A large wall of security camera feeds in a control room. The feeds are arranged in a grid and show various scenes, including a person in a yellow vest, a person in a blue jacket, and a person in a white jacket. The overall scene is dimly lit, with the camera feeds providing the primary light source. The text is overlaid on the center of the wall.

Umbo Computer Vision

The use of Artificial Intelligence in safeguarding port security

Vicky Wu

Venture-backed A.I. company with offices in San Francisco, Taipei, and London

Served over 10 billion domain-specific images to save in guard expenses

Awarded Best in Video Analytics at ISC West and Global Security Exchange conferences

Best in Show, Nvidia GTC Deep Learning Conference — Emerging Company Summit

A.I. Team out of Imperial, UCL, Oxford, UCSD. 100+ CV/ML publications



Prevention is our highest priority





# Our AI Looks For Human-Related Events And Alerts Guards



**Scaling physical barriers**  
into semi-fenced business  
facilities



**Loitering**  
around critical  
infrastructures



**Enters restricted area**  
at parks, hotels and  
residential communities





# Challenge: There's No Efficient Way to Monitor Live Security Events

**Human Guards**

**Max. 12 cameras per operator**  
7.2 Billion hours of video a day  
(17,000x Youtube)



**Motion Detector**

**94-95% false**  
**Completely fails outdoors**



**Traditional Video Intelligence**

**Max. 60-90 cameras per operator**



\* UK Police Scientific Department

\*\* US Dept. of Justice / Various city police departments

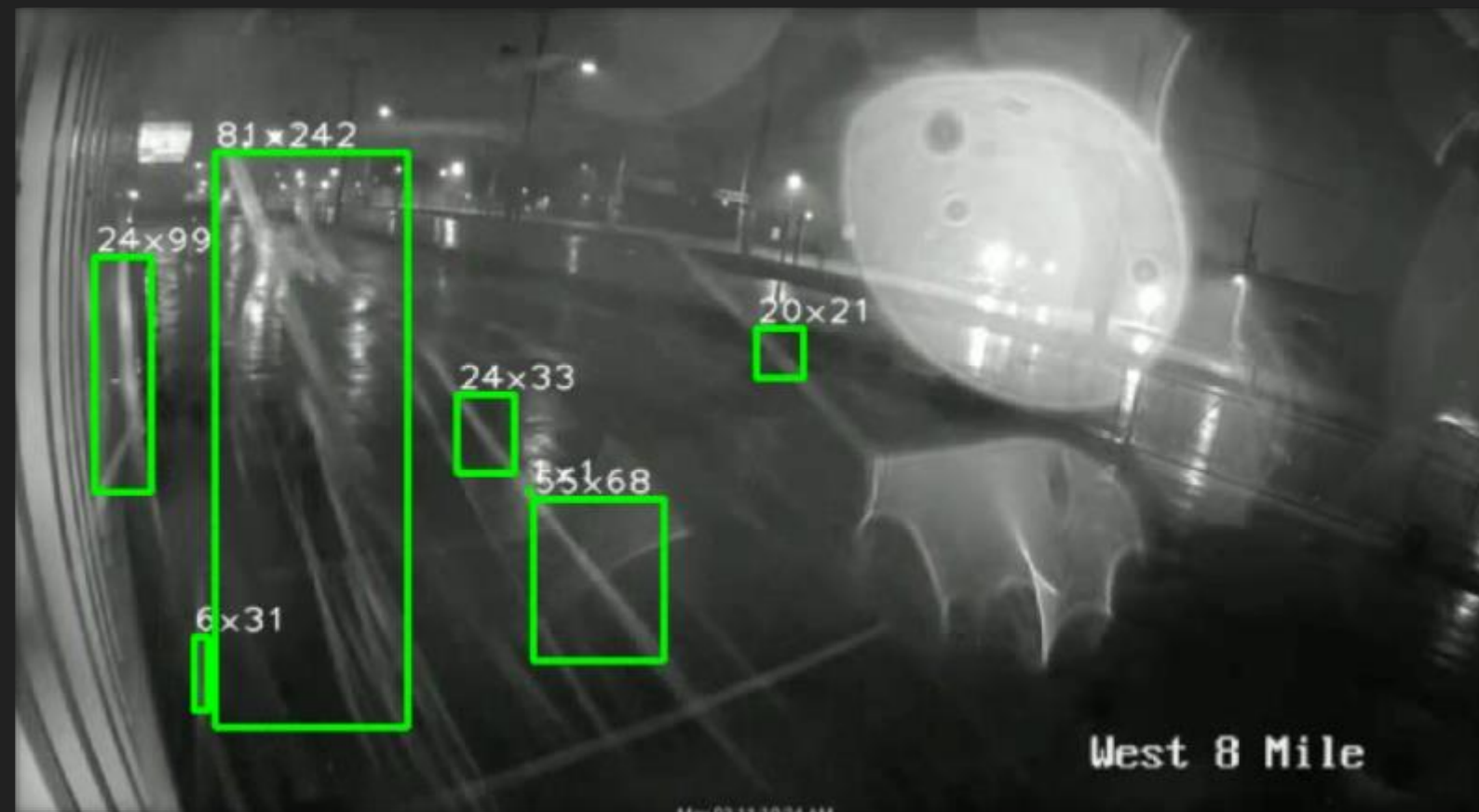
\*\*\* Various video alarm centers



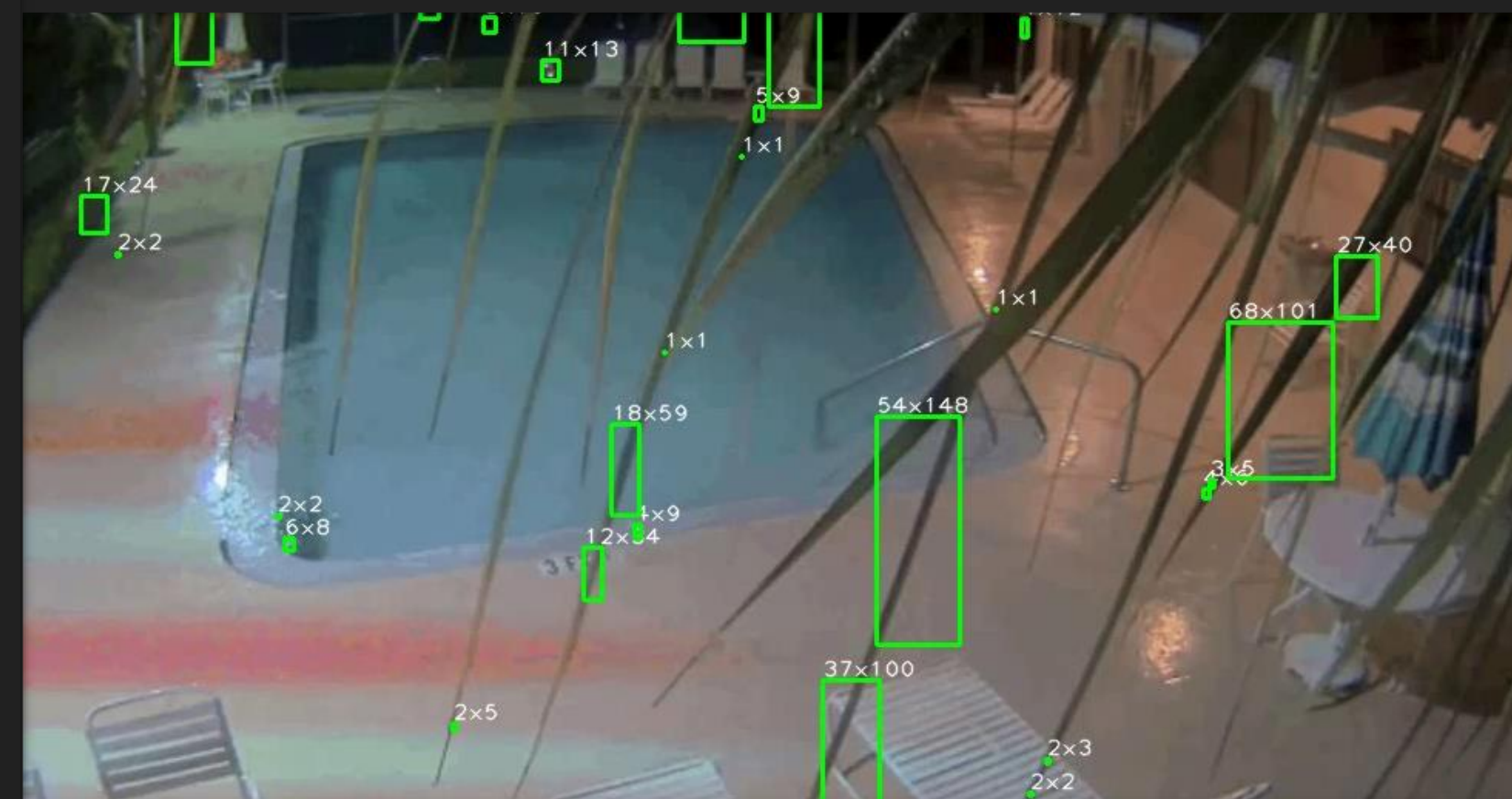


# Traditional Video Intelligence Struggles With False Positives

Weather



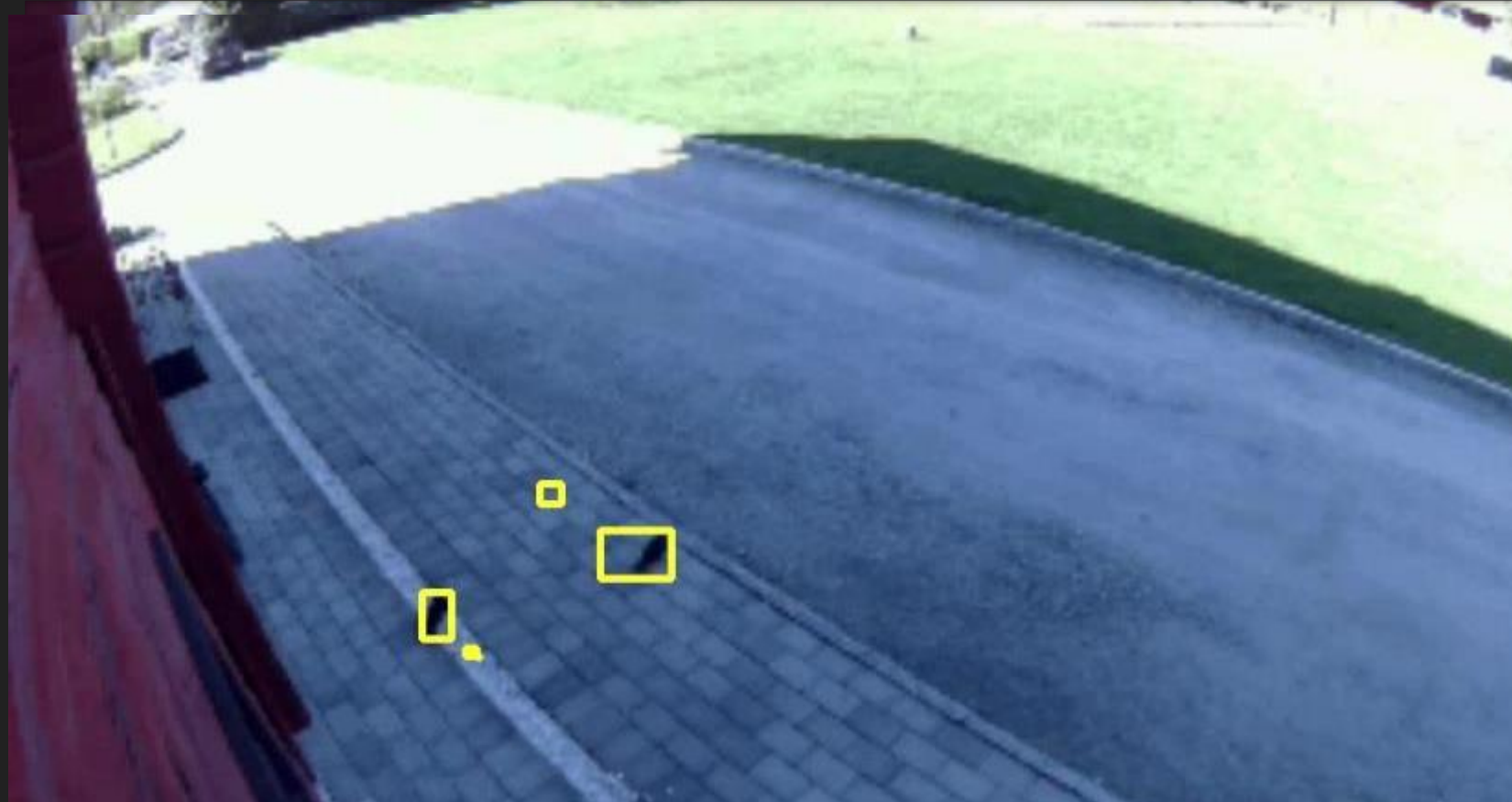
Tree + wind



Vehicle headlights



Poor video quality



Animals



Insects and Spiders





# Light Filters These Out And More



Weather



Trees, Wind, Cars



Reflections from Water





# Umbo Light: Specialized for Security



Head Covered



Rolling



Crawling



Kneeling



Downward Dog



Climbing







Umbo Light is the virtual guard

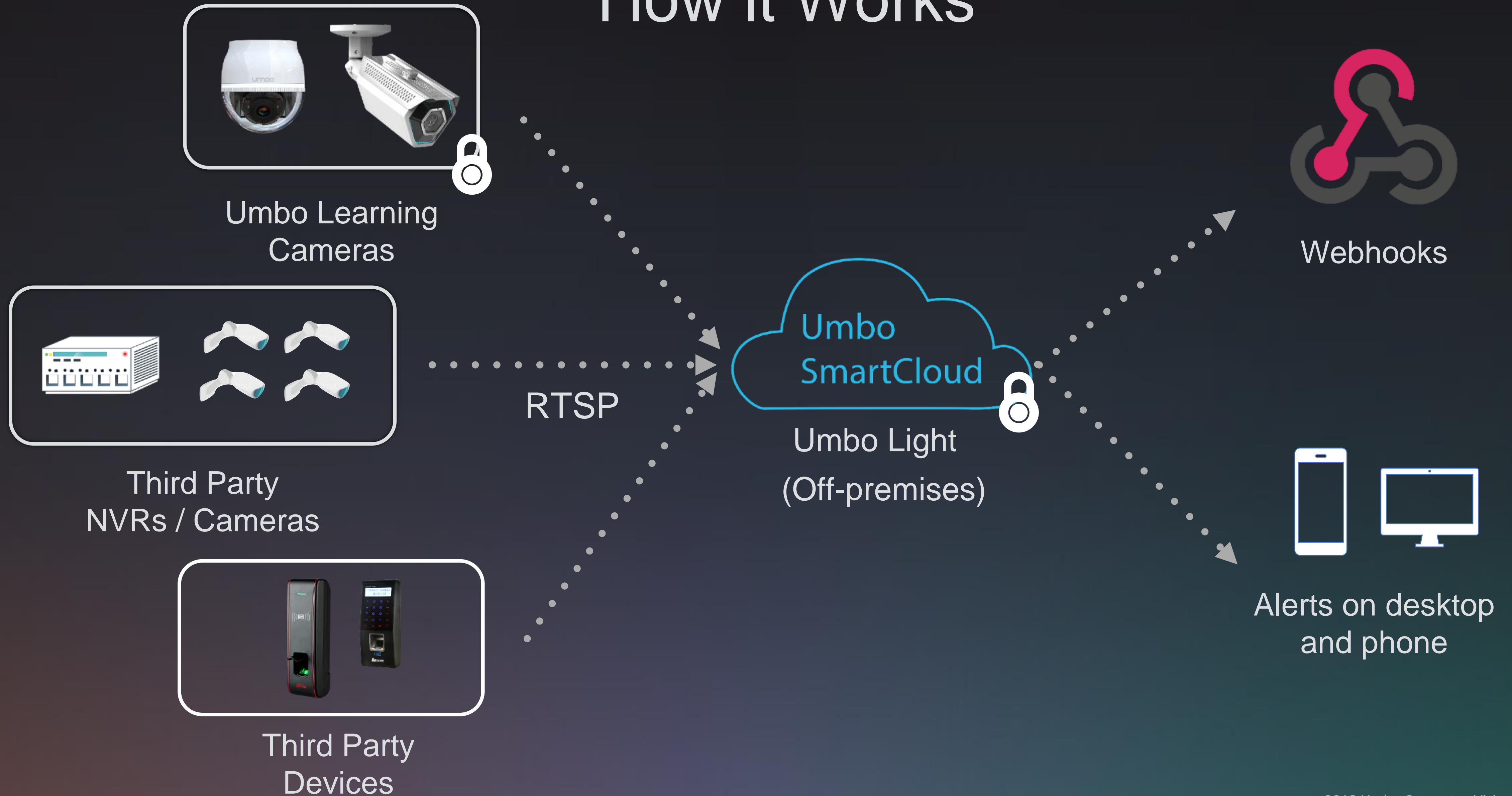








# How it Works





# Certifications

ISO 27001

ISO 27017

GDPR-compliant (Q1 2019)





# A.I. Event Types



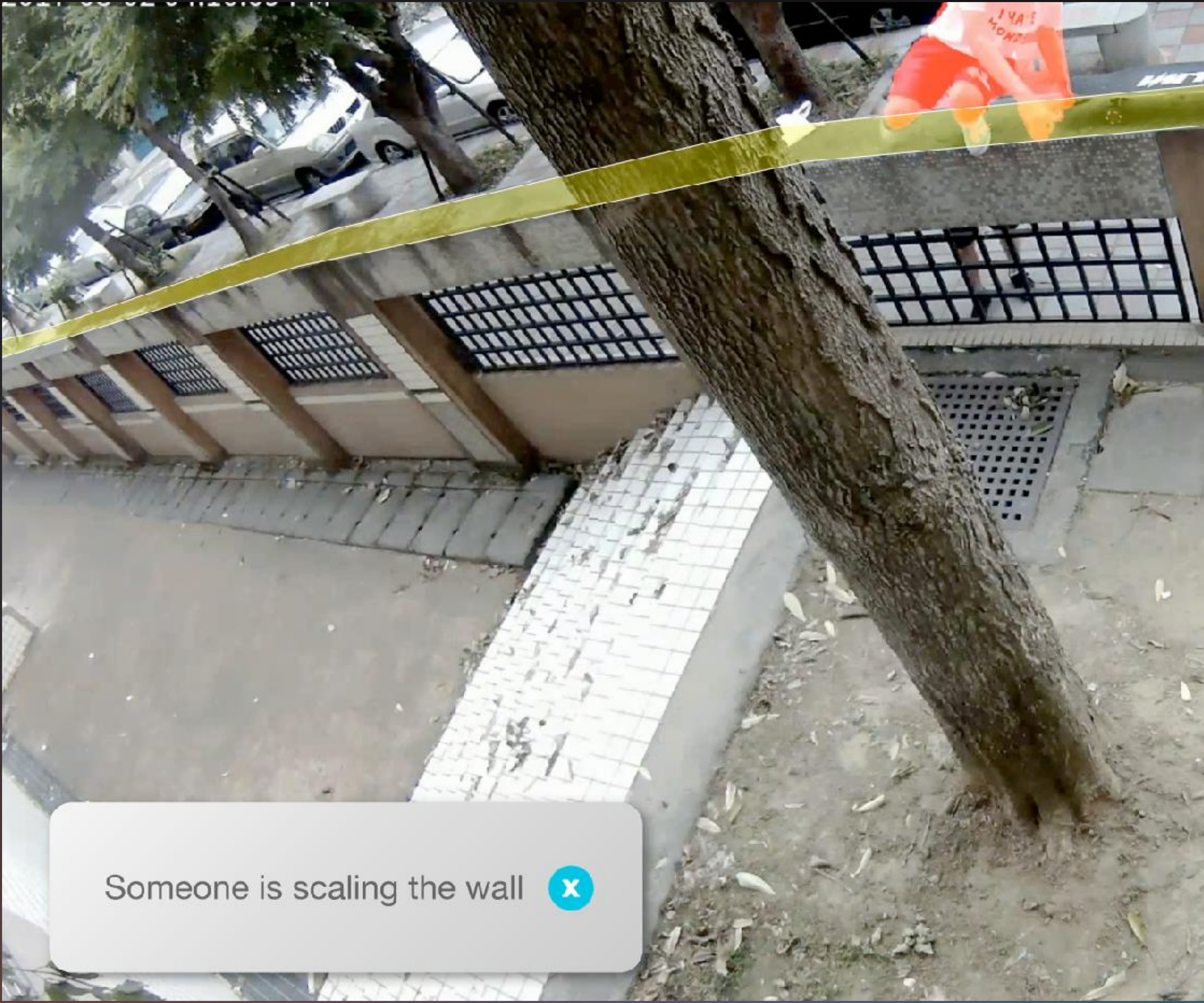




# Someone is Here

- Draw a region at the location of interest
- Receive real-time alerts when someone shows up
- Max distance
  - Daylight: ~200 feet or 60 meters
  - Night (Infrared): ~80 feet or 25 meters





# Scaling the Wall

- Draw on any fence, walls or doors
- Receive real-time alerts when Light sees someone tries to climb it Max distance
  - Daylight: ~200 feet or 60 meters
  - Night (Infrared): ~80 feet or 25 meters

Someone is scaling the wall 



People count: 3



# Occupancy

- Business intelligence through security cameras
- No additional servers and sensors
- Draw a region of interest and Light will count the number of people inside at customizable intervals
  - Daylight: ~200 feet or 60 meters
  - Night (Infrared): ~80 feet or 25 meters
- Accuracy: 70-80%



# Customer Case Studies







## Seven Arrows Elementary School

- Private K-6 elementary school in Pacific Palisades, California
- Uses Learning Cameras, SmartCloud and Light A.I. to protect children
- [Download the White Paper](#)
- “We are a school that is open and inviting and nothing feels less inviting than security cameras ... so there had to be some balance between having the place covered without having the look and feel ... the inviting-ness compromised.” — Darren, Dean of Students



08:51:35



9月 10 02:33:57 早上

## Continental Engineering

- Large construction firm that has built many prominent landmarks across Taiwan
- Uses SmartCloud to unify different camera brands into one dashboard for centralized safety monitoring without servers
- Uses Someone is Here to secure restricted areas and protect their assets
- [Read the case study](#)



Umbo Computer Vision  
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