

## SOLUTION BRIEF

Intel® AI: In Production  
AI for Safety and Security



# CyberLink Delivers High-Performance Vision for Safety and Security

## CyberLink optimizes its facial recognition engine with the Intel® Distribution of OpenVINO™ toolkit



### At a Glance

CyberLink is leveraging a high-quality, high-performing AI engine, giving users the ability to improve safety and security through powerful computer vision technologies.

- Enable deep learning algorithms with greater processing power.
- Reduce costs by employing less computing power for the same amount of input.<sup>1</sup>
- Optimize performance and process near-real-time data faster with the Intel® Distribution of OpenVINO™ toolkit.

*“By using the Intel® Distribution of OpenVINO™ toolkit, we are seeing up to 5x faster performance for the facial recognition algorithm.”<sup>1</sup>*

—Richard Carriere, GM & SVP,  
Global Marketing, CyberLink

### Executive summary

Computer vision technologies have a wide variety of applications and can transform business and improve safety and security. As advancements in hardware technology brought market opportunity, CyberLink, an award-winning multimedia company, evolved its expertise in artificial intelligence (AI) to create FaceMe®, a powerful AI facial recognition engine for edge devices.

FaceMe is a fast, flexible, and precise facial recognition technology that supports the Windows, Linux, Android, and iOS operating systems in multiple hardware configurations. It enables deep learning using the Intel® Distribution of OpenVINO™ toolkit. FaceMe is ideal for security in public spaces, including offices, retail stores, and cities.

### Challenges

Facial recognition is a worldwide and growing market. By 2024, its market value is estimated to reach more than USD 9 billion.<sup>2</sup> There are opportunities for facial recognition technology in the security, public safety, retail, banking, healthcare, and home safety industries. Cities use the technology to help identify crime, retailers use it to analyze store traffic, and public entities focus on preventing vandalism.

Facial recognition requires a lot of processing power, and initially, CyberLink would enable GPU acceleration to run deep learning algorithms. However, this left out customers using CPU systems and those who needed to run facial recognition smoothly without the higher power needs of GPUs.

### Solution

With more than 200 patented technologies, CyberLink is proud of their engineering history and experience and considers it a competitive advantage. When the company decided to focus on AI-driven technologies, they developed FaceMe as an SDK to offer it to a variety of system integrators and solution providers. The FaceMe interface supports HTTP, C#, and C++ , which makes the solution deployable across multiple platforms.

To optimize the FaceMe solution and provide customers with a high-quality, high-performing AI engine, CyberLink turned to the Intel Distribution of OpenVINO toolkit, giving users the ability to process more frames per second (FPS), resulting in higher accuracy with near-real-time detection and identification. The solution also helps reduce costs for CyberLink's customers because they can now employ less computing power for the same amount of input.<sup>1</sup>

CyberLink also converted convolutional neural networks (CNNs) for facial recognition to OpenVINO, resulting in 5x performance improvements with CPU acceleration.<sup>1</sup> In addition, FaceMe supports GPU acceleration with a vision processing unit (VPU), like Intel® Movidius™ Myriad™ 2 VPU, to meet specific

performance requirements of high-end use cases. FaceMe also supports 3D anti-spoofing by supporting mainstream 3D cameras, such as Intel® RealSense™ cameras, to prevent photo or video attacks to facial recognition deployments.<sup>1</sup>

**FaceMe capabilities:**



**Detection**

Generate precise location for faces detected in an image and video stream.



**Landmarks**

Pinpoint up to 106 high-key facial points to create animated 3D models.



**Recognition**

Quickly identify individuals from a database based on face feature sets.



**Attributes**

Instantly analyze face attributes, including age, gender, emotion, and head orientation.

**Capitalizing on performance with the Intel Distribution of OpenVINO toolkit**

The Intel Distribution of OpenVINO toolkit helps CyberLink deliver powerful AI facial recognition even in legacy systems. In one example, CyberLink had a medical device customer with an Intel® architecture-based platform who wanted to deploy facial recognition. By running the Intel Distribution of OpenVINO toolkit, CyberLink was able to use the FaceMe SDK to enhance the customer's existing technology to perform at optimum speed.

**FACEME® SDK**

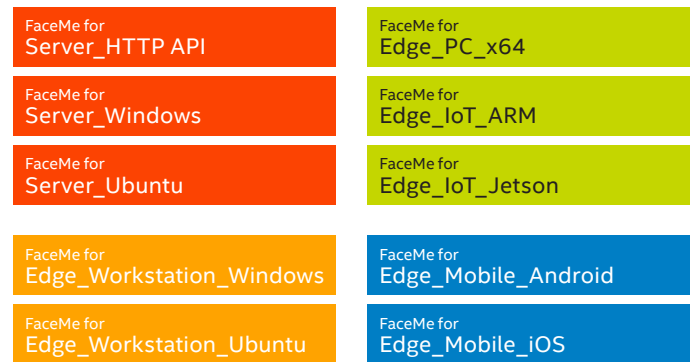


Figure 2: The FaceMe® solution is optimized for servers and edge computing devices in multiple scenarios and hardware configurations.

**UNDER THE HOOD: INTEL® DISTRIBUTION OF OPENVINO™ TOOLKIT**

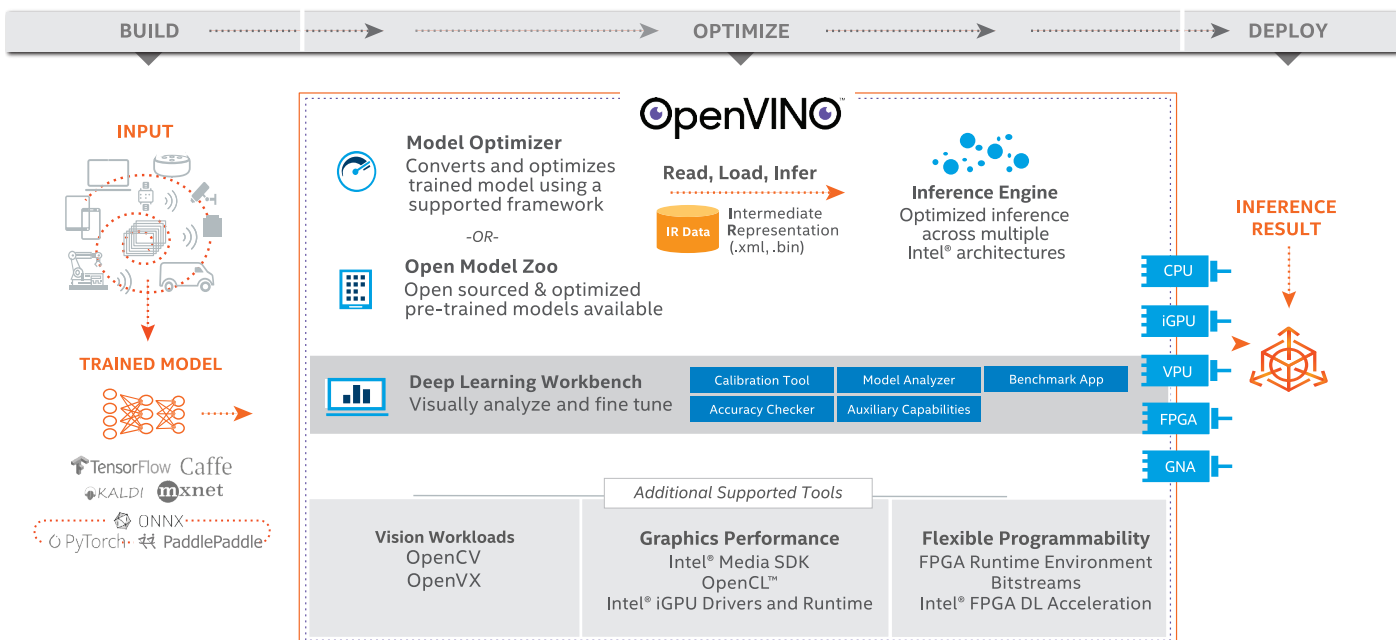


Figure 1: The Intel® Distribution of OpenVINO™ toolkit is a free software kit that helps developers and data scientists speed up computer vision workloads and streamline deep learning deployments from the network edge to the cloud.

## Use cases

CyberLink works with system integrators and solution providers to incorporate the FaceMe solution into a wide range of smart security, smart retail, and smart city applications, including:

### Security

Integrate FaceMe with IP camera systems to identify blacklisted people and generate security alerts.

### Retail

Generate real-time analytics to measure traffic and collect key demographic data in retail settings.

### Business

Track and control employee and visitor access to offices and restricted facilities.

### Manufacturing

Control access to restricted areas, machinery, and equipment.

### Smart home

Integrate FaceMe with smart doorbells and locks for home protection.

### Banking

FaceMe supports multiple antispoofing methods to help banking system integrators build smart banking solutions.

### Secure antispoofing

Help protect against biometric fraud, e.g., replay attack and print attack, with support for mainstream 3D cameras as well as 2D cameras on phones and tablets.

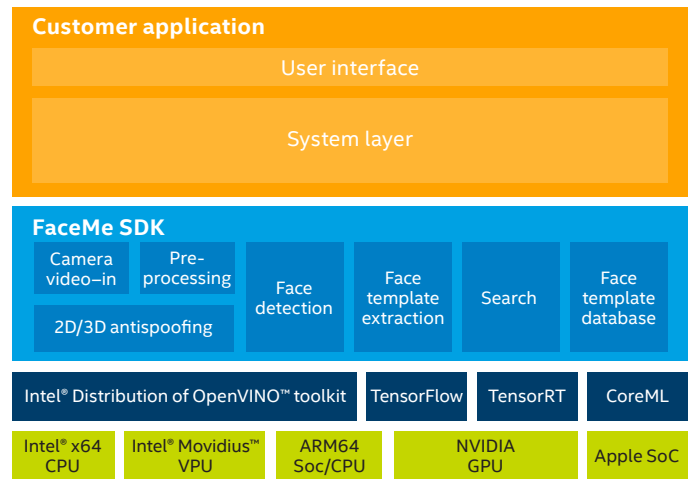


Figure 3: FaceMe® architecture

## Conclusion

Porting CyberLink's computer vision algorithm to the Intel Distribution of OpenVINO toolkit optimized the FaceMe SDK, resulting in fast, high-performing facial recognition, whether using legacy systems or the latest hardware. CyberLink also works with device makers to run facial recognition on Intel Movidius Myriad X VPUs in industrial PCs (IPCs) in the smart factory, smart retail, and healthcare markets, enabling high performance with low power.

Developers have the ease of using a flexible and precise facial recognition technology they can implement across multiple operating systems, servers, and edge computing devices. As a plug-and-play solution, the FaceMe SDK, coupled with the Intel Distribution of OpenVINO toolkit, shortens time to market, since developers don't have to build an application from the ground up. This makes the FaceMe SDK an exceptional solution for anyone developing deep learning applications.

## Make your vision a reality on Intel® platforms

Develop applications and solutions that emulate human vision with the Intel® Distribution of OpenVINO™ toolkit. The toolkit extends workloads across Intel® hardware to maximize performance:

- Enables deep learning inference at the edge.
- Supports execution across a variety of computer vision accelerators, including CPU, GPU, VPU, Intel® Neural Compute Stick 2, and FPGA, using a common application programming interface.
- Speeds up time to market via a library of functions and preoptimized kernels.

[software.intel.com/en-us/opencvino-toolkit](https://software.intel.com/en-us/opencvino-toolkit)

## Accelerate with developer tools

### More easily debug, analyze, build, and optimize on Intel platforms

Intel® System Studio provides a unified tool suite that simplifies the building of IoT solutions and embedded apps.

[software.intel.com/en-us/system-studio](https://software.intel.com/en-us/system-studio)

### Improve how you develop, test, and run your workloads

Intel® DevCloud for the Edge provides a cloud-hosted hardware and software platform for testing and optimizing on a cluster of Intel® hardware and software.

[software.intel.com/en-us/devcloud/edge](https://software.intel.com/en-us/devcloud/edge)

### Prototype faster and expedite your path to productization

IoT developer kits and accelerators offer production-ready hardware preloaded with software.

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### Explore and evaluate software

Download a wide range of free software tools from the Intel® Developer Zone to help you:

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2. Maximize hardware capabilities.
3. Add competitive features by unlocking the unique technologies in Intel platforms.

[software.intel.com](https://software.intel.com)

### Collaborate with others

Intel® AI: In Production is an ecosystem focused on reducing deployment complexities, promoting partner AI offerings, and increasing collaboration between its partners.

[intel.com/ai-in-production](https://intel.com/ai-in-production)

## Learn more

Learn more about FaceMe® at [cyberlink.com/FaceMe](https://cyberlink.com/FaceMe).

Learn more about the Intel® Distribution of OpenVINO™ toolkit at [software.intel.com/opencvino-toolkit](https://software.intel.com/opencvino-toolkit).

## About CyberLink

Founded in 1996, CyberLink Corp. is the world leader in multimedia software and AI facial recognition technology. CyberLink addresses the demands of consumer, commercial, and education markets through a wide range of solutions, covering digital content creation, multimedia playback, videoconferencing, livecasting, mobile applications, and AI facial recognition. With years of research in the fields of artificial intelligence and facial recognition, CyberLink developed the FaceMe® Facial Recognition Engine. Powered by deep learning algorithms, FaceMe delivers the reliable, high-precision, and real-time facial recognition critical to artificial intelligence of things (AIoT) applications.

Learn more at [cyberlink.com](https://cyberlink.com).



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1. Source: Internal CyberLink data.

2. Source: Mordor Intelligence report, <https://www.mordorintelligence.com/industry-reports/facial-recognition-market>.

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