Live Face Matching for Proactive Security and Automated Operations

Choose a Force-Multiplier for Security, Identity Verification and Customer Experience

Hitachi Live Face Matching (LFM) analyzes live video to recognize registered individuals for security or operational purposes (see Figure 1). Highly accurate and able to run on a variety of different camera feeds, LFM is a powerful tool for law enforcement, corporate security, identity-based operations and customer services. High accuracy, frame rate capacity and affordability make LFM a clear choice for your facial recognition solution.

Safety and Security
Facial recognition can assist in a wide variety of applications for law enforcement, campus or facility security, and investigations. LFM provides the high accuracy required for security and safety-related environments, consuming and analyzing massive amounts of data to reduce data overwhelm, automate real-time alerting and enable proactive response. Use cases include:

- Threat detection and alerting.
- Suspect search for known criminals and terrorists.
- Missing person investigation, location and alerting.
- Loss prevention alerting for known offenders.

Automated Operations
Businesses in every sector are under intense pressure to improve efficiencies and reduce wasted time. LFM delivers the capabilities to improve the speed and efficiency of operations, especially with crowd management or entry verification. Use cases include:

- Seamless boarding for transportation and travel.
- Automated clock-in for employees.
- Journey tracking throughout campus or facilities.

Customer Experience
Enhance the experience of your customers with targeted services and fast identity verification in retail stores, airports, theme parks and stadiums, hospitality and more. Proactive alerts and customer tracking can help you understand their needs, and overdeliver on their expectations.

- VIP alerting and enhanced services for loyalty.
- Payment identity verification for seamless checkout.
- Compulsive gambler or drinker assistance.

Figure 1. LFM matches faces in real time.
Member verification for automated concierge and VIP services.

Customer visit statistics from historical data.

Superior Accuracy, Speed and Extensibility

Facial recognition technology has advanced quickly in recent years and is being used for a variety of applications, such as smartphone security, law enforcement and smart retail. However, Live Face Matching is built for enterprise environments as a robust, accurate and high-speed solution. This strong performance is delivered through:

- **High-accuracy matching**: Many solutions use only a single face-matching pattern. When matching the input video to the facial image of the target person, LFM identifies positions of each facial feature, and matches by extracting and comparing these features in the same position. Up to six patterns of face images can be registered per person. This improves matching accuracy in the field, where faces are seen in multiple directions and with various positions of shadows. This is a superior approach to using only a single pattern.

- **High-speed matching**: LFM can extract multiple faces from a single image in parallel and match in real time (5fps), processed at a high-speed maximum of 60 faces per second with a single server input of four cameras running in parallel.

- **Robust solution for real-world environments**: In the real world, faces shift direction and appear differently due to lighting, shadows and so forth. LFM is a robust solution that is built for these environments, using existing IP video surveillance footage, or using new cameras (camera positioning will still affect accuracy, as is the case for any facial recognition solution).

- **Search stored footage**: In addition to matching using live footage, LFM also allows uploading of movie files to match faces in historical footage.

- **Auto-alert reporting and configuration**: LFM can report an alert to external devices, and the user has the option of switching the matching function on or off and set the threshold for facial similarity to match the monitoring environment or degree of similarity they are seeking.

- **Software development support**: A software development kit (SDK) is provided to support development in the user’s application system through Web API command. LFM alerts are integrated into Hitachi Visualization Suite (HVS) and market-leading Hitachi Video Management Software (HVMS) for full situational awareness and operational intelligence.

Privacy Protection

Privacy protection is also available for video streams, using Hitachi Video Analytics and its Privacy Protector, which pixelates people in the video, to avoid exposing personally identifiable information (PII). Other analytics like LFM can still run in the background and alert registered individuals. If the original footage needs to be used for investigative purposes, access can be granted for authorized individuals, and their usage is tracked by the system, giving transparency into the usage of the video. This is especially important in sensitive locations like hospitals, schools or private facilities.

Hitachi Live Face Matching is a powerful, accurate and accessible solution for security, operations and business that can be deployed in a variety of environments to meet the needs of your use cases and outcomes. LFM is a valuable part of a full Smart Spaces and Video intelligence solution that helps improve safety, operations and customer experience. Together, these technologies help organizations reach the holistic business, safety and operational outcomes they seek.

**Learn more** about how Hitachi Video Analytics helps you to improve decision-making and protect people without compromising privacy.