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Making Cities Smarter

Cities 4.0 Presentation

March 2018

ASX: SNS

Contrasting Evolution

While we are talking about driverless cars
we still have cities sending officers to streets to manually monitor compliance

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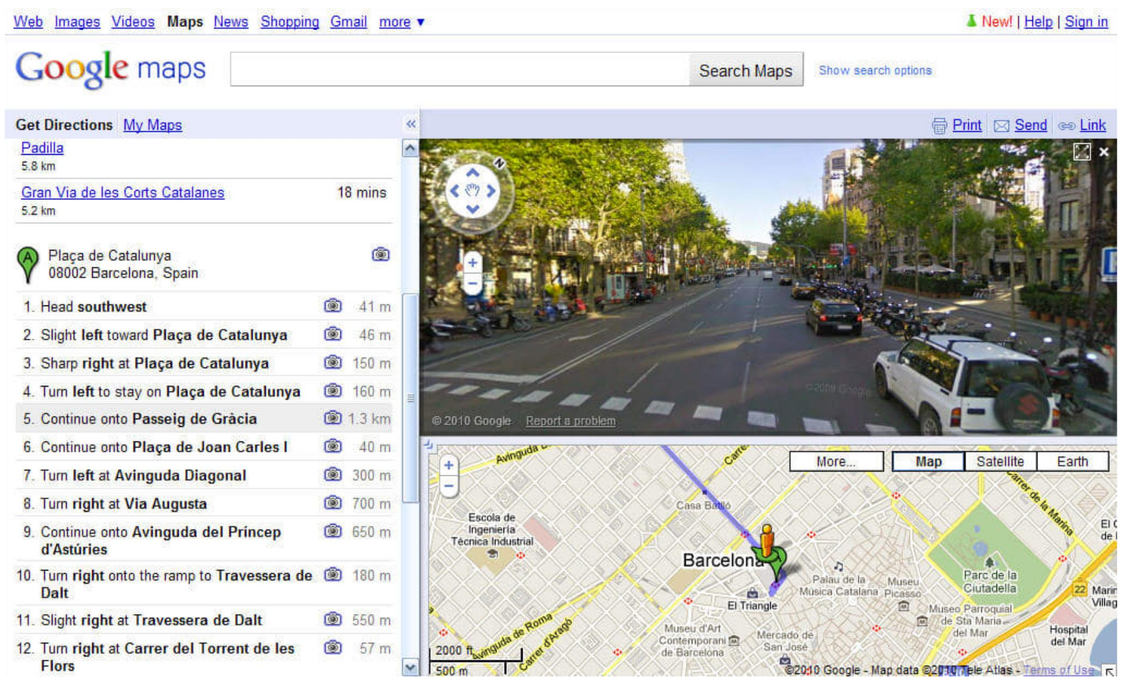
Contrasting Evolution

When we have entire world map at our finger tips
cities' civil surveyors still going to streets to manually survey assets



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Contrasting Evolution

When technology can track every object with high precision
we have armies of people sitting behind a video wall watching streaming cameras

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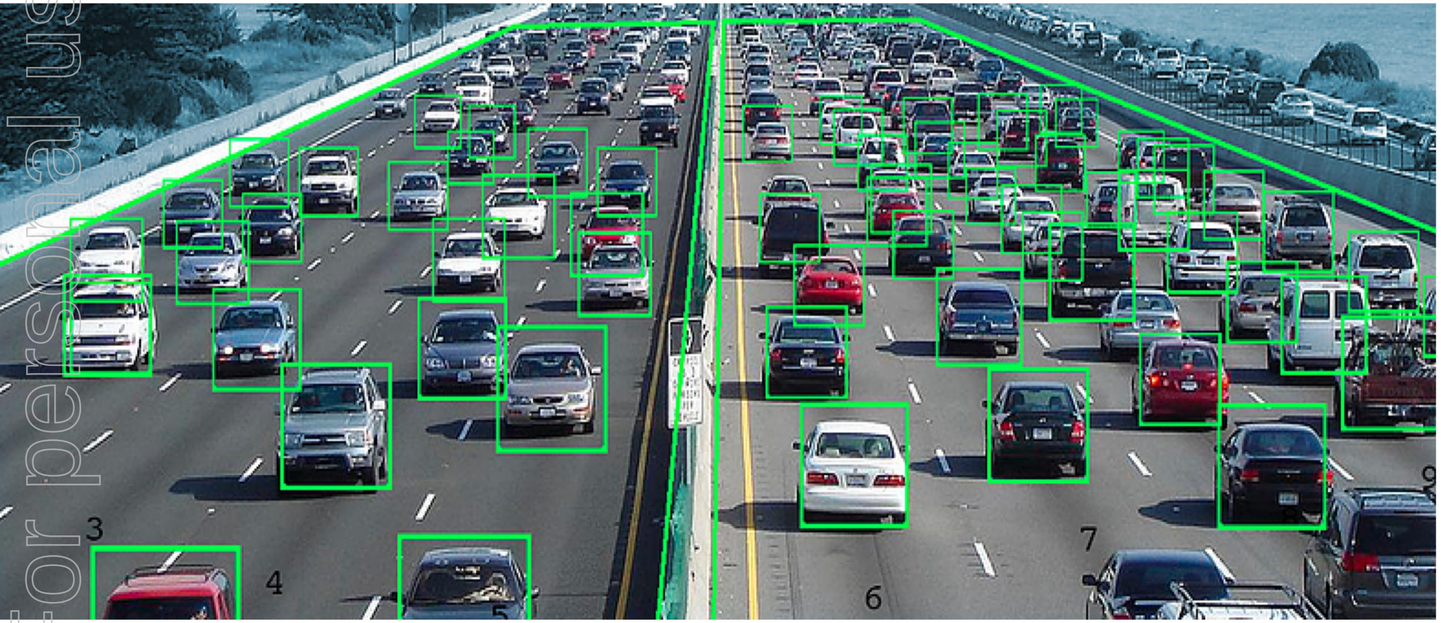

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While we must have an eye on the future
there is a lot that can be done
with today's technology
to make cities more efficient and
to deliver more bang for the buck for its citizens

Making City Operations Smarter

MAKING CITIES SMARTER BY
ADDING VALUE THROUGH MULTIPLE TOUCHPOINTS

Parking Operations

- Access Control
- Occupancy Information
- Guidance
- Enforcement

Traffic Engineering Operations

- Sign & Line Audits
- Traffic data collection

Facilities Management Operations

- Footfall
- Occupancy

Security and Safety Operations

- Security Analytics
- Speed Camera
- Bus Lane/Transit Lane
- Over dimension vehicles

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Spectrum of Smart Cities

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MEGA CITIES

- PROVINCES
- CITY COUNCILS
- NATION CITIES

MINI CITIES

- AIRPORTS
- CASINOS
- UNIVERSITIES

MICRO CITIES

- SHOPPING CENTRES, HOTELS
- SKI RESORTS, NATIONAL PARKS
- ART CENTRES, LIBRARIES

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Artificial Intelligence Solutions powered by Deep Learning networks can tap into smart infrastructure of smart cities to Make City Operations Smarter

While this impacts every aspect of city operations, we will focus on Parking, Transit, Road Safety, Facilities, Security in this presentation

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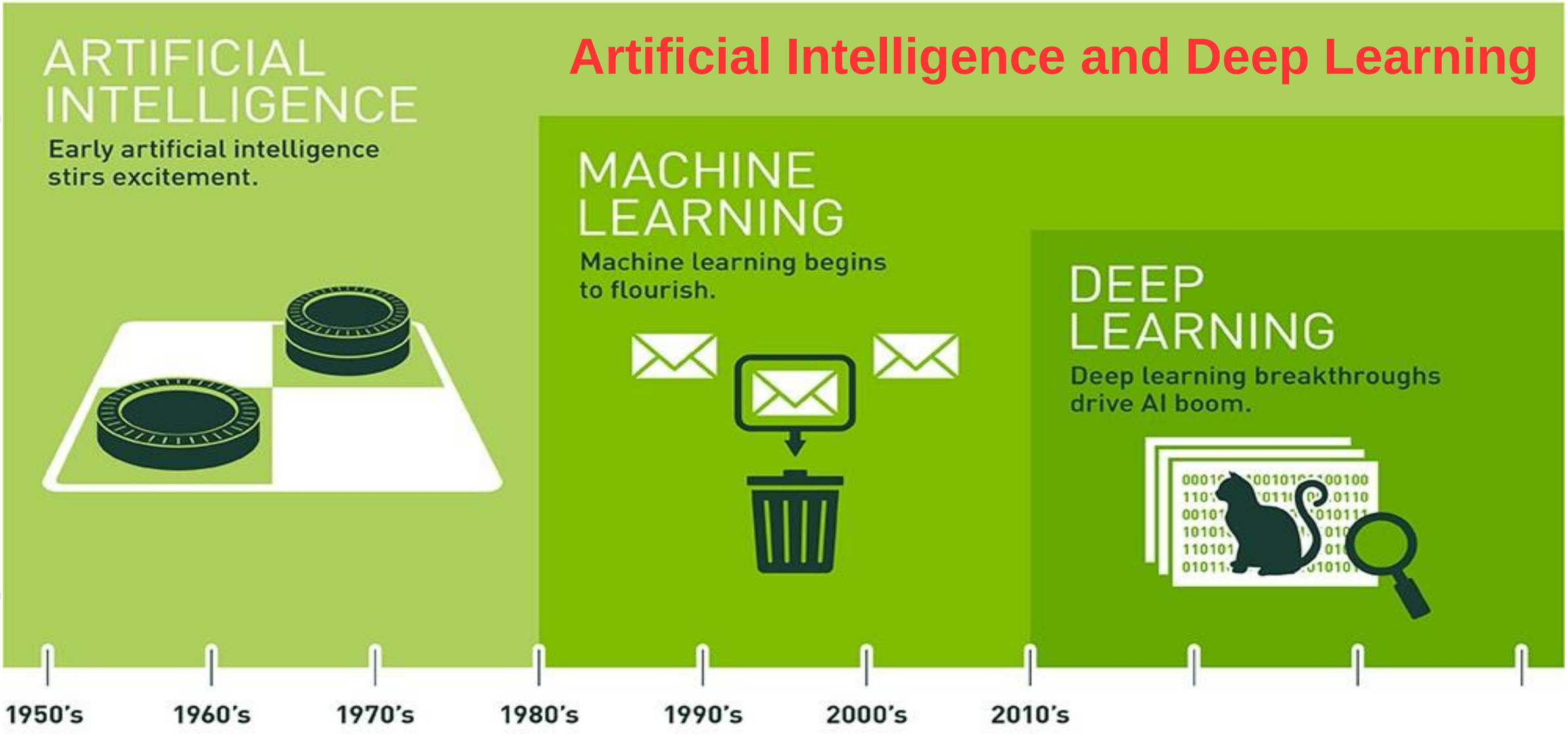
Artificial Intelligence and Deep Learning



Since an early flush of optimism in the 1950s, smaller subsets of artificial intelligence – first machine learning, then deep learning, a subset of machine learning – have created ever larger disruptions.

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Artificial Intelligence (AI)

- **AI involves machines that can perform tasks that are characteristic of human intelligence**
  - It includes things like planning, understanding language, recognizing objects and sounds, learning, and problem solving.
- **Examples in life**
  - Virtual Personal Assistants: Siri, Google Now, and Cortana (using voice)
  - Google's self-driving car project and Tesla's "autopilot" feature are two examples that have been in the news lately
  - Music and Movie Recommendation Services: Netflix

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Machine Learning (ML)

- **Machine learning is simply a way of achieving AI**
  - You can get AI without using machine learning, but this would require building millions of lines of codes with complex rules and decision-trees.
- **Machine Learning involves**
  - Training – collects thousands of dog and cat images to train
  - Predict – given an input image, tell if it’s a car or dog
- **ML needs algorithms to train**
  - A lot of them
  - Neural Network (NN) in one of a kind
  - NN is a computer system modeled on the human brain and nervous system.

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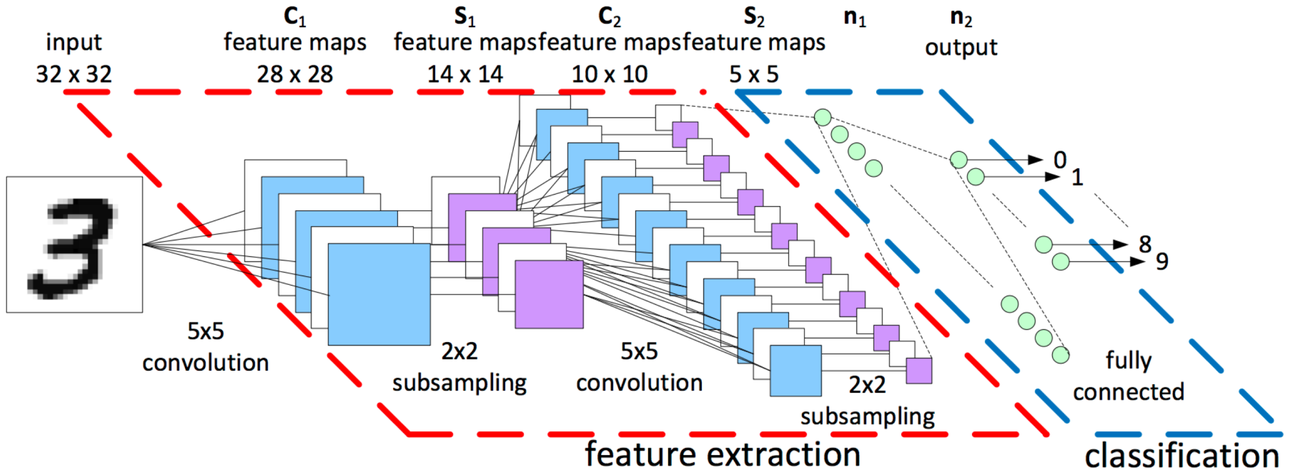
Deep Learning (DL)

- Deep learning is one of many approaches to machine learning.
- DL contains multiple layers instead of 1 or 2, which created its name “deep”.



Making Parking Operations Smarter

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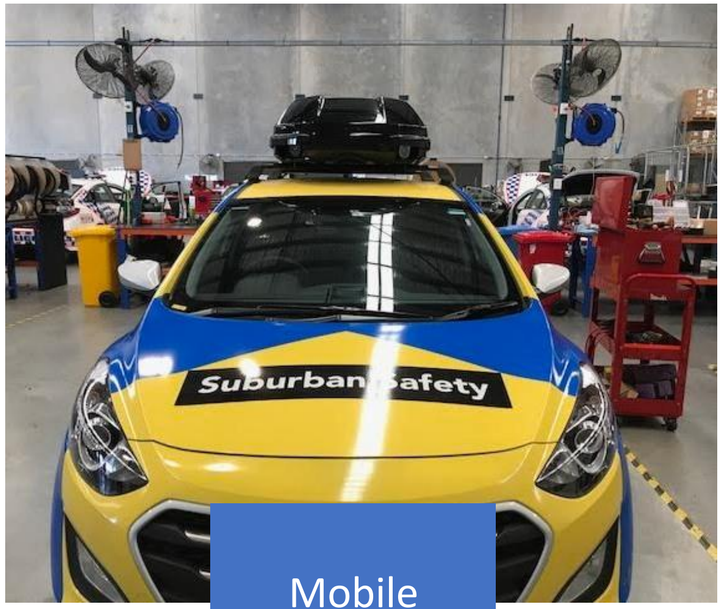
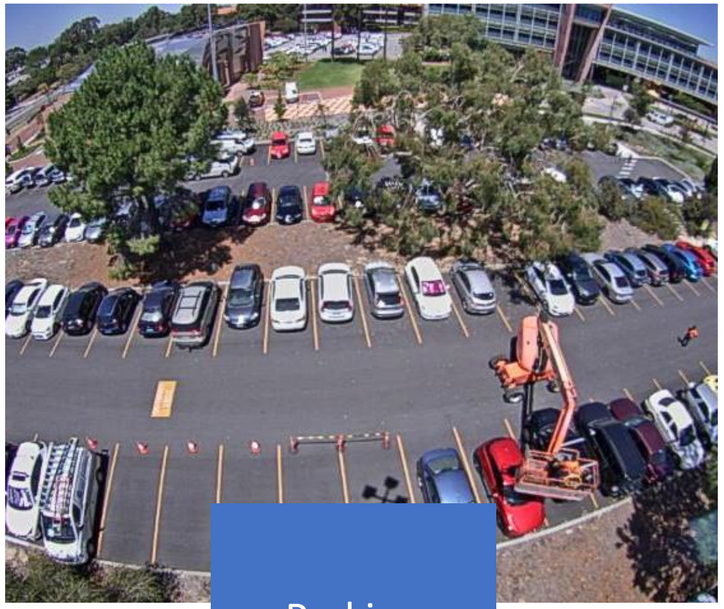
Detecting Parking Signs & Creating Parking Zones



Mobile Parking Enforcement



Parking Guidance

Making Road Safety Operations Smarter

Making Illegal Unsafe parking detection Smarter

Making Speeding Vehicle Detection and enforcement Smarter

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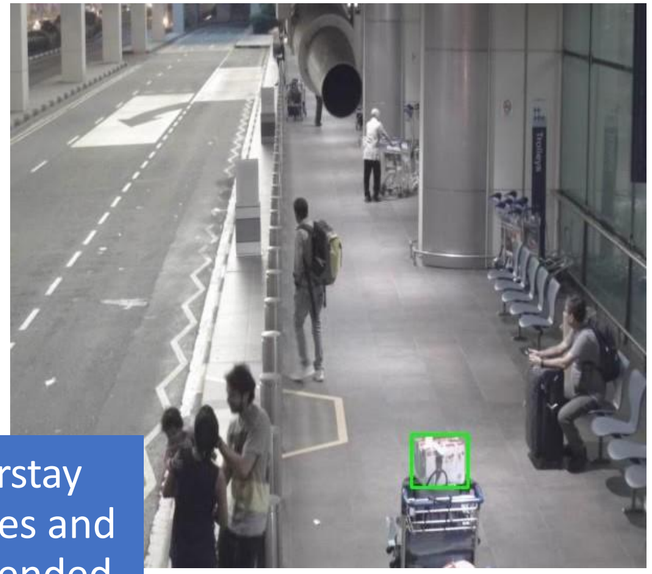
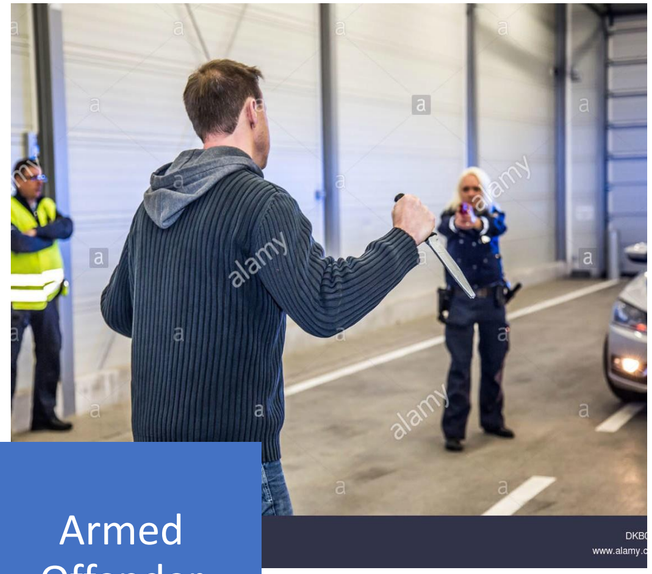
Making Security Operations Smarter



Overstay Vehicles and Unattended Object detection



Armed Offender Detection

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Smart Cities should not just be about Smart Infrastructure It must also be about Smart Operations

There is a lot to be gained by focusing inwardly at Smart City Operations to become more efficient and deliver more value for the rates communities pay

INDUSTRY RECOGNITION

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iAWARDS

aiia australian information industry association

2017 Merit Recipient – Automated Asset Mapping Solution

SCC SMART CITIES CONNECT FOUNDATION

2018 Global Smart 50 Award Winner – Intelligent Video Analytics

Foundation Partner, NVIDIA Metropolis Partner Program

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