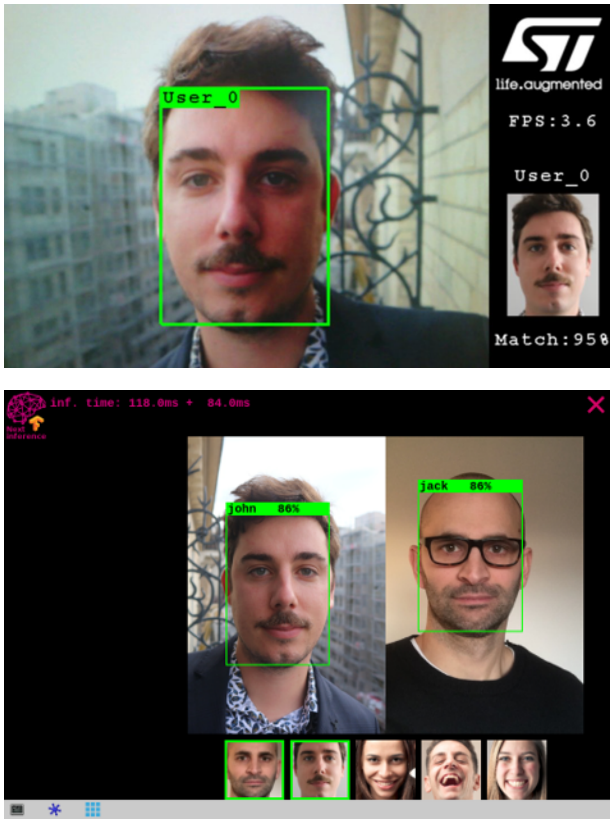
Data brief

Artificial intelligence (AI) and face recognition function pack for STM32Cube



STM32H7 MCU (top) and STM32MP1 MPU (bottom) face recognition application screenshots.

Product status link
FP-AI-FACEREC

Features

- Software for face recognition application on the STM32H7 microcontroller and STM32MP1 microprocessor
- Neural Networks solution optimized for STM32
- Cost-optimized solution based on microcontroller and low-resolution camera
- No loss of privacy by virtue of the local image processing
- Standalone solution, which remains fully functional and reactive even without Cloud connectivity
- Easy portability across STM32 microcontrollers by means of the STM32Cube ecosystem

Description

FP-AI-FACEREC is an STM32Cube function pack featuring face recognition application examples running on STM32 products.

FP-AI-FACEREC is composed of software components generated by the X-CUBE-AI STM32Cube Expansion Package for Artificial Intelligence (AI) complemented with application software components dedicated to the face recognition application.

FP-AI-FACEREC enables the development of advanced features based on face recognition on STM32H7 MCU or STM32MP1 MPU-based products using STMicroelectronics optimized solution. FP-AI-FACEREC is a fully embedded AI solution, processing images locally on microcontroller or microprocessor, which does not require to send any personal data to the Cloud during the enrollement phase or recognition phase.

Using STMicroelectronics face recognition libraries, it is possible to customize the behaviour of an equipment according to its end-user, who is recognized in real time using a low-resolution camera device.

FP-AI-FACEREC is supported on multiple computer vision development kits such as STM32H747I-DISCO with the B-CAMS-OMV RGB camera module bundle, or STM32MP157F-DK2 Discovery board, so that users can minimize time to market and develop full-featured applications on the platform of their choice with little knowledge in face recognition.

The face recognition applications for both STM32H7 MCU and STM32MP1 MPU are available on demand in binary format from the *www.st.com* website. For any additional information, contact the local STMicroelectronics support or send a request to edge.ai@st.com.

1 General information

The face recognition applications run on STM32 microcontrollers and microprocessors based on the Arm® Cortex® processor.

Note: Arm is a registered trademark of Arm Limited (or its subsidiaries) in the US and/or elsewhere.

1.1 Ordering information

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1.2 License

The face recognition application binaries are delivered under the SLA0078 software license agreement.

1.3 Applicable hardware

Table 1 shows the various available board combinations to run the face recognition applications.

Table 1. Available hardware for face recognition

Hardware configurations
MCU
STM32H747I-DISCO Discovery board connected to the B-CAMS-OMV camera module bundle
MPU
STM32MP157C-DK2 Discovery board connected to a UVC USB webcam
STM32MP157F-DK2 Discovery board connected to a UVC USB webcam
STM32MP157A-EV1 Evaluation board with the built-in OV5640 parallel camera
STM32MP157C-EV1 Evaluation board with the built-in OV5640 parallel camera
STM32MP157D-EV1 Evaluation board with the built-in OV5640 parallel camera
STM32MP157F-EV1 Evaluation board with the built-in OV5640 parallel camera
STM32MP157 Avenger96 board connected to a UVC USB webcam or the OV5640 CSI camera mezzanine board

2 What is STM32Cube?

STM32Cube is an STMicroelectronics original initiative to significantly improve designer's productivity by reducing development effort, time, and cost. STM32Cube covers the whole STM32 portfolio.

STM32Cube includes:

- A set of user-friendly software development tools to cover project development from conception to realization, among which are:
  - STM32CubeMX, a graphical software configuration tool that allows the automatic generation of C initialization code using graphical wizards
  - STM32CubeIDE, an all-in-one development tool with peripheral configuration, code generation, code compilation, and debug features
  - STM32CubeProgrammer (STM32CubeProg), a programming tool available in graphical and command-line versions
  - STM32CubeMonitor (STM32CubeMonitor, STM32CubeMonPwr, STM32CubeMonRF, STM32CubeMonUCPD) powerful monitoring tools to fine-tune the behavior and performance of STM32 applications in real-time
- STM32Cube MCU and MPU Packages, comprehensive embedded-software platforms specific to each microcontroller and microprocessor series (such as STM32CubeH7 for the STM32H7 Series), which include:
  - STM32Cube hardware abstraction layer (HAL), ensuring maximized portability across the STM32 portfolio
  - STM32Cube low-layer APIs, ensuring the best performance and footprints with a high degree of user control over hardware
  - A consistent set of middleware components such as RTOS, USB, TCP/IP, FAT file system, audio, and graphics
  - All embedded software utilities with full sets of peripheral and applicative examples
- STM32Cube Expansion Packages, which contain embedded software components that complement the functionalities of the STM32Cube MCU and MPU Packages with:
  - Middleware extensions and applicative layers
  - Examples running on some specific STMicroelectronics development boards

Revision history

Table 2. **Document revision history**

Date	Revision	Changes
19-Apr-2021	1	Initial release.

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