

SesaMe

Your face is your key



- Revolutionary AI, detecting spoofing and distinguishing between real-life faces, printed photos or iPad images
- No need for special sensors - operates with any smartphone camera
- Minimum authentication time - reduced to just 4 milliseconds
- Stronger than any other credential, including fingerprints
- Easy Integration - simple SDK for iOS and Android

YOUR FACE IS YOUR KEY

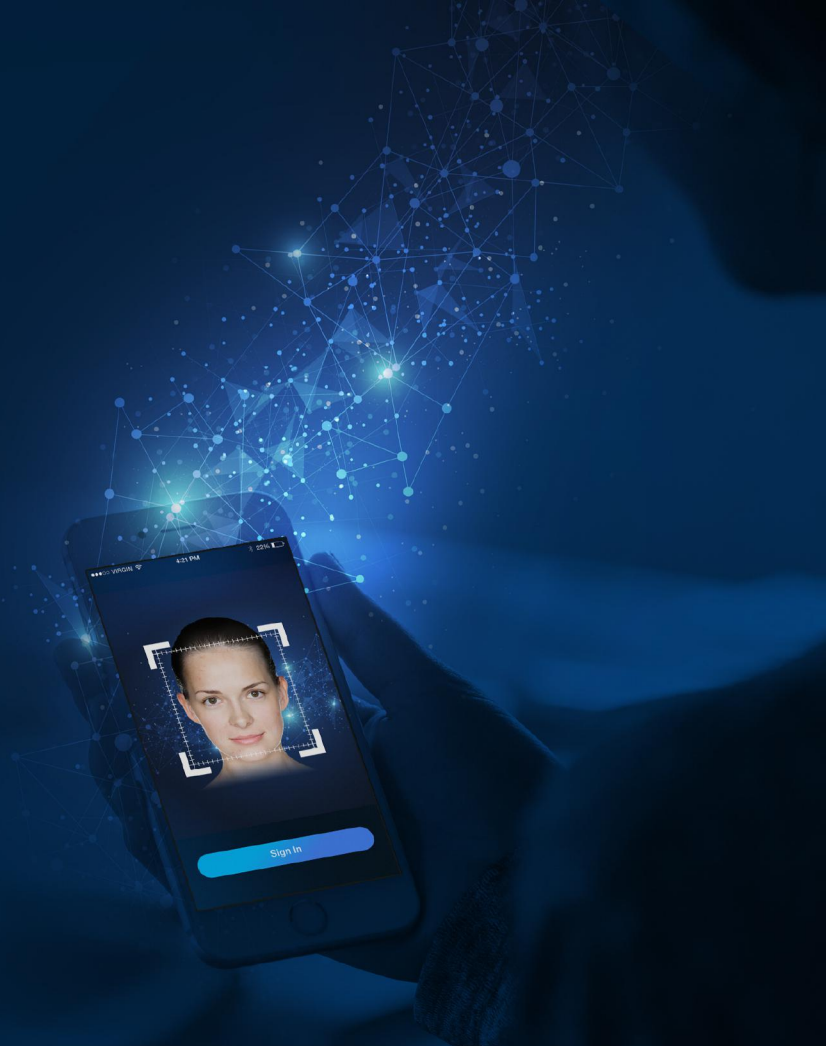
For the first time ever, your camera phone is able to distinguish between an actual face and a printed image or an image on a device.

SesaMe is an authentication & onboarding mobile SDK (Software Development Kit) built upon AnyVision's API.

Utilizing AnyVision's proprietary neural nets, SesaMe's unparalleled abilities include real-life face detection from any camera phone and face authentication, allowing access to authorized people only.

AnyVision's 1:1 face verification has not only been tried and tested but has also grabbed the #1 place in NIST's ranking.

We ensure that any data processed by us is in the form of an irreversible mathematical expression. We have also added some unique features, designed to assist the data controllers to comply with GDPR's requirements.



WHY SESAME?

Authentication Method	Simplicity	Security	Supported Devices	OVERALL
SesaMe	Glance at your mobile device to authenticate. Operates in various light conditions, invariant to eye glasses, sun glasses, headphones, facial hair, age difference, and ethnicities	1/10,000,000 The most secure method of protecting digital assets	All modern smartphones	The leading onboarding and authentication procedure in terms of security, intuitive processes and seamless user experience
Fingerprint	Do not work with gloves and wet hands. sensor won't work in different temperatures or when not clean	1/50,000 No liveness detection, fingerprint can be faked easily	Expansive hardware, malfunctions occur on a regular basis, with high false positive rate	A good way to authenticate yet does not offer a seamless experience
IRIS	Poor user experience, most systems require close proximity, poor performance with glasses on and users must be controlled	Most systems do not employ liveness detection	Very expensive, specialized hardware, very few mobile devices support this technology	Non-seamless user experience, requires unique hardware, very expensive
Password	Can be stolen easily, highest application churn rate occurs when users forget their credentials. 81% of data breaches occur due to weak credentials	No security protection whatsoever. Studies show most users keep their passwords on the same mobile device they use to access a certain digital asset	Supports all devices, acceptable for every asset. Most users have the same password for all their accounts	Old method, no liveness detection, easily breached

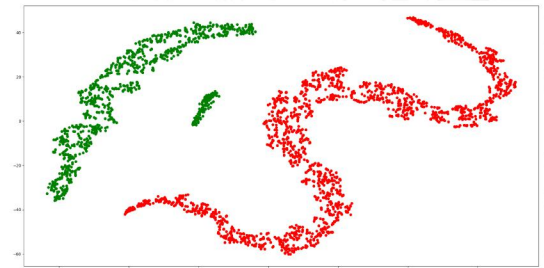
STATE OF THE ART TECHNOLOGY

Face recognition has been used for identity verification in controlled environments for several years. However, there is increasing demand for more passive security experiences as well as deployment in unconstrained environments (e.g. a person's phone). Authenticity has thus become a hot face recognition topic, with 'liveness' detection used to identify if the image before the camera is a real person or an image manipulation.

AnyVision has developed unique algorithms, identifying novel ways of discriminating between real and fake faces taken by standard RGB cameras. Our method achieves state of the-art performance (accuracy higher than 99%) against the CASIA face anti-spoofing database and IDIAP replay-attack database.

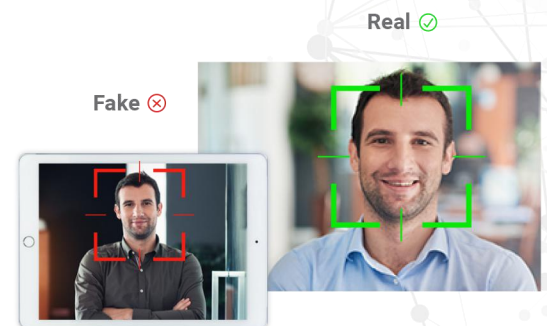
Real-world scenarios

- Immune to different lighting conditions
- Built to handle spoofing attempts
- Liveness detection



■ - Real ■ - Spoof

A 2D representation of the features learnt by our liveness net shows clear separation between live and spoof videos



TECHNOLOGY BENCHMARKS 1:1 FACE RECOGNITION



AnyVision is continually working to produce ever more robust face recognition models. Here is a short description of two of our recent world-leading models:

ANV. LeanFace

- Most of the existing face recognition models are derived from general object recognition models.
- Face recognition differs from object recognition because the former focuses more on the local texture details and the latter more on global information.
- Motivated by this, LeanFace has more neurons in the first few layers of our deep model to capture the low-level texture details.
- LeanFace achieved #1 in the IARPA Janus benchmark - a face challenge (IJB-A) [1] organized by the National Institute of Standards and Technology (NIST).

ANV. AttFace

- Motivated by some facial attributes being invariant to pose (e.g. gender or eyebrow shape).
- AttFace is a fusion between LeanFace and a facial attribute recognition model.
- Achieves #1 accuracy on the Multi-PIE database which has pose variations in the range of $[-90^\circ, 90^\circ]$.
- Achieves #1 recognition performance on near infrared lighting vs. visible lighting evaluated on CASIA NIR-VIS 2.0 database.
- Published in the top computer vision conference ICCV (International Conference on Computer Vision) 2017 [2].

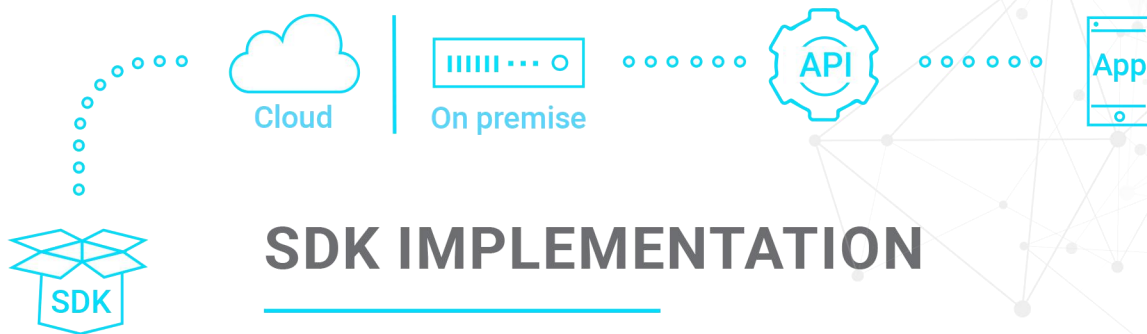
SECURITY IS EVERYTHING



Security is highly important. This is what led us to create an advanced authentication method that is both low - cost, and easy to integrate.

When SesaMe data (image or vector) needs to be shared with a centralized system - cloud or on-premise, it does so by forwarding its unique mathematical model, based on 140M binary code.

1. Multiple security available:
Symmetric and asymmetric keys, Key derivation, hashing algorithm & random number generator.
2. Vector Signature (X9.84 standard) to guarantee the origin and the integrity of the data sent to the host system.
3. The communication channel between device and host / distant system can be protected using either secure tunneling or offered security mode.



SDK IMPLEMENTATION

SesaMe specs for on-premises

HARDWARE SPECS	200,000 Average monthly active users	2,000,000 Average monthly active users	20,000,000 Average monthly active users
	10 -100 Concurrent Transactions	100 -1,000 Concurrent Transactions	1,000 -10,000 Concurrent Transactions
SERVER	-	-	ASUS ESC4000 G3
CPU	Intel Xeon E5-1650 v4 (or better)	Intel Xeon 2XE5-2650 v4 (or better)	2x Intel Xeon E5-2680 v4
GPU	1x NVIDIA TitanX Pascal or NVIDIA GTX 1080 Ti	3x NVIDIA TitanX Pascal or NVIDIA GTX 1080 Ti	4x NVIDIA GTX 1080 Ti
RAM	64GB (4x 16GB) DDR4 ECC	64GB (4x 16GB) DDR4 ECC	256GB (8x 32GB) DDR4 ECC RDIMM/LRDIMM
SSD	-	-	1X 2.5" 1TB SSD (SATA 3)
HDD	1x 2.5" 500GB SSD (SATA) + 1x 3.5" 6TB 7200RPM HDDs	1x 2.5" 500GB SSD (SATA) + 1x 3.5" 6TB 7200RPM HDDs	Up to 6x 3.5" 8TB HDDs 7200RPM (SATA 3)
RAID CONTROLLER	-	-	ASUS PIKE II 3108 8-port SAS HW RAID (Optional)
CASE	SILVERSTONE Sugo SG12 or SG11	-	-
BOARD	ASRock EPC612D4U	SuperMicro X10DAL-i	-
CPU COOLER	Dynatron R14 2U Server CPU Cooler Fan Socket 2011 Narrow ILM	Arctic Freezer 12CO	-
PSU	SILVERSTONE 80+ SILVER 850W	SILVERSTONE 80+ SILVER 850W	-

MULTIPLE APPLICATIONS

- **Onboarding** – replacing the regular KYC, allowing complete digital onboarding without the need for physical attendance.
- **Authentication** – replacing common practices of user authentication or as a multi-factor authentication solution.
- **Access control** – making sure only the right person can gain access.

Relevant for:

- Banking – KYC, web\app access, physical employee access
- Retail – cashless payment, onboarding
- Fintech – P2P transaction, KYC
- Mobile gaming and apps – onboarding and physical verification



BULLETPROOF KYC

- **ID verification**
- **OCR detail extraction**
- **Liveness detection**
- **Face recognition**
- **Combined certainty – 99.9%**

SesaMe is designed to support unique processes of authentication and on-boarding.

Understanding the challenges of protecting digital assets, we designed SesaMe's process to endure spoofing attempts & provide 99.9% of combined certainty.

Non-functional requirements

Camera quality: minimum 1MP

OS: Android 4.4 & up, iOS 11 & up





ACCESS ANYTHING, ANYWHERE, BY ANYVISION



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