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VIX **VIZION**

Leading the way  
in face recognition  
& video analytics



# About Vix Vizion

Vix Vizion Pty Ltd is a global leader in video analytics and facial recognition technology. Founded in January 2011 and based in Brisbane Australia, we are a dedicated team of machine learning and data specialists. We are at the forefront of providing fast, accurate and robust video analytics solutions for video based applications.

## **Imagus Facial Recognition & Video Analytics**

Vix Vizion specialise in developing, deploying and supporting Facial Recognition and Intelligent Video Analytics software using advanced deep learning algorithms. Our Imagus branded software is designed to

quickly and accurately capture, enrol, detect, recognise and match faces across a range of environments. Imagus provides intelligent video analytics data (including age, gender, emotion, people counts, by time/date and camera location) to improve business planning and decision making.

## **Locally Developed and Supported**

Our Imagus software is designed, developed and supported in Australia by our specialist local team. Our Imagus production algorithms have been independently tested and proven to perform extremely well by NIST.

## **Multiple Deployment Options**

Imagus is easily integrated with existing video management systems, access control systems and other video based applications, or can be used stand alone. It is designed to be integrated with a wide range of software solutions to provide valuable video analytics and face recognition capabilities for new or existing infrastructure. It can be deployed locally on premises or in the cloud and can be managed as a local, cloud or distributed system across multiple locations.

## **Fast**

Fast reliable face recognition and intelligent video analytics.

## **Accurate**

Accurate across 1-to-1, 1-to-many and crowded environments. Optimised for uncooperative and controlled environments.

## **Flexible**

Flexible, easy to implement. Local, cloud or distributed deployment options

## **Trusted**

Designed with privacy as a priority. Designed developed and supported locally.

OUR MISSION

**We build and deliver  
trusted reliable AI-based  
video analytics solutions  
that make the world safer  
and improve people's lives.**

# Our team



## Simon Herron

### CHIEF EXECUTIVE OFFICER

Simon Herron leads Vix Vizion's growing team of cutting edge Video Analytics experts. With almost 30 years of international business development and IT industry expertise, Simon's focus is to deliver innovative technologies to market to improve business outcomes.

Simon is an experienced business manager and Chartered Accountant with a background in fintech, payments, biometric and ID verification technologies. Simon has successfully implemented innovative technologies in the air transport, public transit, retail, and banking and finance industries globally.

Simon is committed to delivering innovative technical solutions which solve problems and enhance the success of customers' businesses.



## Steve Brain

### CHIEF TECHNOLOGY OFFICER

Steve Brain is Vix Vizion's technical leader and technology strategist. Steve is an experienced specialist in video surveillance and video analytics software, with a Masters in Computer Vision, Speech and Human Centred Systems from University of Birmingham, and nearly 20 years experience engineering solutions for industry in UK and Australia.

Steve's industry experience includes designing and building video surveillance software for BAE Systems, and being the technical authority for surveillance systems installed in Parliament House in Canberra and on the new Queen Elizabeth Class aircraft carriers.

Steve joined Imagus in Australia as a founding employee and designed and built the core Face Recognition technology used by Vix Vizion. Steve is recognized as a subject matter expert in Video Surveillance and Video Analytics.



## Jim Christis

### CHIEF OPERATING OFFICER

Jim Christis is a seasoned IT professional with in-depth experience across fintech, telecoms, retail and government sectors. Jim has over 25 years experience transforming operations, leading enterprise solution implementations, and delivering product strategy initiatives across the Asia Pacific region.

Jim has been involved in Facial Recognition and Video Analytics in various roles over the last 15 years. He has led the deployment of high profile solutions across Digital Onboarding, ID verification, Security/Fraud and Retail Analytics.

Vix Vizion is a team of dedicated machine learning, face recognition and data analytics specialists.

Our head office is in Brisbane Australia, where we design, develop and manage the deployment of our technology in close cooperation with our customers and partners.

Vix Vizion provides central system monitoring and support for our customers and partners across Australia, New Zealand, UK and Asia from our Brisbane based support centre. We also have experienced operations, technical and support staff on the ground where our customers are located.

We are dedicated to providing the highest quality technology and the best customer service in the industry.

# Why work with us?

Vix Vizion is focused on our customers' success. We engage in a program of continual technology enhancement to meet the needs of our customers and business partners.

## TRUSTED

Our Imagus software has been designed with privacy principles top of mind. Imagus can be installed locally on your own secure servers. Video footage and data captured by Imagus can be stored in your own secure data centre. Images of faces can be stored as metadata so that the actual image files can be deleted whenever you require. Metadata can be used for future reporting, forensic analysis or matching against stored or future video feeds. Analytics data can be de-identified and stored as consolidated analytics. Imagus has been approved for use in government sponsored projects in Australia.

## RELIABLE

Our deep learning team is focused on continual development of Imagus face recognition accuracy, speed and reliability. Our Imagus production models are capable of, and have been independently tested, to accurately recognise faces on subjects with and without masks, in 1:1 and 1:N scenarios across controlled and uncooperative environment in real time. Our software search capabilities are very fast, capable of searching 12 million faces per second. The software is designed to be compatible across most video formats and with a wide range of legacy infrastructure and cameras, as well as the latest cameras and edge based hardware. Imagus can be deployed locally, in the cloud or as a distributed solution.

## VALUE ADDING

Imagus includes a wide array of intelligent video analytics and forensic reporting capabilities. We produce data from video streams that adds value to your business. People count, demographic data, and emotion data - by time and location - provides insight into the use of your sites and facilities for planning and management. Alarms, ad hoc and regular reporting enables event alerts, muster reports, people tracking and forensic incident investigation. Analytics data can also be used in your Business Intelligence systems. Our analytics team is focused on building analytical capabilities to meet the specific needs of our customers.

## INTUITIVE

Imagus is designed to be used either as an integrated component within a wider software solution, or as a stand alone service. Imagus includes intuitive UI portals for system configuration and system operation/management which are designed around the needs of the specific user types. Faces can be easily enrolled and alarms can be easily configured from the UI. Reporting tools include both simple high level reporting and detailed forensic reporting options. Plug-in options are available to simply integrate our software with various Video Management Systems and Access Control Systems, or customers can integrate using our SDK and API's.

## SUPPORTED

Vix Vizion is an Australian based business with local Australian based software development, delivery and support staff. Our technology is designed and built in house in Australia and all of our support team are local staff working directly with our customers alongside our technology and delivery teams. We are a proudly customer focused business employing a skilled and dedicated team to support both our customers and our software where and when our customers require.



# What we provide



# Enhanced Security

Vix Vizion's Imagus software delivers fast accurate face detection, matching and recognition using advanced deep learning algorithms.

## Fast Accurate Face Recognition

- Fast, accurate, and reliable real time face recognition from live feeds.
- Detect, match and recognise in crowded or 1-to-1 scenarios, and uncooperative environments.
- Monitor, detect, identify and alert on people of interest and security risks.
- Configurable alarms and notification tools.
- VMS independent – deploy stand alone, integrated via SDK/API's, or through a deeply integrated Milestone plug-in option.

## Forensic Investigation and Analysis

- Powerful forensic search and historical analysis tools for incident/event investigation.
- Known and unknown associate identification.
- Intelligent video analytics tools including age, gender, emotion, mask detection, people counts, by time, date and location.

# Biometric Identity and Access Control

Vix Vizion's Imagus integrates with your access control system to enable contactless multi-factor authentication using facial biometrics at access control points. Imagus seamlessly integrates with multiple access control systems either through integration plug-ins or via SDK/API.

## Customer Onboarding and Authentication

- Imagus facial biometric capabilities enable you to capture faces and information from identity documents and via web cam when customers interact with your online webflow.
- Capture and match faces for online customer onboarding or authentication. Imagus software is designed to enhance your existing onboarding and identity verification process.

## Biometric Access Control

- Imagus uses facial recognition and biometric face matching to enable contactless access control at secure access points.

## Access Control System Plug-Ins

- Imagus is fully integrated with multiple access control systems enabling straightforward implementation. Imagus can also be deployed as standalone software.
- Seamless integration plug ins for Gallagher, Integriti, Inception with others being added as required by our customers.
- Secure access and management of credentials is maintained by our access control partner systems which also manage the access authorisation process centrally. The database of images associated with credentials is synchronised with Imagus to enable matching. Imagus provides the access control system with a face detection, recognition and match capability that is seamlessly integrated into the access control process.



# Staff & Workplace Management

Imagus Facial Recognition and Video Analytics can be used to improve your workplace through better site and staff management.

## Staff Induction and Identification

- Imagus can be integrated with your HR or staff induction/management processes to improve safety for staff at worksites by ensuring the right people have access to secure areas and they have the correct qualifications to perform skilled and dangerous tasks.
- Onboard, capture and store a face during staff induction and associate it with ID credentials, access control credentials, qualifications and specific site permissions.

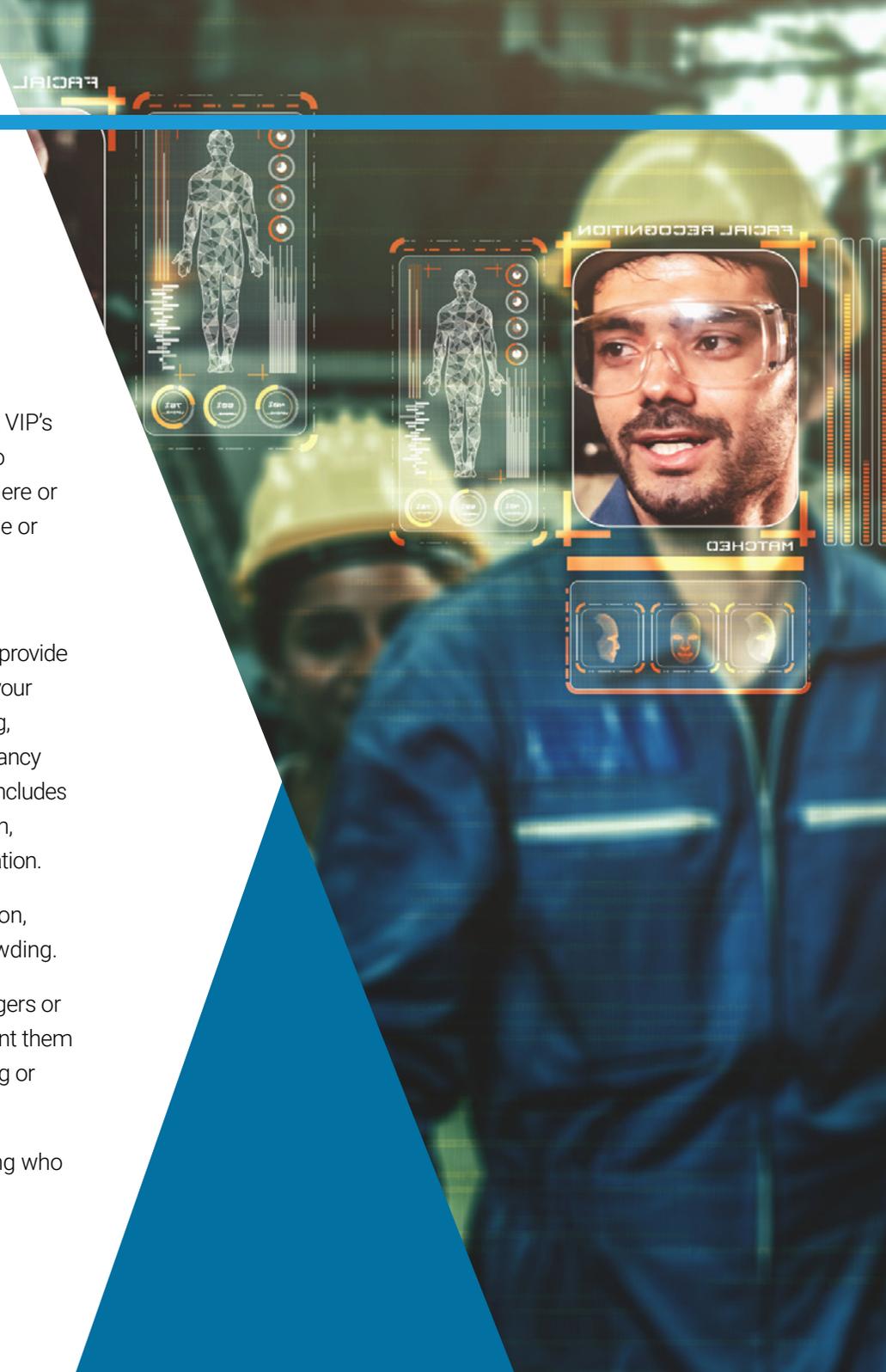
## Workplace and Site Access

- Integrated with your CCTV or Access Control systems, Imagus can check that the correct individual is using the correct ID credential when entering a specific areas or entering a worksite to perform a qualified role.
- Enable people counts, hot/cold lists, muster reporting and tracking for workplace safety.

- Monitor an area for people of interest, VIP's or banned people; alert on people who enter a site area who do not belong there or do not hold the right security clearance or qualifications for secure areas.

## Site Planning

- Vix Vizion's Video Analytics capabilities provide rich data from video feeds throughout your workplace that can be used for planning, decision making, and to monitor occupancy and movements. Video analytics data includes people counts, age, gender, and emotion, captured by time, date and camera location.
- Monitor areas of high traffic, congestion, optimal and suboptimal usage or crowding.
- People counting - customer's, passengers or staff leaving and returning to site - count them in and out and report on who is missing or extra - including demographic data.
- Site traffic flow planning data, including who or how many were where and when.



# Alerts & Incident Investigation

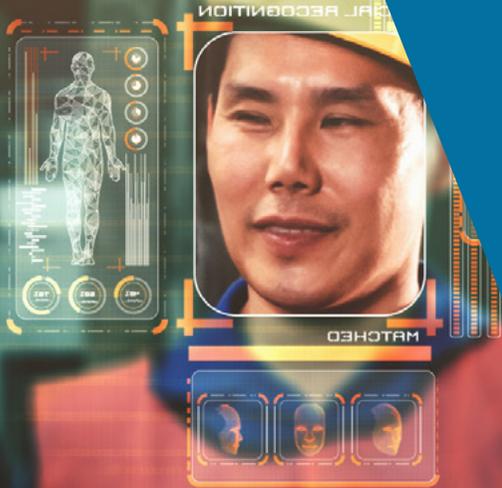
Vix Vizion's alerts and reporting tools provide for both detection and notification of events that are captured by video feeds in real time, and the ability to forensically investigate historical incidents captured in video feeds from on site or elsewhere.

## Alarm on defined events

- Our software includes highly configurable alerts and notifications capabilities which can be managed by you through a user friendly UI to provide real time alarms and notification when defined events occur (eg: seeing a particular face at a particular time/place).
- Alert status is managed through the UI and notifications are sent via various channels: SMS; Email; Screen flashing; Activating external light panels, or; Web call out to external alerts/paging systems.

## Incident Investigation

- Vix Vizion's reporting capabilities include a forensic analysis option which provides the ability to investigate incidents or events in great detail for internal management, assisting law enforcement and contact tracing.
- Forensic tools include ability to search for people very quickly from very large quantities of historic video footage, identify known and unknown associates of specified people, track people across camera feeds and across dates and times, and provide demographic, occupancy and emotion based information from video feeds.



# Improved Customer Experiences

Imagus enables better customer service and management of your business.

## Retail

- Recognise VIP's, customers with special needs, security risks.
- Demographic and video analytics data provides information for targeted marketing campaigns and retail site planning.
- Returns desk monitoring to reduce returns losses and theft.

## Education

- Integrate face biometrics with to improve time and attendance recording and reporting, student management and proctoring.
- Improve campus safety and security using biometrics at access points and in secure areas.

## Hotels, Clubs, Sporting Venues and Casinos

- Identify and alert on VIP's , members, ticket holders and security risks.

- Detect, alert and manage self excluded patrons and ensure compliance with local regulations.

## Health Care / Aged Care

- Identify and alert on at-risk patients, enrolled staff and VIPs as they enter facilities or specified locations.
- Detect and alerts when at risk residents enter specified locations or attempt to leave a facility.
- Utilise forensic reporting and mask detection capabilities for contact tracing and quarantine management.

## Banking / Finance / Telecoms

- Face capture and matching for customer onboarding and login authorisation in online workflows, and in stores/branches.
- Monitoring for people of interest (fraud/risk/VIP's) in stores/branches.
- Utilise analytics data for branch/store staffing & planning

## Accommodation

- Track and report on guests/residents entry/exit, where they have been seen, when and who with; alert on unknown people entering secure facilities.
- Utilise analytics data for facilities planning

## Ports

- Ensure more effective and efficient compliance with the Maritime Transport and Offshore Facilities Security Act 2003 (MTOFSA) by incorporating facial recognition and video analytics into your Maritime Security Plan (MSP).

## Transit

- On vehicle or station passenger monitoring and analytics for business decision making, marketing, service planning and security.
- Facial biometrics for automated fare collection and access control at gates and turnstiles.



# Who we work with

## Some of our partners

Vix Vizion's software is designed to work alongside or integrated with a wide range of software services and hardware infrastructure. To bring these capabilities to market we employ a multi-channel approach. We work with core technology partners, systems integrators, and sector specific solution partners to provide our technology to their customers. We also work with corporate and government customers to provide our software and services directly.

Some examples include -



Government  
of South Australia





# Our solutions

AIR FORCE  
350°

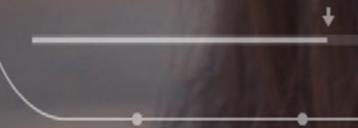
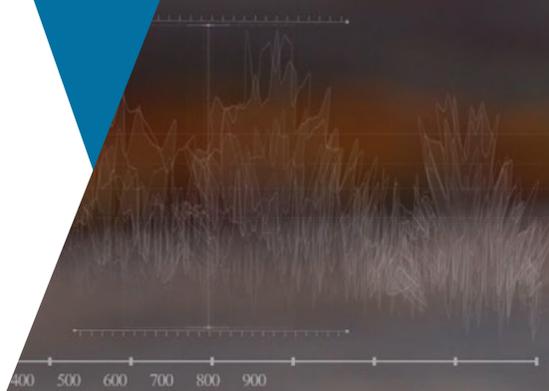
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## Imagus Core Facial Recognition System

### Fast, Accurate and Reliable Market Leading Facial Recognition.

Vix Vizion's Imagus Facial Recognition System delivers fast accurate face detection, matching, recognition and tracking using advanced deep learning algorithms. Imagus is effective with high or low densities of people in frame, even with poorly lit, poor quality, angled or obstructed views.

Imagus is easy to deploy and operate with intuitive UI's for operation and management. Imagus can be deployed stand alone or integrated with your VMS as a local, distributed or cloud based solution.

#### FACE DETECTION

- Monitor video streams either stand alone or integrated with your VMS.
- Market leading face detection accurately detects faces in video streams in real time in crowded or 1-to-1 scenarios and uncooperative environments.

#### FACE RECOGNITION

- Easily enrol faces for recognition from existing databases, from video footage or on the fly using Imagus.
- Flag faces for recognition – eg: VIP / person of interest /banned etc. Monitor, track and alert in real time.
- Known and Unknown associate identification.
- Privacy controls and facial blurring.

#### FACE VERIFICATION

- Identity verification for staff/customer/passenger onboarding and management.
- Access control integration.
- Enhanced security.
- Liveness / anti-spoofing.

## Imagus Intelligent Video Analytics

### Improved business decision making through Video Analytics Informative data to enhance safety and planning.

Vix Vizion's Imagus Intelligent Video Analytics module works seamlessly with Imagus Core Facial Recognition to provide valuable insights into the behaviour and demographics of people seen in video footage through data capture and reporting.

#### IMPROVED SAFETY AND SECURITY

- Visualise and report on occupancy and people counts by location, time and date.
- People counting and ID checking to manage staff/customer entry and exit.
- Alerts on people of interest or unknown/unidentified people.
- Emotion tracking for staff/customer well being by location, time and date.
- Improve site design to optimise traffic flow and safety.
- Hot/cold list reports and alarms.
- Mask detection / face detection while wearing masks.
- Compliance, and contact tracing.

#### VIDEO ANALYTICS

- Age, gender and emotions.
- People counting, occupancy, crowd counting.
- Location, time, date.
- New analytics are added regularly as required by our customers making, planning, security and marketing applications (age, gender, emotion, direction).

## Vix Vizion Alerts and Forensic Reporting Toolkits

### Enhance business intelligence with advanced incident management and data correlation.

Detect, identify and alert on people of interest, VIP's and security risks in real time. Vix Vizion's Alerts and Reporting Tools include powerful incident and event investigation capabilities enhanced by intelligent video analytics.

#### ALERTS

- Configure events through an intuitive UI.
- Alert status management via Imagus UI's.

#### NOTIFICATION

- Enable real time notification via SMS, Email, Light Panels, Screen Flashing or Web callouts to other systems.
- Alert/notification reporting.

#### FORENSIC ANALYSIS

- Powerful forensic search and historical analysis via intuitive UI's.
- Investigate historic footage captured by Imagus or import footage for analysis to assist investigations and law enforcement.
- Investigate known and unknown associates.
- Find people across many video streams extremely quickly and download data about when, where, who, plus demographic information.
- Access data for input to your BI systems.

## Vix Vizion Monitoring & Support Service

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**Vix Vizion provides a web based monitoring and support service option to monitor the status of your face recognition and video analytics.**

Designed for high security and compliance based installations, the monitoring service covers single and multiple or distributed systems and has the option to provide redundant internet connectivity for secure sites.

### **MONITORING**

- Our central monitoring station monitors the status of your system operation without receiving any private data or video streams.
- Designed to ensure robust connectivity and alert customers on hardware, connectivity or software issues.

### **REDUNDANCY**

- We provide the option to provide redundant internet connectivity for distributed or cloud based solutions where constant connectivity is required.

### **REMOTE SERVICE**

- We offer customers the option to enable a secure remote service configuration from our central customer services centre enabling our team to remotely maintain your system.
- The service is customised to our customer requirements and may include either simple remote software updates, a remote customer care capability excluding data and video, or a full remote secure access capability.

## Imagus Plug-Ins

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**Seamless and simple integration options allow you to enhance and extend any existing environment.**

Vix Vizion's Imagus software can be operated as a stand alone solution alongside your existing VMS, CCTV or Access Control System, or it can be deployed as an integrated solution.

Vix Vizion also provides deeply integrated seamless plug-in options for several VMS and Access Control Systems which are designed to make the implementation and management of Imagus capabilities for existing systems very easy. We continue to add new plug-ins as required by our customers.

### **PLUG-IN OPTIONS**

- Milestone VMS
- Luxriot VMS
- NX Witness VMS
- Gallagher Access Control
- Integriti Access Control
- Inception Access Control
- and more on the way....

# Product Capabilities

## CORE PRODUCT CAPABILITIES

- Facial Detection
- Facial Recognition
- Face Verification (1:1)
- Face Identification (1:many)
- Mask detection / recognition
- Facial onboarding / enrolment
- Facial capture by video stream, image upload/ scan, and web capture
- Face analytics and reporting – age, gender, emotion, mask detection by time/date/location
- Video analytics – crowd counting, people counting, tracking by time/date/location
- Emotions (at present): Angry, Sad, Fear, Happy, Surprised, Disgust, Neutral
- Gender 95% accuracy
- Age groups: - currently 0-13, 13-20, 20-35, 35-45, 45-60 and 60 +
- Known/unknown associate identification
- Forensic analysis and reporting
- Anti-spoofing options
- Facial recognition based on advanced deep learning algorithms

## FEATURE EXTRACTION

- Ability to generate tiny face identification models representing a person's unique biometric
- Ability to extract information while not keeping a record of the image if required
- Accurate video recognition using multiple frames
- Combines multiple face images of any given person to generate a stronger model for comparison

## FACE DETECTION AND TRACKING

- GPU-accelerated real-time face detection
- Users can define regions of interest for face detection
- Ability to determine landmarks in less than 1 ms for extremely accurate face alignment
- Ability to track various faces through multiple types of video streams such as webcam, CCTV, archived video images etc.
- Generate a unique tracking ID for every person and delivers face locations in the video stream

## FLEXIBLE SYSTEM FEATURES

- Full system configuration UI for admin and users
- Configurable alarms, alerts and messaging
- Fast checking and alerts. Subsecond alert generation; 2s/12m record search
- System threshold and false positive management via admin portal or SDK VMS integration (including deeply integrated Milestone plug-ins)
- Access control integration (eg: Gallagher, Integriti, Inception...)
- Database management using PostgreSQL or SQLite
- Bulk enrolment options for database integrations
- Extensive reporting capabilities
- Grayscale and colour support
- Formats supported include but not limited to JPEG, PNG, WebP, H264, H265, MJPG, MPEG4
- Operates in stand alone or integrated modes

## DEPLOYMENT OPTIONS

- On premises
- Distributed
- Headless (services)
- SDK
- Web portal
- Cloud

## EXTREMELY ROBUST AGAINST

- Expression changes
- Large pose changes  
( $\pm 90^\circ$  yaw,  $\pm 15/-30^\circ$  pitch,  $\pm 30^\circ$  roll)
- Beards, moustaches and hairstyle changes
- Facial obscuration
- Glasses, hats and headgear
- Lighting variations
- Low/high-quality images
- Indoor/outdoor operation
- Motion blur
- Compression artefacts



# Frequently asked questions

## QUESTION

**Is Imagus installed Locally or in the Cloud?**

## ANSWER

Imagus can be deployed locally, as a distributed system, or in the cloud. The optimal setup will depend on the customer requirements. For example, where a customer has multiple sites managed centrally we recommend a distributed system where video captured at local sites is processed locally and data is sent to a central system which may be in the cloud or a private data centre. The central face image database will also be managed in the central system. This has the advantages of saving on data costs by processing video data locally so that video streams do not need to be uploaded to the cloud. Analytics and specific image/event data is managed by the central system which also synchronises and manages the central image database. Video footage can be stored locally on secure servers. Distributed systems can be managed through edge based technology or traditional camera/server technology – the optimal hardware/software approach will depend on the site requirements.

## QUESTION

**What type of camera and server hardware is required to run Imagus?**

## ANSWER

Imagus is designed to run on a wide range of camera hardware from legacy CCTV infrastructure to the latest edge-based devices. The basic requirement is that the hardware is an IP camera and that it is positioned sufficiently well to capture faces.

The software has been specifically designed to operate on commercially available PC's and server hardware to reduce the cost and complexity for customers. The key hardware requirement is the need for an NVIDIA GPU for video processing. The specific server hardware required for a project is dependent on the number of camera streams and the specific use case – i.e.: how much video footage and how many frames per second are being captured and analysed.

Please refer to the technical specifications and environment setup information on the “Support” section of our website for more details ([www.vixvizion.com](http://www.vixvizion.com))

**QUESTION****How does Imagus keep data secure and private?****ANSWER**

Imagus is designed with privacy as a priority and can be deployed across a range of environments according to customer privacy and security needs. For example, in high security scenarios Imagus is typically deployed on our customer's own secure servers either alongside or integrated with their VMS or Access control system and is then subject to the customer's own security policies and infrastructure.

Video data that Imagus collects can be processed locally on customer servers such that no video data is exposed to third party systems. Video and data are stored on the customer's own secure database and can be encrypted at rest.

Images of faces are hashed and stored as metadata so that the actual image files can be deleted whenever you require. Metadata can be used for future reporting, forensic analysis or matching against stored or future video feeds. Analytics data is related to a specific hash of an image, and can be de-identified and stored as consolidated analytics data for reporting.

**QUESTION****I have an existing VMS – How do I deploy Imagus?****ANSWER**

To access the facial recognition and video analytics capabilities of Imagus you will need to (i) deploy the Imagus software, and (ii) connect feeds from cameras on you site/s. Vix Vizion typically either works with your team and your existing security/infrastructure vendors to deploy our systems, or we recommend one of our trusted installation partners to assist with the installation process.

(i) Imagus can be either integrated with your VMS or deployed as a stand alone system operating alongside your VMS. You will need to install the Imagus software modules or our relevant integration plug-in on your servers and configure the system. This is a straightforward process that will be guided and assisted by our team. Depending on the use case and number of streams we will recommend a server hardware configuration for your needs.

(ii) Depending on the camera infrastructure you already have in place we will either connect Imagus to existing IP camera feeds or we will recommend installing some new cameras or repositioning existing cameras. Imagus is compatible with a wide range of cameras and video formats (please refer to our website). Our team or our trusted installation partners will work with you to complete this task.

# Contact us

## Get in touch with us

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(+61) 1800 861 007

**VIXVIZION.COM**

