AI-powered video analytics: A game changer for sport venues

Atos

Reinventing the fan experience

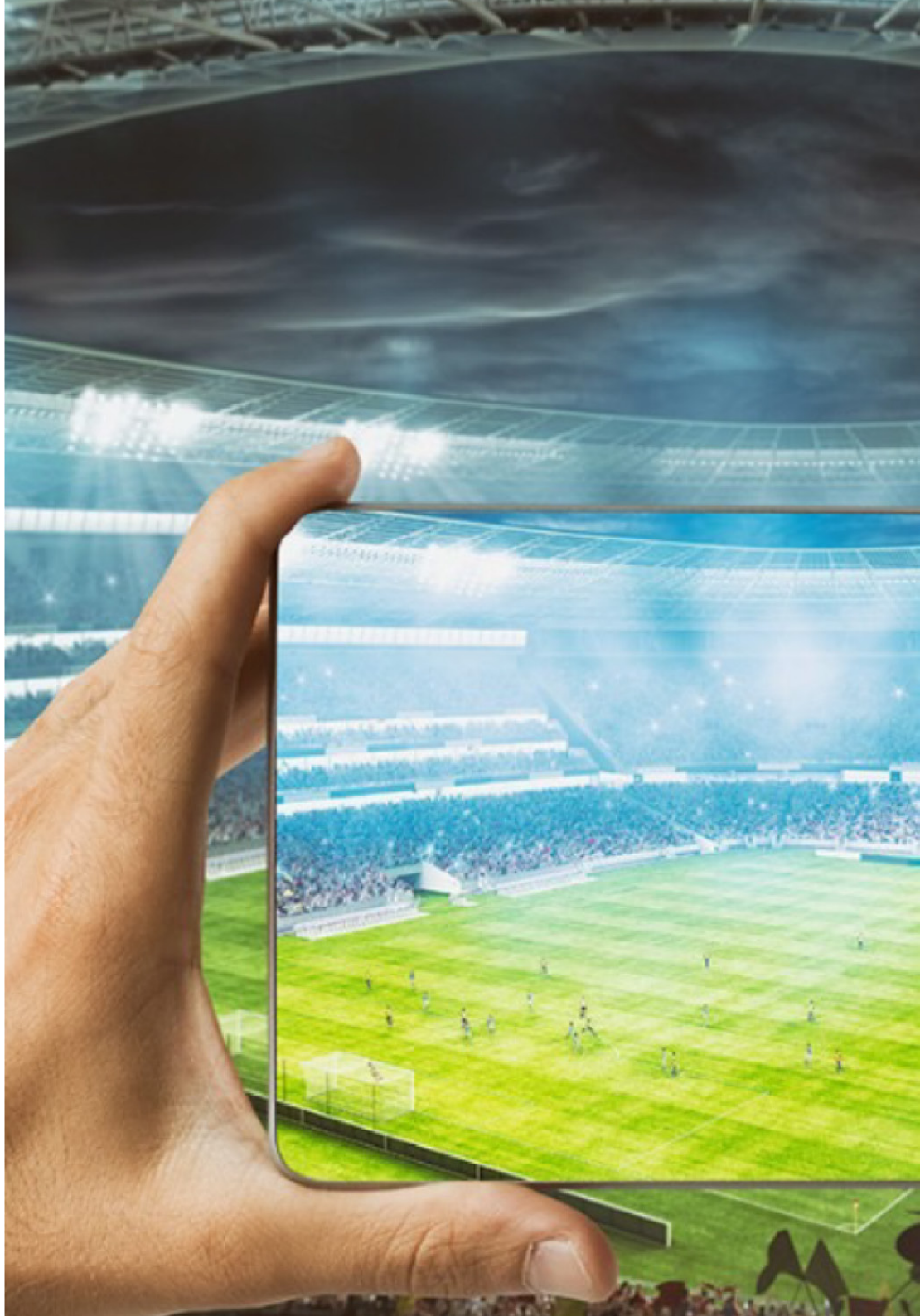
Introduction

With lower latency and higher bandwidth, computer vision enhanced by 5G and edge computing has the power to revolutionize the fan experience.

As venues become smarter, more data and analytics are being captured than ever before.

These technologies are making it possible to stream high-definition video in real-time.

The venue can collect and process security camera feeds more efficiently in real-time to support new automation and inventory management applications. Low latency and high bandwidth connectivity also benefit the venue's operations, including security and retail.



Delivering a better customer venue experience

65 percent
of operators say major sporting events are influencing their decisions to accelerate a 5G rollout

During the 2019 SuperBowl:
24 terabytes of data were transferred within the stadium, a 47% increase over the 2018 Super Bowl.


Enhanced immersive audio


Surveillance cameras


Real-time Smart parking status


Personal concierge and smart ticketing


Indoor seat navigation


Reliable and constant mobile broadband

The challenges you face

What do fans expect from your venue?

- A safe environment in the arena
- An exciting, comfortable and clean atmosphere
- Quick service and attention

These expectations represent a significant challenge for your operations teams. Supervising and analyzing video from 500+ camera feeds in real-time is impossible, especially considering the number of entry points and crowd movements during a short period of time.

Traditional video surveillance systems can struggle to capture the key indicators of security efficiency:

- How many fans are entering the venue per minute?
- On average, how long are fans waiting in line?
- What is the sentiment of fans in ticketing, food and beverage, and retail service areas?

How we help you adress these challenges

Benefits

- Improvements in entrances and exits
- Reduced waiting time in service areas
- Increased detection and handling of navigation bottlenecks
- Increased upselling rates

Use cases: How Edge and Computer Vision can support major events

AR experiences

Improve fan interactivity with augmented reality experiences that allow fans to interact with the pitch in real-time and display live player descriptions

Safety

- Crowd management and event safety
- Receive people counting reports, overcrowding and crowd density estimation
- Notification of people/vehicles in restricted areas and proximity monitoring reports
- Instant reaction time in emergency situations
- Receive the exact location, nature of hazards, and casualties involved in a crisis
- Instantly update visitors with security measures across the venue

Retail

- Real-time food and beverage pop-up offers
- Offer retail promotions during the game, versus fans paying normal price during halftime
- Store analytics for crowd, lost items and abnormal situations

Content

- Instantly capture and share high-quality videos with fans, such as 360˚ videos
- Create 3D or volumetric content with multi-angle possibilities
- Enable fans to share content with their friends on social media or chat, even in stadiums
- Integrate live tracking and data sets capturing player and ball movements

Fan experience

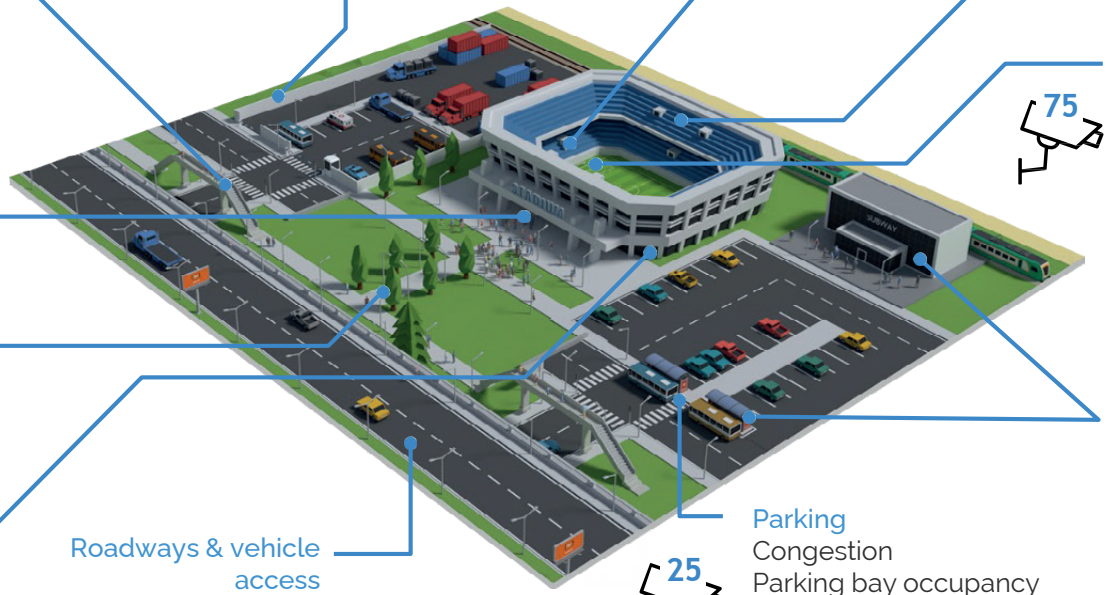
- Fans can stream their experience of the game, including personal comments, on platforms like Twitch
- Use AR content on top of their own videos on their smartphones
- Real-time game analysis thanks to AR graphics on the field

Parking

- Reduce illegal turns and loitering
- Smart parking: Indicates free parking slots and reduces parking congestion

Focus on computer vision use cases

250 camera deployment for +41 use cases



Stadium perimeter
Intrusion detection
PTZ tracking
GIS Alerts
30

Stadium entrances
Face recognition
Watchlist / access
Control

Stadium & VIP areas
Watchlist
Crowd monitoring proximity
Alerts & reports

Bridges & visitor access
Pinch point people counting
Heatmaps
Proximity monitoring

Lobbies, hallways & ticketing
People count in area
People ingress/egress
Reports heatmaps
Overcrowding alerts
Queue monitoring
Crowd panic
Restricted area intrusion
75

Entrances
FR watchlist facemask
Detection
60

Stadium approach
People counting
Overcrowding queue
Monitoring
Crowd panic
20

Transportation links
People counting queue
Monitoring abandoned
Object FR watchlist/
reconnaissance forensic
Search and tracking

Retail units
Customer counting
Passing trade conversion reports
Heatmaps
10

Roadways & vehicle access
Vehicle intrusion
Congestion
Illegal stopping/parking
Taxi bay monitoring
Vehicle type reports

Parking
Congestion
Parking bay occupancy
Illegal parking
Illegal turn/direction
Parking vehicle type
Counting LPR time in area
& Overstay LPR watchlist
25

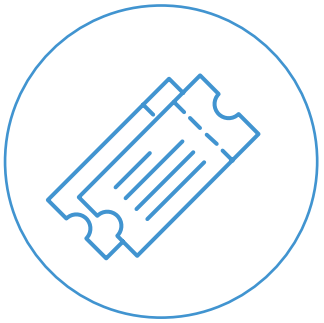
Use case: Safety and efficiency for fans and season ticket holders

Pre-registration and digital ticketing

Entry and exit points unlock with facial recognition

Fast lanes to bypass normal queues

Facemask detection

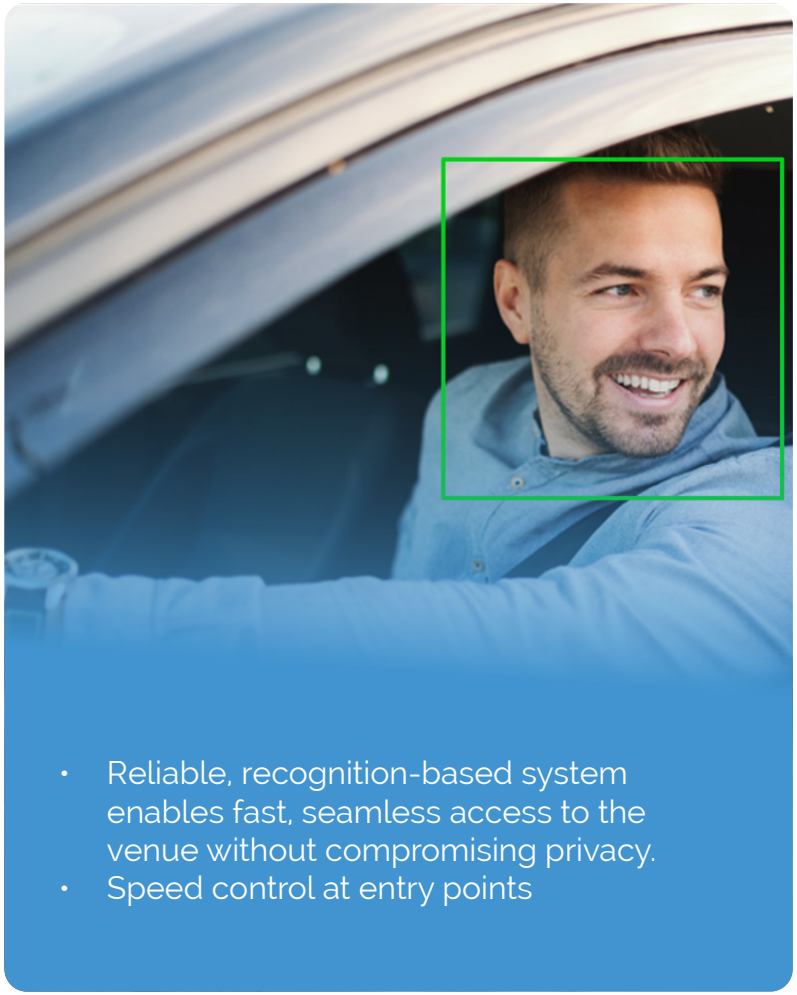


Ticket collection

Technologies involved

License plate recognition, facial recognition, liveness detection, mobile app (stadium/team branded), ticketing system

Use case: Season ticket holder VIP parking



- Reliable, recognition-based system enables fast, seamless access to the venue without compromising privacy.
- Speed control at entry points

Use case: Crowd management

- Ideal for venues and stadiums with multiple entry and exit points
- Results can be displayed in real-time in the video feed
- Aggregate values can be viewed on a dynamic dashboard in the control room, along with other operational statistics

Use case: Identifying hooligans and banned fans

Upload a list of known hooligans and banned spectators

Identify hooligans as they enter the stadium

ID new hooligans in real-time and dynamically add them to your watchlist

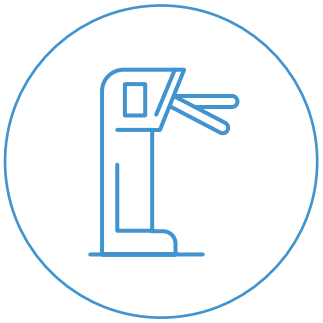
Use case: Defend against scalpers

Upload a list of known scalpers

Identify scalpers approaching the stadium

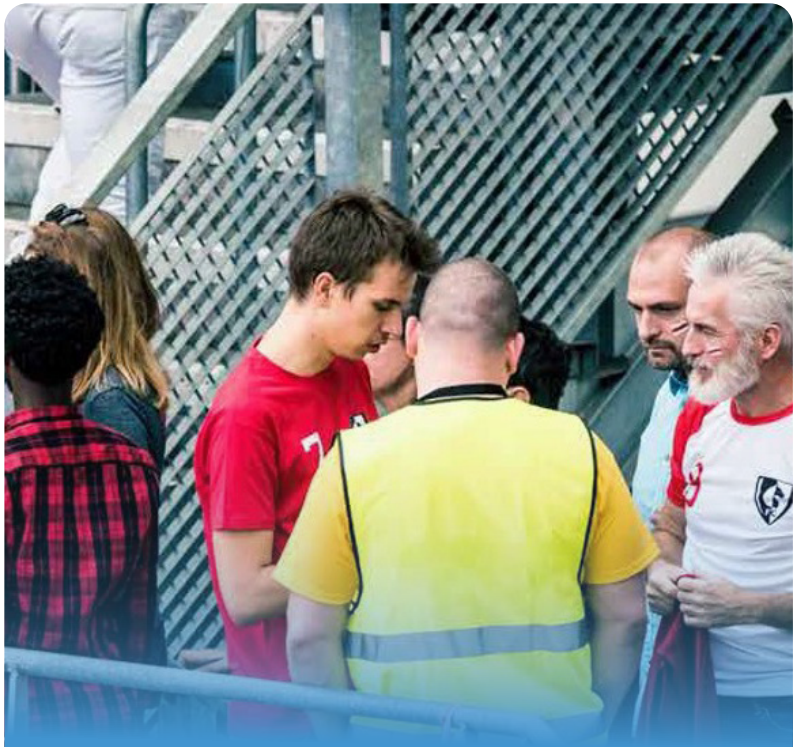
ID new scalpers in real-time and dynamically add them to your watchlist

Enable online pre-registration using face ID



Turnstile opens based on facial recognition

Use case: Authorized access control



Reliable facial recognition system enables fast, seamless access to the facility without compromising privacy

- Speed control at entry points

Use case: Missing children watchlist and alerts

1

Child goes missing

2

Parent provides a photo of the lost child to security

3

Stadium security adds the child's picture to their watchlist

4

Security cameras scan for the child's face in real-time

5

Security is alerted when the child is spotted

Use case: Increasing player safety with contact tracing

1

A player or coach tests positive for COVID-19

2

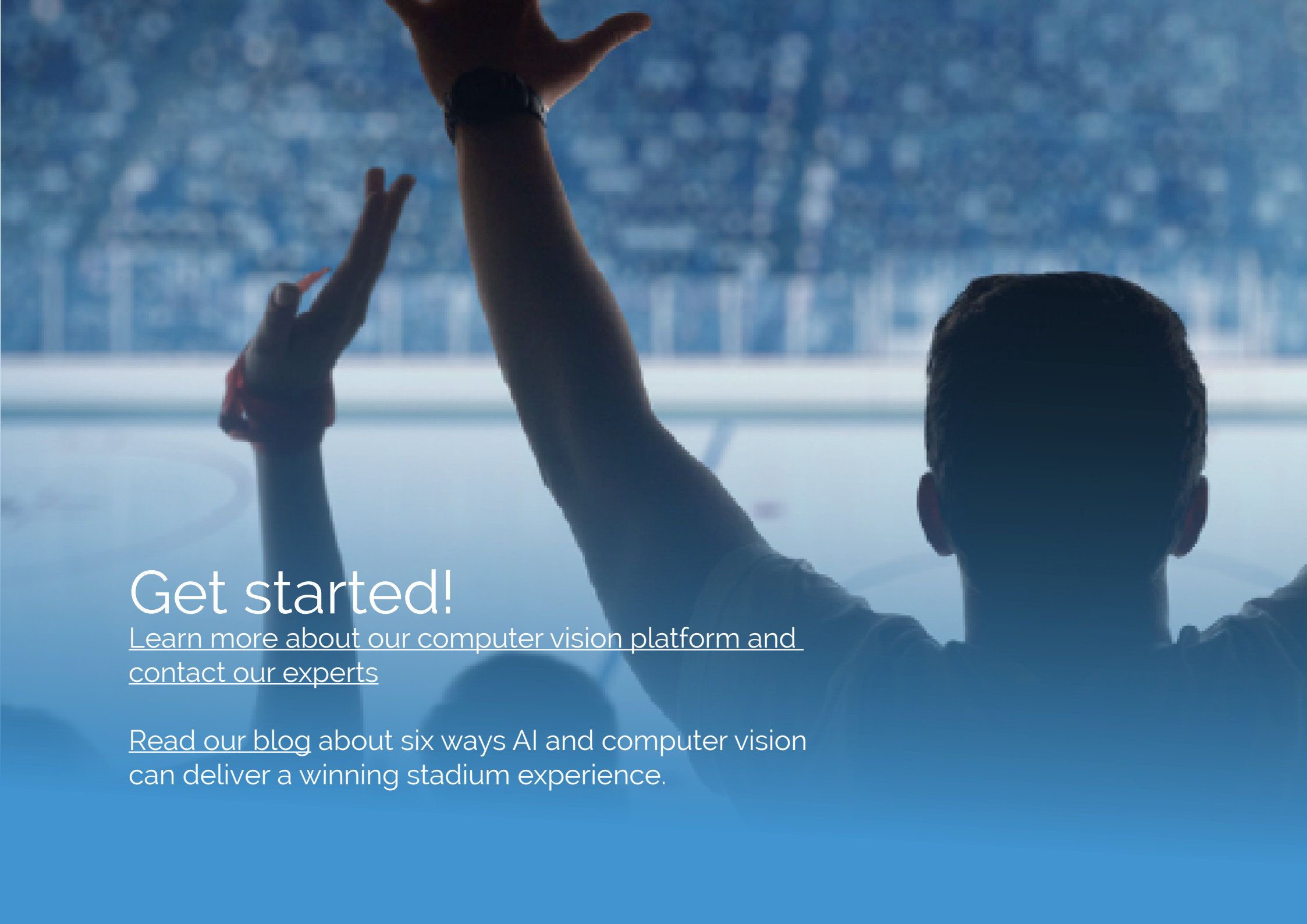
Historical footage from practice facilities is reviewed

3

Players who were in proximity are identified

4

Temperature checks are implemented at the point of entry to flag high temperatures



Get started!

Learn more about our computer vision platform and contact our experts

Read our blog about six ways AI and computer vision can deliver a winning stadium experience.

About Atos

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Let's start a discussion together

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