

Face Recognition and Casinos Opportunities & Best Practices

Overview

In the fast-paced and high-stakes environment of modern casinos, managing player identification, security, and customer service is increasingly challenging. Traditional methods of identification, such as membership cards and manual checks, are inefficient, prone to human error, and interrupt the patron experience.

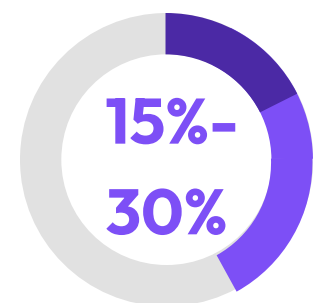
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It is now possible to uniquely and continuously track every patron in a casino in real-time across every moment and play. Headline applications include patron loyalty and bonusing, benefiting casino operators, and anti-money laundering measures, benefiting the commonweal. However, just because we can, doesn't mean we should, and these applications must be balanced with measures to ensure privacy and accuracy for the benefits to be socially acceptable and sustainable.

Artificial Intelligence (AI) and Face Recognition Technology (FRT) are transforming the casino industry. Xailient delivers responsible AI solutions that align with global standards, ensure privacy, and enhance operational efficiency. This white paper explores the applications of FRT in casinos, the importance of ethical AI practices, and how our technology can help operators provide superior service to patrons, protect their privacy, improve operational efficiency and meet regulatory requirements.

Why ID?

- ✓ Patron loyalty and bonusing
- ✓ Analysis of play patterns
- ✓ Anti-Money Laundering
- ✓ Harm minimization



Proportion of Anonymous Patrons in US Casinos



AI is a generalist term and usually refers to software that was “trained” using “Machine Learning”.



Computer Vision is the specialist field interprets images and video for use as computer input.

The Role of AI in Casinos

AI technology has rapidly evolved, enabling casinos to enhance their operations, improve customer experiences, and ensure compliance with regulations. In practice, AI is most effective when integrated into operational systems to bring additional data, to analyze existing data streams, or to automate processes that require human routines. Operations optimization, including floor configurations, marketing programs, and staffing schedules, can benefit from AI’s ability to distill patterns from data. Today, most of the data used to improve profitability is collected from existing sources, such as Casino Management Systems (CMS), Hospitality Systems, Point of Sale (POS) systems and Customer Relationship Management (CRM) systems. Computer Vision AI adds a new source of data, leveraging cameras to collect information about physical spaces, such as foot traffic flows, occupancy, and behavior.

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What is Computer Vision?

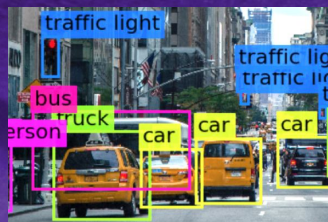
Computer Vision is software that interprets images and video for use as digital input. Images are easily transmitted, stored and displayed for human observation, but Computer Vision is needed for any measurement or automation tasks.

Digital images (and video) must be analyzed by Computer Vision to determine if, for example, an image includes a person. Diversity in camera angles, distances, and lighting; and in human attire, pose, and appearance make the process challenging for computers. Machine Learning processes and the AI revolution have dramatically advanced the field of Computer Vision.

The most common types of Computer Vision AI are:



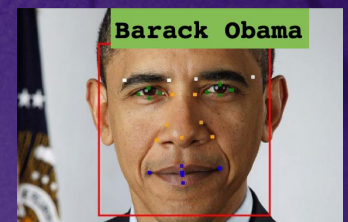
Classification - makes determinations about the entire image, for example 'cat', 'dog', or 'none'.



Detection & Localization - provides details about specific object types and where those objects are within an image. Often referred to as 'Detection'.



Character Reading - reads numbers, letters and/or symbols. Often referred to as "OCR", for Optical Character Reading, or ALPR for "Automated License Plate Reading".



Face Recognition - analyzes an image of a face for the purpose of matching against one or more other face images. Often referred to as Face Recognition Technology or (FRT).

The Role of FRT in Casinos

FRT, one key application of Computer Vision AI, can be used to distinguish individuals. Early deployment for FRT in Casinos monitored entrances, comparing visitors to watchlists. Later implementations extend this ability to the security cameras, where FRT might be used to search for specific individuals, for example in response to an incident or alert. But until today, FRT was simply too expensive to operate at 'full scale'. Expensive smart cameras were required to constantly monitor the entry cameras, or expensive servers could perform a limited search across a fleet of security cameras, by skipping across cameras searching for an individual. But, until recently, constantly monitoring thousands of cameras and simultaneously matching in real-time against millions of registered identities was cost prohibitive.

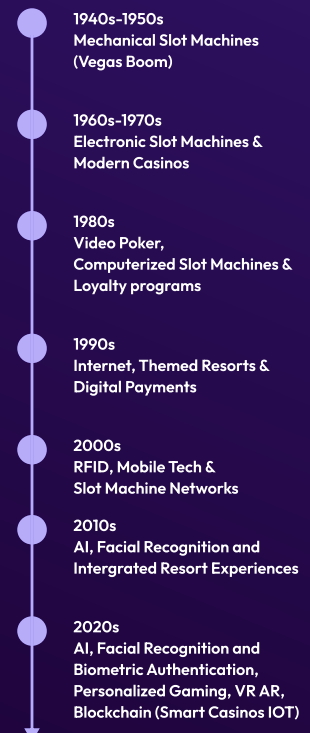
Recent advances by Xailient make it practical to scale FRT to recognize millions of registered identities across thousands of cameras in real-time.

Patented breakthroughs fundamentally transform the unit economics, innovative systems automate delivery and maintenance, and hardware-agnostic Edge AI opens the landscape of low-cost. This offers numerous benefits to the casino industry:

- 1. Improved Customer Experience:** FRT can personalize the customer experience by recognizing VIP guests and tailoring services to their preferences. This personalization can lead to increased customer loyalty and higher revenue for casinos.
- 2. Enhanced Security:** FRT already aids casino security measures, ensuring a safer environment for all patrons. For example, by alerting security personnel when barred individuals attempt to enter. Recent advancements in FRT make it practical to expand monitoring to thousands of cameras and to upgrade from 'after the fact search' to continuous real-time recognition. Augmenting security staff with AI serves as a force multiplier, tightening security while reducing costs. It's now mainstream for Casinos to use FRT in security solutions to improve surveillance and maintain the integrity of their operations.



The evolution of luxury in casino resorts has long been influenced by technological advancements which enrich guest experiences.



3. Regulatory Compliance: Money Laundering prevention, tax compliance and harm minimization regulations impose operational requirements on casinos. FRT can help casinos comply with these regulations by monitoring patrons' behaviors and automating compliance operations. According to a [report by JPMorgan](#), digital transformation in the gaming industry is essential for maintaining compliance while also optimizing operational efficiency.

4. Operational Efficiency: FRT improves operational efficiency by streamlining enrollment, loyalty earning & redemption processes, and eliminating the overhead of physical cards. Customers and operators benefit by eliminating the wait times and customer service labor of card provisioning and replacement.

FRT can be installed on either existing security surveillance systems or on new cameras deployed for specific purposes. While not all cameras are set up to serve all use cases, camera costs have dropped 10x in recent years, driven by the economies of scale in adjacent markets. Casino operators stand to benefit from the boom in smart cameras that has swept through consumer electronics and retail automation.



440%

\$264 million in AML related fines were issued to casinos in 2022 - an increase YoY of over 4x.

What is Edge AI?

Edge AI is the industry term for AI that processes data at the source, rather than in a centralized location. The term is contrasted with Cloud AI, which operates in data centers. Edge AI reduces the need to transmit data and wait for a response, leading to cost efficiencies, speed and reliability improvements, and gains in cybersecurity and data privacy.

Many jurisdictions have ruled that operating Edge AI does not constitute 'data collection' for legal purposes. This is significant for Computer Vision, because images and video can contain data that is subject to privacy regulations or other laws.

Edge AI analyzes data at the source, and can be configured to delete images in real-time. For example, Edge AI FRT can watch for excluded patrons and alert security staff when a known subject attempts entry, while all other patrons will be ignored and their images discarded.

**Edge AI runs on
cameras & devices**



**Cloud AI runs in
Data Centers**





74%

74% of casino patrons express concerns over how their personal and financial data is used by gaming operators



40%

Nearly 40% of casinos report challenges adhering to data privacy regulations

Responsible AI and Ethical Considerations

Beyond gaming regulations, casino operators are subject to a broad range of privacy laws and emerging regulations pertaining to the use and application of AI. The public is also taking note. Brands, such as Apple, that are perceived as trustworthy stewards of data are rewarded with higher customer loyalty. Responsible practices are good business.

Some of the most critical elements of Responsible AI for casino operators to consider are:

- 1. Privacy Assurance:** Early FRT ignored privacy, but modern solutions that use Edge AI can empower casino use cases and simultaneously protect privacy. Edge AI, where data processing occurs locally within the camera, enables automation of key use cases without incidental data collection - a key provision of many privacy laws. This aligns with emerging trends in casino technology where privacy and data security are paramount. Xailient systems employ Edge AI.
- 2. Bias Mitigation:** FRT systems should be rigorously tested on an ongoing basis to ensure accuracy and fairness across diverse populations. Some regulatory frameworks, such as the EU AI Act and Colorado AI Act, mandate ongoing assessments to mitigate bias and improve transparency, a regulatory trend that is likely to continue. Casinos benefit from fine-tuning technology to their unique properties and markets.

Xailient has advanced the state of the art in bias mitigation in AI systems and holds multiple patents on cutting edge techniques for AI results auditing and AI accuracy improvement.

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3. Transparency and Accountability: Transparency is key to building trust in AI technologies. The difference between a customer experience that feels ‘magical’ and one that feels ‘creepy’ stems primarily from a patron’s sense of trust in the brand. Brand trust, long a mainstay for casinos, can be protected and enhanced by responsible AI practices – particularly as casinos extend AI into more guest experiences, advancing the future vision of casinos. Xailient is a leader in advocating industry best practices on data collection and use, and we provide our customers with robust oversight mechanisms to set, review, and enforce their privacy and AI policies.

4. Supply chain: Today, AI and semiconductor technologies are subject to trade restrictions, and the trend of recent years has been toward increasing restrictions, regardless of political party. Operators should work with vendors that are taking steps to ensure compliance today, and mitigate risks of disruption tomorrow. Xailient builds AI using ethically sourced data and practices, and works with manufacturers from multiple countries.



**Over 80 jurisdictions
have passed privacy
or AI regulations.**

How does Xailient ensure Privacy-safe FRT?



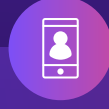
Patron Protection

Faces are matched using de-identified and secure templates, preserving anonymity of the patron.



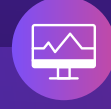
Control Dashboard

Privacy settings are adjustable based on your jurisdiction, customer opt-in, and security policies.



Distributed Architecture

Information is distributed across devices so face templates and identities are not stored together.



Auditing & Improvement

System is audited to prevent bias & ensure accuracy.



Biometrics will be used to **make \$5.8 trillion in annual payments by 2026.**



Online experiences have taught customers to **expect brands to personalize the experience**; an operational challenge for offline and hybrid brands.

Practical Applications and Case Studies

Not surprisingly, player tracking sits at the top of many casinos' priority lists. Destination venues are experimenting with technological innovations across luxury casino resorts, but a few standout applications are already feasible and proven:

- 1. Cardless Rated Play:** FRT can be used to deliver the advantages of rated play, without the cost and friction of player cards. Cameras installed in Electronic Game Machines, or at tables, provide an alternative log-in method to cards or mobile phones.



Low-cost retrofit cameras with on-board FRT are being deployed into EGM globally.

- 2. Opt-in Loyalty Redemption:** Cameras and FRT at the point of sale deliver the same frictionless experience of earning points while gaming to redeeming points. Cameras installed at the check-out counter of food and beverage concessionaires can deliver a single, seamless login across both CMS and POS to access rewards.
- 3. Premium area and concierge access:** VIP recognition is perhaps the best known and most widely installed application. Recent advances have driven down costs to a point that resorts can deploy FRT at every customer touchpoint.

Today's FRT Solves Today's Problems with Patron Cards

1. Opportunity cost: Once a venue has invested in the infrastructure, RFID, magnetic stripe, and NFC cards are relatively inexpensive – typically costing less than a dollar each. But the real costs of cards come in lost time for patrons, which translates into lost income for the casino.

When a patron loses a card, or a card becomes demagnetized (usually by sitting in the same pocket as their phone) casino customers must interrupt their holiday or business trip to visit a customer service representative. Time spent waiting in line, and navigating to and from the service desk is a nuisance for patrons and a lost opportunity for the venue to deliver monetized services.

2. Fraud: Bad actors know that player cards are used to enforce anti-money laundering and other protection measures. Fraudsters can generate counterfeit cards, steal legitimate cards, or pay other patrons to 'lend' them their card. The risks of identity fraud are not unique to casinos, and advances in banking technology coincide with the expansion of FRT in gaming.

3. Discontinuity: Visitors to destination venues do not consistently bring their player cards with them. This results in lost insights, as this year's 'new' patron may have a valuable history of play from previous trips. AML enforcement is also vulnerable to discontinuity as bad actors know to operate just below 'anonymous limits', changing location and date to avoid triggering reporting thresholds.

FRT systems can replace cards, or be used as a 'second factor authentication' – ensuring the patron playing with a card is the person to whom the card was issued.



1%-3% of loyalty programs admit to experiencing fraud annually, often related to misuse of lost or stolen patron cards



30%

30% of casino operators report time spent on card re-issuance could be better used in direct customer engagement or operational efficiency improvements



Thailand's integrated resorts, provide a case study of how innovative and culturally sensitive approaches to AI benefits the industry.

Tomorrow's FRT will deliver novel customer experiences

Most brand-customer interactions are now digital, and customer expectations from other sectors influence their expectations with casino gaming. To stay relevant, physical casinos increasingly need to blend digital and physical experiences.

FRT and other computer vision will deliver new and more immersive interactions to patrons such as games that react and respond to nearby customers, interactive light and sound installations, augmented reality mini-games. Combined with emerging trends, such as leaderboards and social gaming, AI will create a customer experience where digital and physical interactions merge for a new level of fun.

Casinos will also benefit from advances in AI from other sectors. For example retail automation contactless payments and grab-and-go shopping streamline customer experience and reduce operating costs. FRT is already deployed to verify IDs in vending machines that dispense alcohol. And AI can help limit venue liability by detecting signs of intoxication, transferring technology already used to reduce drunk driving. AI will continue to improve the productivity of hospitality staff, so casino patrons can spend more time enjoying their visit and less time waiting in line.

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Conclusion

The integration of AI and Facial Recognition Technology into the casino industry delivers improved profitability and safety. Ethical practices and responsible governance are achievable using today's technology, and commitment by operators and regulators to deploy responsible systems will build patron and public trust that these benefits do not come at social cost.

At Xailient, we are proud to lead the way in developing AI solutions that align with global standards and contribute to a safer, more secure world. Our work with Casino Management System, Point of Sale System, and Hospitality System providers deliver important benefits to casinos and make it practical for them to join the community of responsible AI leaders.

The integration of AI and Facial Recognition Technology into the casino industry delivers improved profitability and safety.



About Xailient Inc.

Xailient is the world leader in privacy-safe artificial intelligence solutions for computer vision applications. Our AI software enables real-time object detection, facial recognition, and other computer vision tasks and complies with privacy and AI regulations in over 80 jurisdictions globally. Xailient's patented technologies drive transformation across various industries by enabling devices to **See What Matters.**