for Smart City

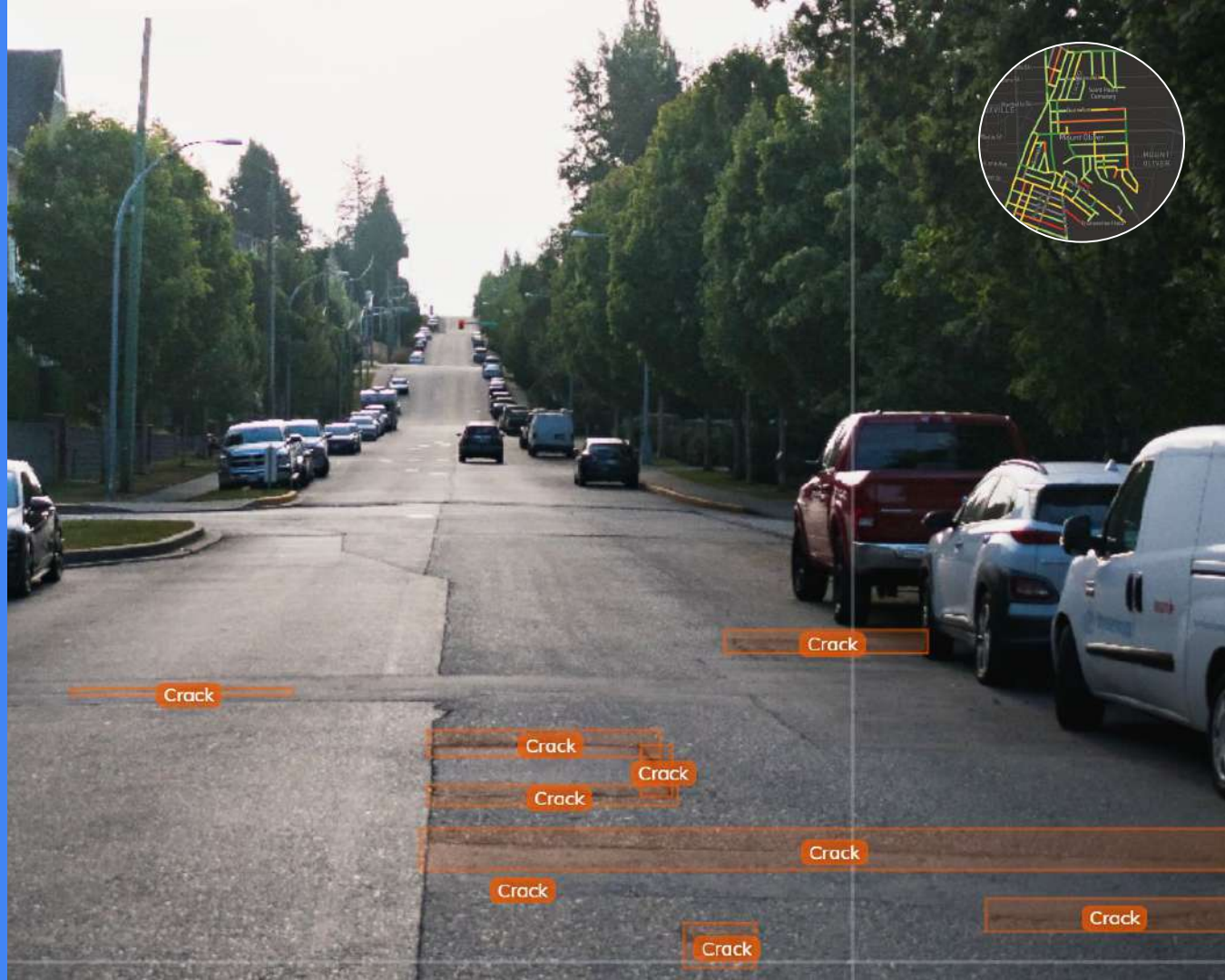
Smart

Automatic Number Plate Recognition

Automatic number-plate recognition (ANPR) uses computer vision technology to read license number plates on vehicles in video streams from standard CCTV cameras. State-of-the-art deep learning algorithms provide rapid and fully automated number plate detection and recognition in real-time.

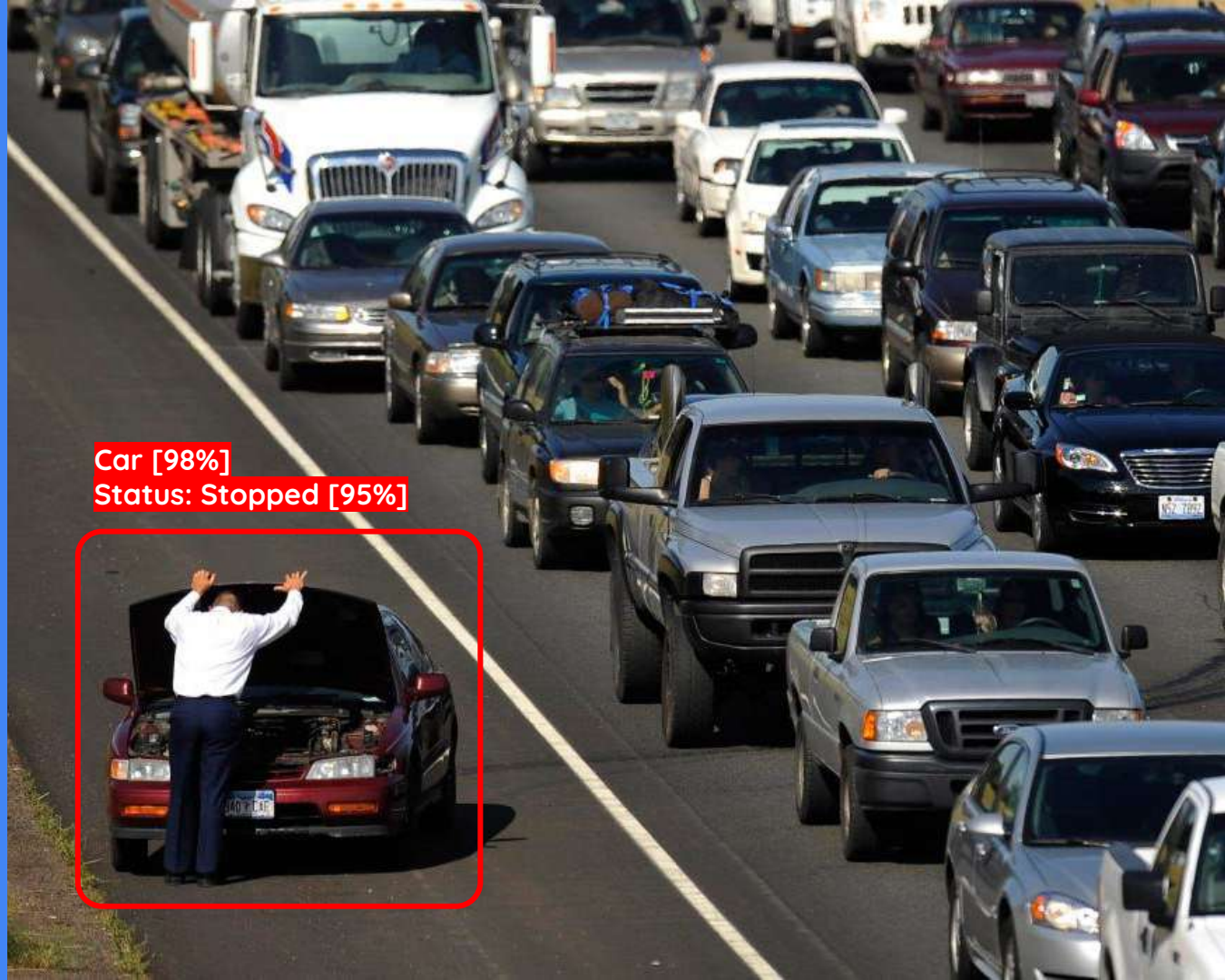
Road Condition Monitoring

Computer vision has been found useful in monitoring road conditions. This helps in decreasing safety risks for vehicles and pedestrians and improving road maintenance efficiency. Many countries are using computer vision to trace, track and improve road conditions for improved mobility.



Detect Stopping Vehicles

Computer vision algorithms are widely used in traffic monitoring systems to automatically gain information on traffic scenes and trigger alarms on significant events and anomalies. Real-time image processing of video feeds from surveillance cameras is used to detect road safety problems. AI models can detect stopped vehicles during traffic surveillance.



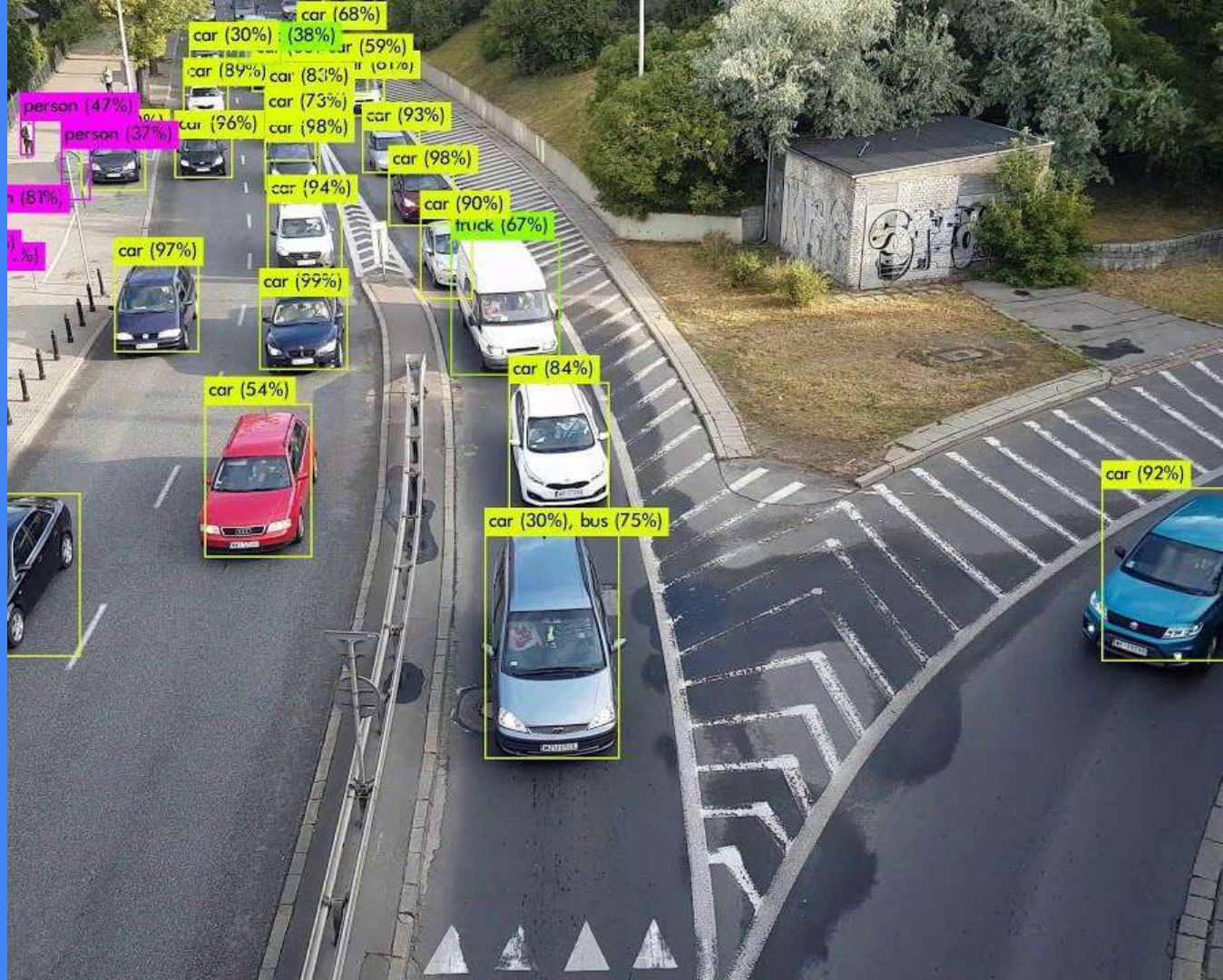
Crowd detection and behavior analysis

Understanding crowds is critical for scheduling safety and crisis management, computer vision solutions enables us to better understand the complex transportation environment. It works with existing security cameras to analyze how crowds move through the space.

Our platform analyzes live video streams in real time using deep learning algorithms while preserving data security and privacy.

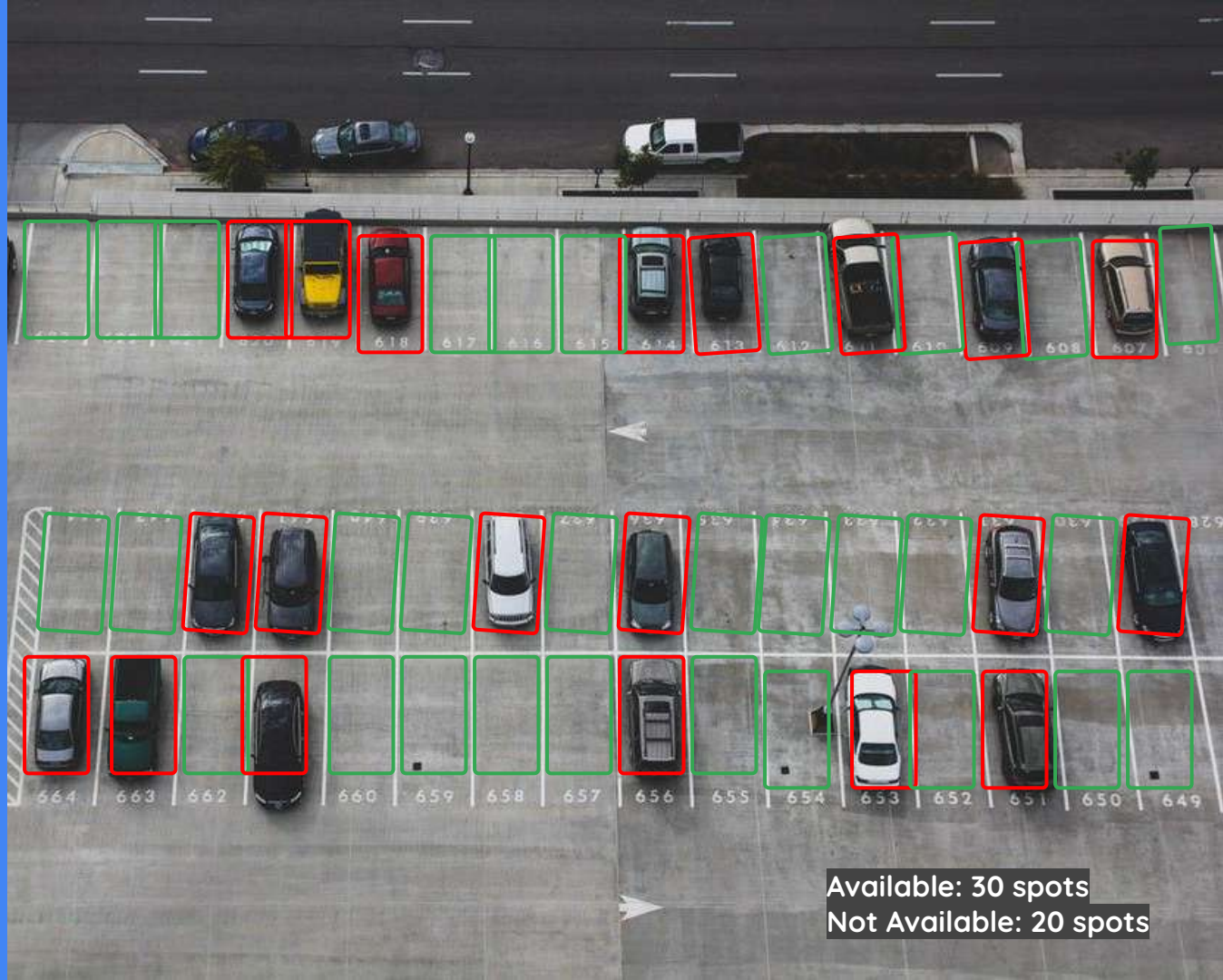
Traffic Flow Analysis

The advancement in the field of computer vision has paved the way for efficient traffic management and flow analysis. As computer vision helps in providing accurate information like traffic density, freeway traffic count, etc., it results in better traffic management and improved road safety. Computer vision is also expected to play an integral role in futuristic public transportation going forward.



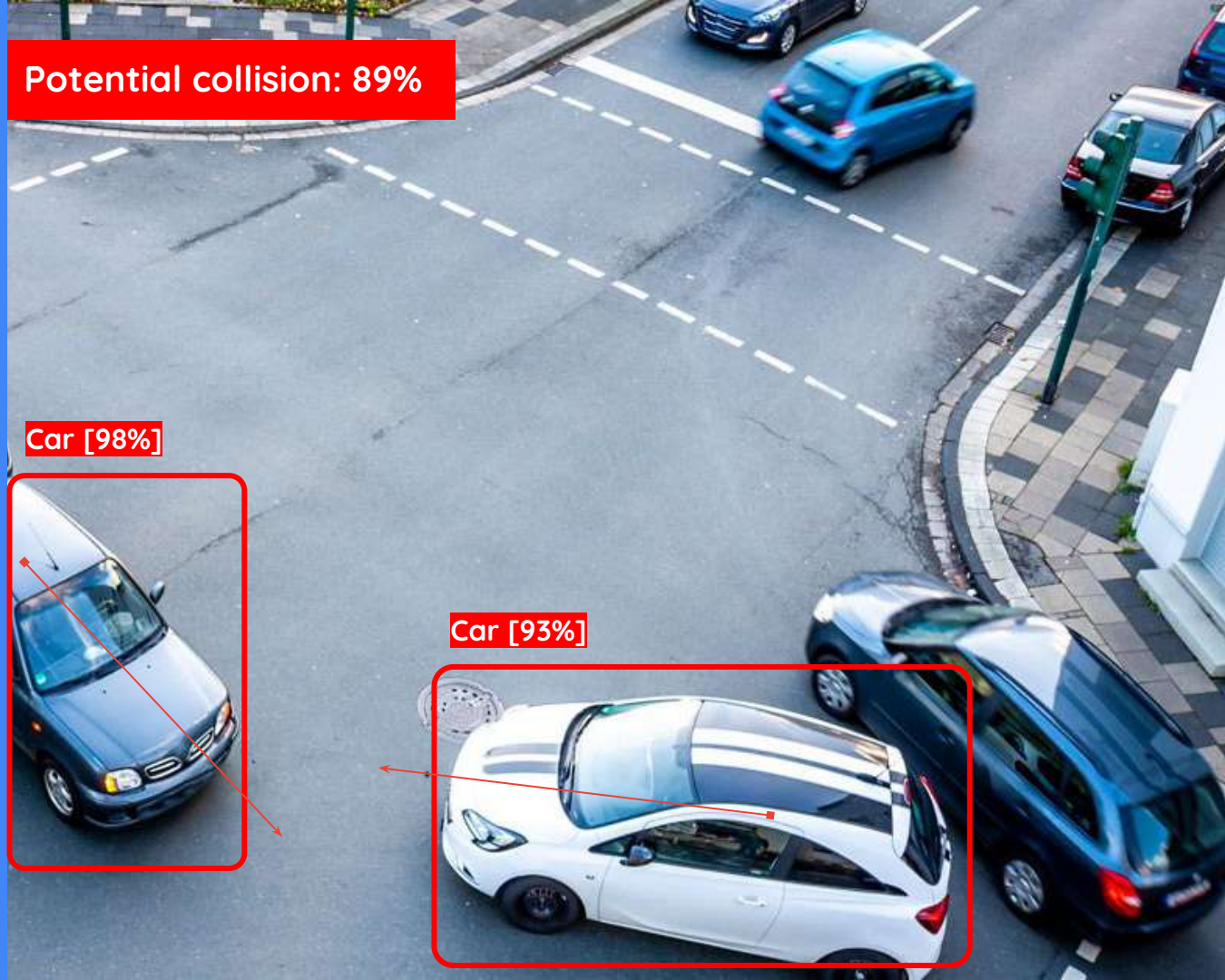
Parking Management

Computer vision is widely used as the solution for parking management in place of costly sensor technology that requires regular maintenance. It is expected that the parking management solution would soon be used along with the license plate recognition solution to identify which vehicle is occupying which parking spot.



Traffic Incident Detection

Automatic detection of traffic accidents is an important emerging topic in traffic monitoring systems. Nowadays many urban intersections are equipped with surveillance cameras connected to traffic management systems. Therefore, computer vision techniques can be viable tools for automatic accident detection.



Computer Vision Applications for Industrial & Manufacturing

Workforce and Equipment Detection

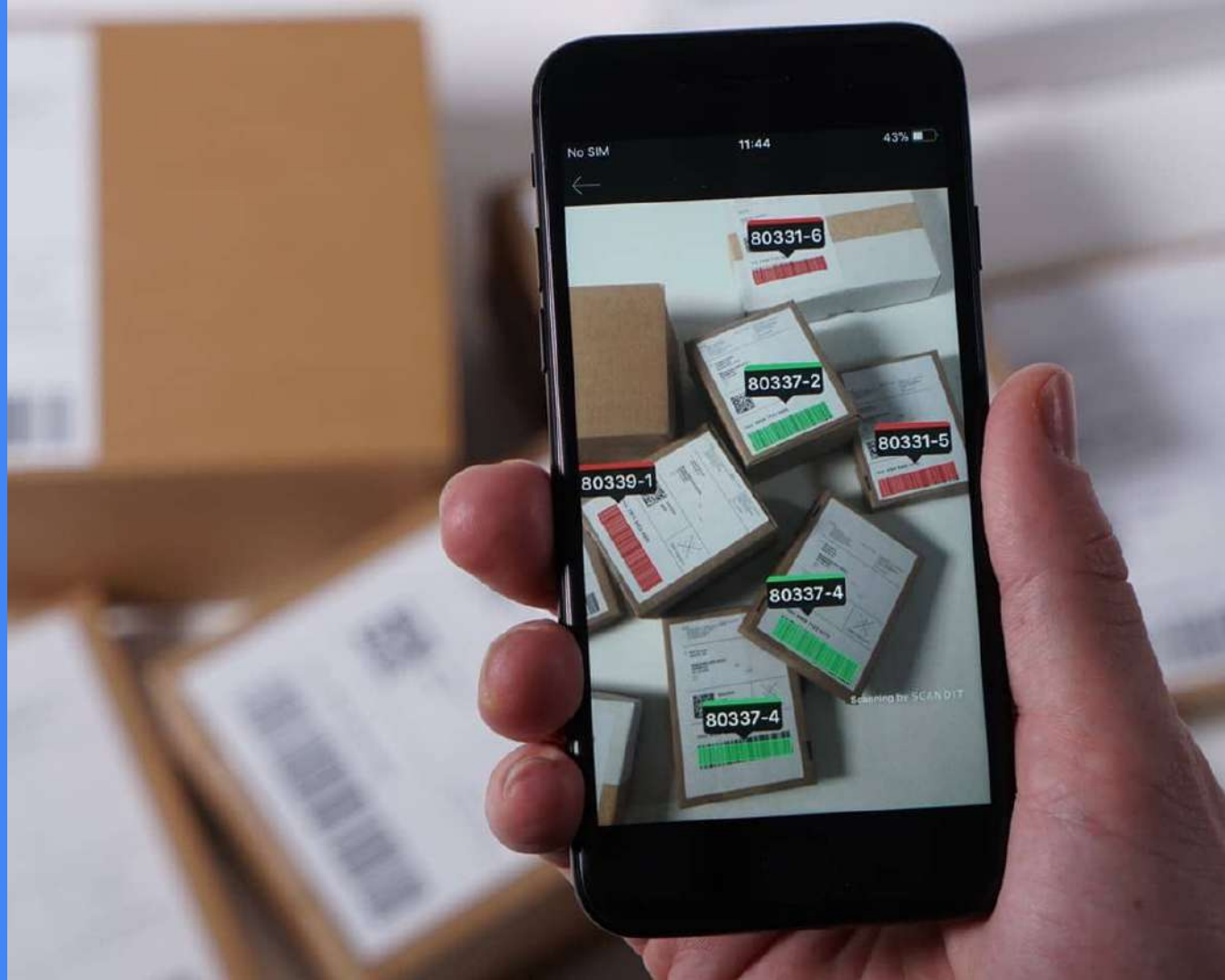
The use of computer vision technologies can effectively detect any issues related to safety measures for the workers to create reports in dashboards and send notifications. It is also possible to issue alerts automatically in case there is an accident so that the management can take the necessary measures immediately.

Quality Inspection

The use of computer vision in manufacturing can help detect defective products with remarkable ease. It can be tough to manually identify smaller defects in the products during the manufacturing process. Moreover, the delivery of an order containing a defective product can not only lead to increased production costs but also customer dissatisfaction.

Real-time QR & Barcode Reading

Manually verifying each barcode is a time-consuming affair, not to mention the associated costs of labor. Despite these manual checks, errors are inevitable. Computer vision systems are a preferable alternative here to recognize accurate barcodes. It can verify multiple barcodes in comparatively less time with high effectiveness.



Object Counting

Industrial vision systems to count objects using cameras are popular in manufacturing, to recognize and count products, pieces, and boxes produced. The traditional machine vision methods are increasingly replaced by deep learning methods that are significantly more flexible and easier to apply.

Safety Management

Computer vision can identify potential safety hazards on sites. It can be used to detect unsafe work practices or identify areas where workers are at risk of injury. Safety apps evaluate images of construction sites against safety parameters and help construction managers ensure that their projects are compliant with workplace safety regulations.

Analog Controls Recognition

AI vision is used to recognize and digitize analog controls for signal lights detection, pointer position in analog dials, switch position detection, or liquid surface position of transformer oil. This allows automated substation meter reading without the need of human operators and is needed for predictive monitoring to detect abnormity for forewarning of equipment fault.

Intrusion Detection

Modern monitoring of specified areas uses computer vision, specifically deep learning algorithms, to automatically detect intrusion events. AI vision-based event detection and recognition are applied using the real-time video stream of common CCTV surveillance cameras.

Computer Vision Applications for Retail

People Counting

It is used to count the number of individuals who cross a certain section and the distribution of the visiting time of the clients throughout the day. The system identifies the number of visitors by time of day to optimize staffing and planning decisions.

Traffic Flow

Deep learning is used to track customer movement paths within an area of interest. Information about customer journeys is often visualized as a heat map or spaghetti diagram.

Demographically Classified

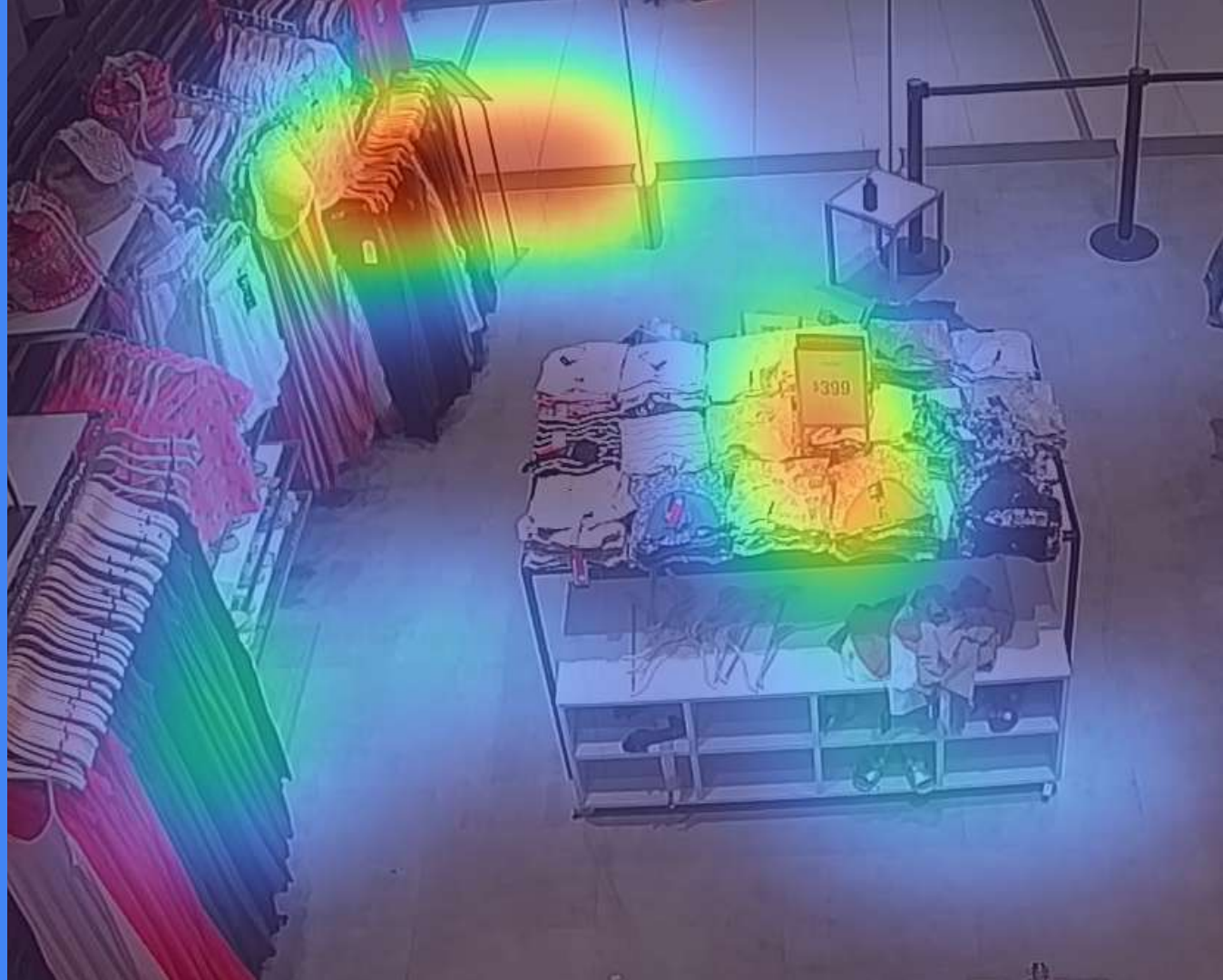
Identify the demographic composition of mall visitors to understand the purchasing patterns and behaviors of each demographic class.

Emotion Analysis

Emotion recognition aims to classify facial expressions of customers to analyze the feelings of customer groups in specific areas

Hot Zones

AI camera analysis is used to identify popular shelves or locations inside the store. The information can be used to optimize promotions and product placements.



Dwell Time

AI algorithms can estimate the average time a customer spends in the shop. The dwell time provides valuable insights for marketing and operations.

Computer Vision Applications for Transportation

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Abandoned Luggage

Abandoned luggage detection is used to identify potentially dangerous items in public places. Dangerous items that need to be detected with automated systems could be suitcases or bags.

Detect Stopping Vehicles

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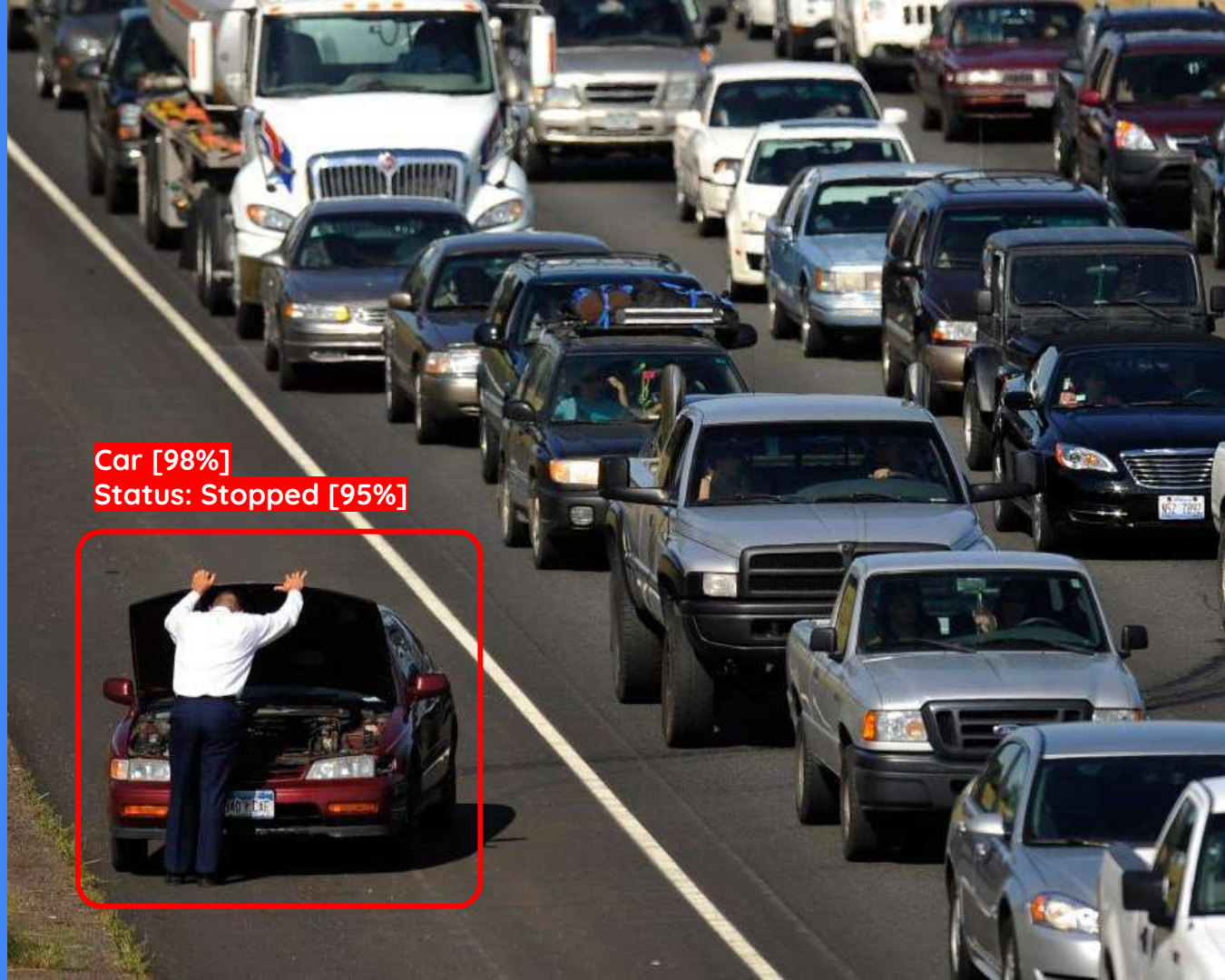
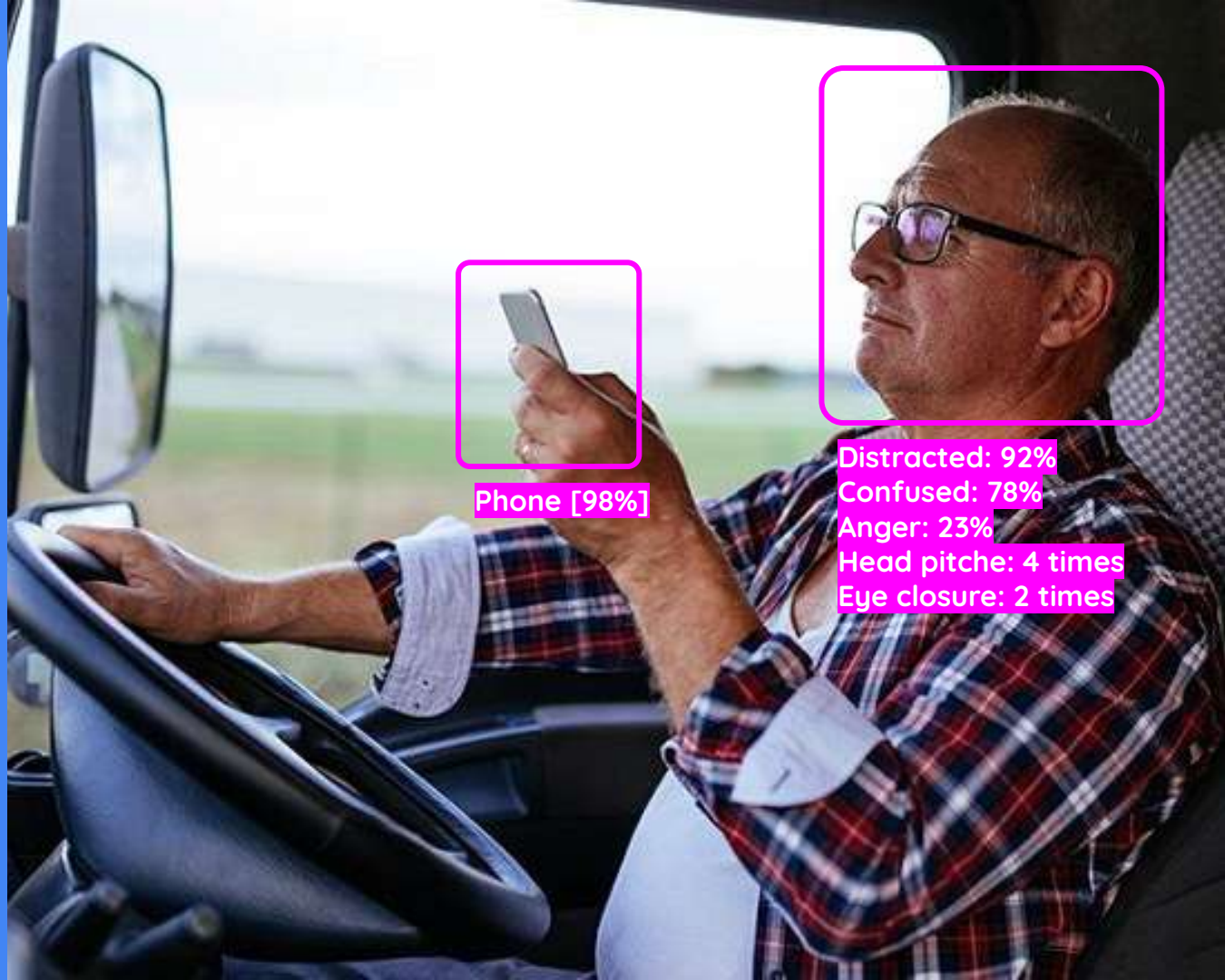


Driver Monitoring

Computer vision has now been added to car cabins for the purpose of better, safer driver monitoring. The technology, which uses face detection, eye gaze detection and head pose estimation to look out for things like drowsiness and emotional recognition, can prevent thousands of crashes and deaths each year.



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Thanks!

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