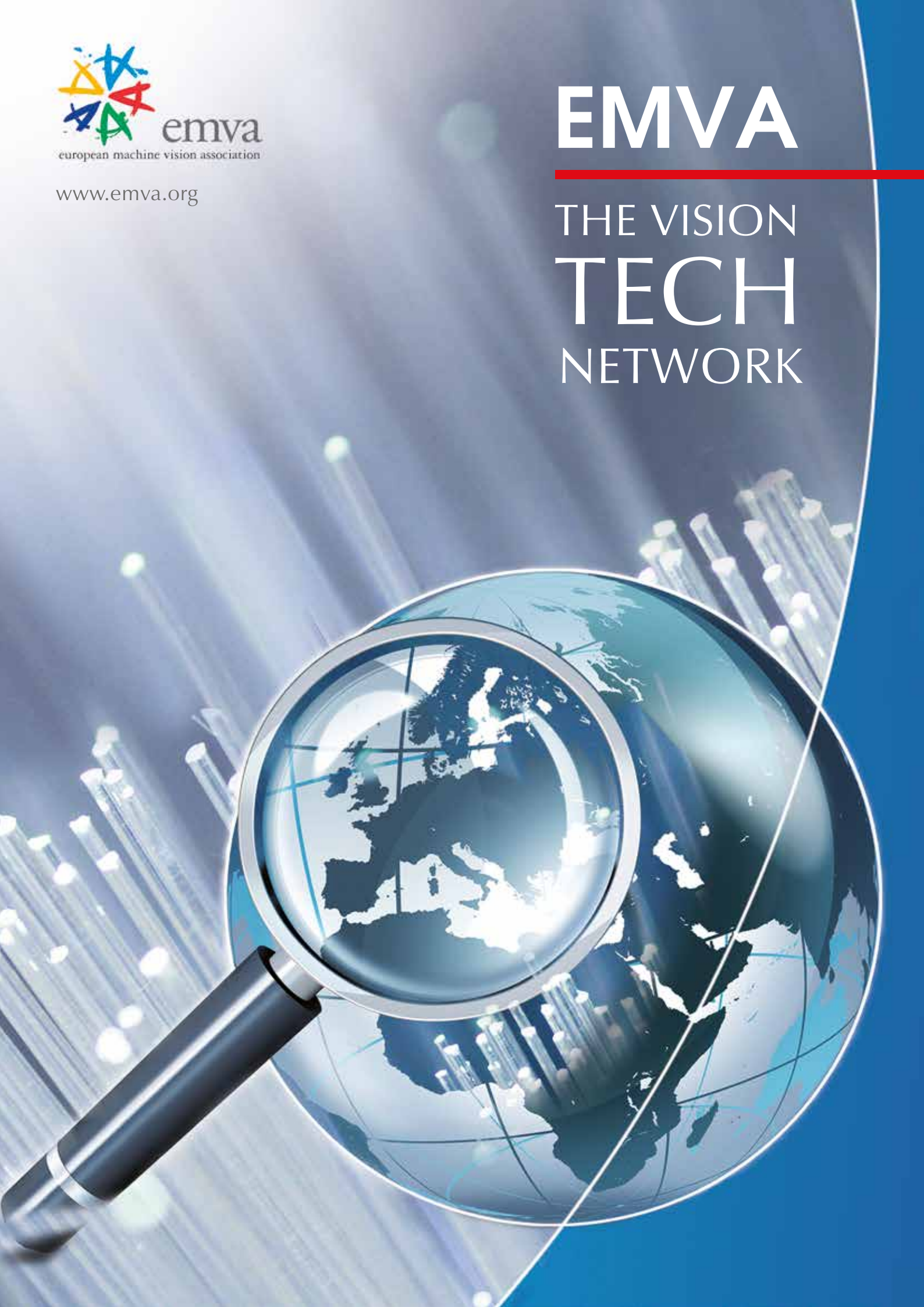![EMVA - european machine vision association](emva logo)

www.emva.org

EMVA

THE VISION
TECH
NETWORK

INTRODUCING EMVA

The European Machine Vision Association is a not-for-profit and non-commercial association representing the machine vision industry in Europe. The association was founded in 2003 in Barcelona by industry representatives from all over Europe as a network to promote the development and use of machine vision technology.

The EMVA is a platform for exchange, information and hands-on value for its members. The EMVA is open for all types of organizations having stakes in vision and imaging technologies: manufacturers, integrators, distributors, consultancies, research organizations and academia.

EMVA Key Facts:

- Lean non-profit organization established 2003

- 170 members from about 25 countries

- President: Dr. Chris Yates
  (Vision Ventures GmbH)

- Treasurer: Arndt Bake
  (Basler AG)

- General Secretary: Thomas Lübkemeier

- Host of global technology standards
  (GenICam, EMVA 1288, OOCI)

EMVA members – as the owners of the association – benefit from the networking, cooperation and the numerous and diverse activities of the EMVA.

MISSION STATEMENT

by EMVA President Chris Yates

Vision tech is one of the most exciting markets in the 21st century. By combining the power of digital imaging with innovative algorithms and processing, vision tech provides a unique set of capabilities to automatically capture and understand the world, which are used in almost every industry to solve problems and create value for users.

The vision tech sector provides a tremendous amount of opportunity; new applications and new approaches in vision tech are still increasing, even after several decades of double-digit growth of the market.

Whether ensuring the quality of automotive welds, measuring the performance of each pixel in a flat panel display, identifying and classifying parts in manufacturing supply chains, guiding the movement of robotic systems or navigating autonomous vehicles, to ensuring our personal safety while humans work in ever closer collaboration with machines and robots, vision is the key enabling technology.

The vision tech market is supported by some of the most dynamic and fast-moving technical innovations in any sector. These developments continue to expand the scope of vision applications, addressing new sectors and providing simpler, faster, and more autonomous solutions, ultimately providing greater value to end users.

Artificial intelligence and machine learning approaches offer a new paradigm within the vision industry, driven by the availability of high-performance processing platforms and the understanding of the power of neural networks, now being used in many real-world applications.

Vision systems are able to see across an ever-greater range, with infrared, terahertz, acoustic, radar, lightfield, hyperspectral, and 3D image capture techniques each acting to expand the scope of the industry and combine with existing tools to create new solutions.

Manufacturing and automation systems are becoming ever more connected, enterprise architectures are realizing the dream of Industry 4.0, and the volumes of data continue to grow exponentially, driving the development of new aggregation and information extraction services and products.

Against this backdrop, the European Machine Vision Association continues to represent the interests of its members, promoting the use of vision tech across all sectors and applications, while providing a central European forum for helping understand and shape the direction of the industry.

As the vision industry moves forward in an era of global change, with many new opportunities and an evolving industrial landscape, the EMVA will:
•   act as a European forum to inform, understand, and facilitate the development of the vision industry in Europe and beyond,
•   work to ensure global standardization of vision technology to ensure a level playing field for all participants and reduce barriers to adoption, and
•   seek to promote cooperation between individuals, companies, and associations at every level as the ultimate driver of growth and innovation.

The EMVA looks forward to continuing to play a central role in the future of the vision industry and working with its members, partners, and the wider community to ensure a sustainable future based on understanding, cooperation, and continued innovation to meet the needs of our evolving society.

VISION TECHNOLOGY – KEY TO A BETTER LIFE

One of the simplest ways to understand a machine vision system is to consider it the "eyes" of a machine. Machine vision is the incorporation of computer vision into industrial manufacturing processes using a machine vision system - machine vision is anything that helps the computers see and explore the world.

Machine vision recognizes objects, can determine properties, classify objects and make decisions based on this information. Modern machine vision systems use methods and techniques of artificial intelligence (AI) such as machine learning or deep learning and artificial neural networks. Machine vision is a key technology for the automation of processes in Industry 4.0.

In addition to typical industrial applications, machine vision systems can be found in non-industrial areas such as medical, traffic control, biometrics, multimedia and many more. Without the technical revolution of machine vision, many achievements that make life easier and healthier would not have been possible.

The machine vision market is one of the fastest growing market segments. According to Verified Market Research, the global computer vision market was valued at USD 11.88 Billion in 2018 and is projected to reach USD 21.24 Billion by 2026, growing at a CAGR of 7.49% from 2019 to 2026.

The convergence of core technologies and the rapidly growing fields of vision-based applications in a variety of industries will continue to drive growth.

EMVA – SHAPING VISION TECH

The EMVA as a member-supported trade association promotes the growth of the global vision and imaging industry. The development of standards is the key to success and therefore highly relevant for any industry - particularly for the relatively complex and globally distributed machine vision industry. Various global machine vision standards make vision technology less expensive and easier to use.

Digital technology has revolutionized the ability to capture, analyze and use, both visible and non-visible light energy, at high speed. This has enabled to constantly expand the applications of vision technology to automate manufacturing, to streamline and optimize processes, and to drive ever expanding research into our physical environment.

EMVA plays an active role in the development of machine vision standards. Currently, EMVA hosts several standards that are globally promoted and widely adopted by the Vision tech industry.

Vision Technology Standards hosted by the EMVA

GenICam

GenICam *(Generic Interface for Cameras)* provides a generic programming interface for all kinds of cameras and devices, no matter what interface technology is being used *(GigE Vision, USB3 Vision, CoaXPress, Camera Link HS, Camera Link, 1394 DCAM, etc .).* By using the GenICam API, a user has the freedom to select the camera and interface technology that fits best with their requirements without the need of changes in their application software. GenICam has become increasingly popular and support of GenICam is therefore mandatory in new interface standards like USB3 Vision and CoaXPress.

EMVA 1288

EMVA 1288 is the standard for measurement and presentation of performance specifications for machine vision sensors and cameras. The EMVA launched the initiative to define a unified method to measure, compute and present specification parameters for cameras and image sensors used for machine vision applications. The EMVA 1288 standard creates transparency by defining reliable and exact measurement procedures as well as data presentation guidelines and makes the comparison of cameras and image sensors much easier. The Standard is developed and extended by a consortium of industry leading sensor and camera manufacturers, distributers and component suppliers.

Vision Standards Meeting 2023

OOCI – Open Optics Camera Interface

OOCI is the Open Optics Camera Interface Standard launched by the EMVA in 2019. The EMVA decided to start a new standardization group on an open lens camera communication standard, which may have different mechanical connections, but a common protocol closely linked to the GenICam Standard. The goal of the OOCI working group is to standardize the camera interface for optical components inside of, or attached to, machine vision cameras. The optical components covered by this standards effort will include, but not be limited to: Lenses, Filters, Filter Wheels, Shutters, Apertures, etc. Already, major camera and optics manufactures have joined the working group.

EMVA – Host of the International Vision Standards Meeting (IVSM) Spring 2023

This meeting takes place twice a year, and different locations, under the global G3 initiative, which is supported by the machine vision associations A3, CMVU, EMVA, JIIA and VDMA. Hosted by the EMVA the meeting gathered machine vision engineers from all over the world and took place in Vienna/Austria together with the corporate sponsor Austrian Institute of Technology.

COMMITTED TO THE GROWTH OF OUR MEMBERS

The EMVA is a member-owned association. The members guide the development, goals and activities of the association through their elected Board of Directors, comprised of industry representatives working voluntarily and free-of-charge for an election period of three years.

The EMVA's members include all market participants in machine vision at various stages of the value chain. These include manufacturers of hardware components in the field of sensor technology, accessories such as optics and lighting, manufacturers of camera systems, system integrators, software developers, as well as the customers of the members, such as automation companies. The active members of the EMVA also include research institutes, universities, consultancies, media and associations.

EMVA Media Platforms boost business opportunities

As one of the world´s largest machine vision associations, the EMVA offers its members a variety of attractive formats that companies can leverage to reach top decision-makers in the industry directly. The monthly EMVA e-newsletter focuses on member news, case studies, product presentations, job offers and industry events and is sent out to subscribers from about 30 countries. More than 50,000 unique visitors each year from all over the world visit the EMVA website and find out about the latest technical and business progress in machine vision. With an average of over 200,000 page views, top machine vision decision makers prefer the EMVA website as their primary source of technical information about EMVA standards, as well as using the Buyers Guide to search for companies, products and services, and gain insight into EMVA´s key industry events.

THE WHO'S WHO OF THE VISION INDUSTRY

Today, the EMVA represents the interests of around 170 active members from more than 25 countries. More than 15% of the member companies have their headquarters in North America and Asia. All members, whether small and medium-sized organizations or large companies, play an important role in the value chain in their respective industries. Science and research institutes and universities also consider EMVA an important platform for their activities: Consultancies, research organizations and academia contribute as active members to the continuous development of machine vision technology.

Current EMVA Membership

Active Silicon
Acubed – A3 by Airbus
Adimec
Advantech Europe
AEON Verlag & Studio
AIT Austrian Institute of Technology
Allied Vision Technologies
AMS
AT Automation Technology
Basler
Baumer Optronic
Birger Engineering
Bit Flow
Bizerba Luceo
Carl Zeiss Automated. Inspection
CCS Europe
China Daheng Group
Chromasens
ClearView Imaging
Cognex Germany
Components Express
Datapixel
Datasensing
Digital Manufacturing Ireland
Dotphoton
Edmund Optics
Effilux
Eigen Innovations
Emberion
Emergent Vision Technologies
Enli Technology
Euresys
EverPro Technologies
EVK DI Kerschhaggl
Excelitas PCO
Exosens
Focuz Manufacturing
Framos
Fraunhofer
Fujifilm Electronic Imaging Europe
Gardasoft Vision
GeT Cameras
Gpixel
Hailo Technologies
HD Vision Systems
Heliotis
Hirakawa Hewtech
Hochschule Darmstadt
Hongkong Vico Technology

Hoya Corp. Optics
Huaray Technology
Ideko S.
IDS Imaging Development Systems
ifm electronic
IHFood
iiM measurement + engineering
iMAGE S
Imalligent Technology
Imperx
intoPIX
Intratel
ISRA Vision
IWR Heidelberg University
JAI
JBT – John Bean Technologies
Kappa optronics
Kowa Optimed
LMI Technologies
Lucid Vision Labs
Macnica ATD Europe
MaxxVision
Medabsy
Mega Phase
Midwest Optical Systems
Mitsubishi Electric Europe
More.ai
Murrelektronik
Nacacue Corporation
Neousys Technology
NET New Electronic Technology
Nordson Dage Precision
NotaVis
ON Semiconductor Technology
OPT Machine Vision
Opto Engineering
Opto GmbH
OptoMotive
Optotune Switzerland
Optronis
Oversonic Robotics
Phenix Optical
Phil-vision
Pixlim
Pleora Technologies
Precitec Vision
preML
Prophesee
Psiori

Qioptiq Photonics
Rauscher Bildverarbeitung
Renishaw
Roboception
Rockwell Automation
Saccade Vision
Schneider Kreuznach
Sensor to Image
Shenzhen Dongzheng Optical
SICK
sinfraRed – a Xenics company
Smart Vision Lights
Sony Europe
Stemmer Imaging
SVS-VISTEK
SYMOP
Tamron Europe
Teledyne AnaFocus
Teledyne DALSA
Teledyne e2v
Teledyne FLIR
Teledyne Lumenera
The Imaging Source Europe
The Imaging Source
The Sensor Group
Theia Technologies
TIAMA Group
Toshiba teli
University Chur
VDMA Robotik + Automation
Vecow
Vicomtech
Video Systems
Vieworks Co. Ltd
Vision Club of Finland
Vision Components
Vision Markets
Vision On Line
Vision Ventures
VisionX
ViTec Avtomatika
Voyage81
VST Europe
Weihai Hualing Opto-Electronics
wenglor sensoric
XIMEA
Z-Laser
Zebra Technologies

VISION KNOWLEDGE TRANSFER

Knowledge transfer and education is one of the key factors for success in any technology-based industry. In our globalized world this is more important than ever before. Like other high-tech industries, the vision industry has a high demand for well-educated and well-trained professionals. For many companies this has become a decisive factor for growth. The EMVA has recognized the need for know-how transfer and specific training in the field of machine vision. As part of its association activities, the EMVA offers attractive platforms for presenting new technologies and applications, initiates specialist conferences on new technological trend topics and offers a wide range of technical training courses.

EMVA Technical Trainings and Certifications

EMVA 1288 Know-howTransfer

EMVA 1288 is the standard for measurement and presentation of specifications for machine vision sensors and cameras. Unifying the most important manufacturers, distributors and end users of machine vision cameras the EMVA 1288 working group has elaborated a modular approach to define step by step the measurement and communication of an ever-increasing set of performance metrics for image sensing technologies.:
The required level of knowledge is covered by a series of several webinars that have been recorded and are available on the EMVA Training Seminar Channel. The EMVA also offers EMVA 1288 Certification at user and expert level. The required level of knowledge is taught in two-day courses, offered by several EMVA member companies and provides an industry recognized qualification for those who complete the course.

EMVA Vision Knowledge Transfer Network

Machine Vision Fundamentals

With the "Machine Vision Fundamentals" the EMVA presents a series of articles intended to serve developers and user alike by providing an introduction to various aspects of machine vision. The articles are both an entry point for technology and industry newcomers as well as a refresher on selected topics for experienced practitioners.

Guide to Understanding Machine Vision Standards

This comprehensive look at the various global machine vision standards was developed on the initiative of the leading vision associations A3, CMVU, EMVA, JIIA and VDMA. The brochure covers the various interface, performance, lens mount, lighting and system integrator standards. It is an invaluable one stop reference to all the currently recognized and promoted global vision standards.

Case Studies contributed by EMVA Members

The EMVA offers a broad platform for the exchange of the know-how that EMVA member companies have gathered in solving complex and demanding machine vision applications. The EMVA e-mail newsletter publishes interesting case studies every month, which are collected and made available to a wide audience.

EMVA Vision Knowledge Transfer
at Conferences and Shows

Annual European Machine Vision Forum – Where research meets industry

The EMVA's annual two-day event, where machine vision industry and academic research meet to learn from each other, gain an understanding of the newest research results, discuss open problems from applications, learn about new and emerging application fields, and enable new research cooperations between industry and academics.

inVISION Days

Initiated in 2021, inVISION Days is a digital conference for machine vision hosted by inVISION magazine in partnership with the EMVA. Over three days key insights into the vision tech sector are provided by an comprehensive agenda of lectures, keynotes and panel discussions, in a convenient online format.

The EMVA supports the event programme through the highly regarded EMVA Innovation slots; where selected companies, are invited to present their latest innovations in concise 10 minute presentations. By supporting wider visibility of emerging trends and companies, this cooperation helps promote the EMVA as a forward looking member-owned organization, attracts new members, and increases the scope of opportunity for cooperation.

PARTNERSHIPS AND INITIATIVES

The EMVA maintains several partnerships with globally organized associations and initiatives in order to promote vision technology and to open a wider spectrum of activities for market participants.

G3 – Worldwide Cooperation on standards

Because developing standards is very time-consuming and many competing standards is counter productive, the EMVA sought cooperation on the field of standards development with other machine vision associations. As a result of this EMVA (Europe), AIA (North America) and JIIA (Japan) entered into a cooperation agreement on standards called the "G3" in 2009. Two more associations joined "G3": VDMA (Germany) in 2014 and CMVU (China) in 2015. Through this cooperation in G3, EMVA members have access to the working groups of standards that are hosted by the other G3 associations and standards are developed which benefit from global visibility and implementation.

Khronos.org

In close cooperation of the EMVA and the Khronos Group started the work on a new Embedded Camera System API. The Kamaros (pronounced Kam-a-ross) API Working Group is the result of an extensive exploratory process that involved over seventy companies working together from March to December 2021 to forge

a strong industry consensus on the need, terminology, scope, requirements, and design methodology for a new open standard camera system API. The group started formal meetings in February 2022 to work on the development of the API specification and its associated ecosystem. Any organization is welcome to join Khronos and participate in this global initiative. Participation can put your organization at the forefront of the development of the standard and is expected to be of particular interest to sensor or camera manufacturers, silicon vendors, and software developers working on vision and sensor processing.

Photonics21

Photonics21 aims to establish Europe as a leader in the development and deployment of photonics technologies within the various applications fields such as ICT, lighting, industrial manufac-

turing, life science, safety as well as in education and training. The EMVA is pleased that Dr.-Ing. Dirk Berndt has been elected to the Board of Stakeholders (BoS) of Photonics21 in his function as member of the EMVA Board of Directors. The Board of Stakeholders is the main decision-making body of the European Technology Platform (ETP) Photonics21.

euRobotic

The EMVA cooperates with the euRobotics AISBL association and is an active contributor at the European Robotics Forum. It is EMVA´s goal to promote and explain how vision technology can help solve robo-

tic and automation problems, as well as ultimately help align European-wide strategic roadmaps in vision and robotics.

EPIC European Photonics Industry Consortium

EPIC is the world leading industry association that promotes the sustainable development of organizations working in the field of photonics in Europe. As EMVA the association is owned and operated by its members. EMVA and EPIC are following the goal to providing reliable and valid

information about technological progress and up-to-date application solutions to its members and the industry in general by conferences, technical meetings and similar platforms.
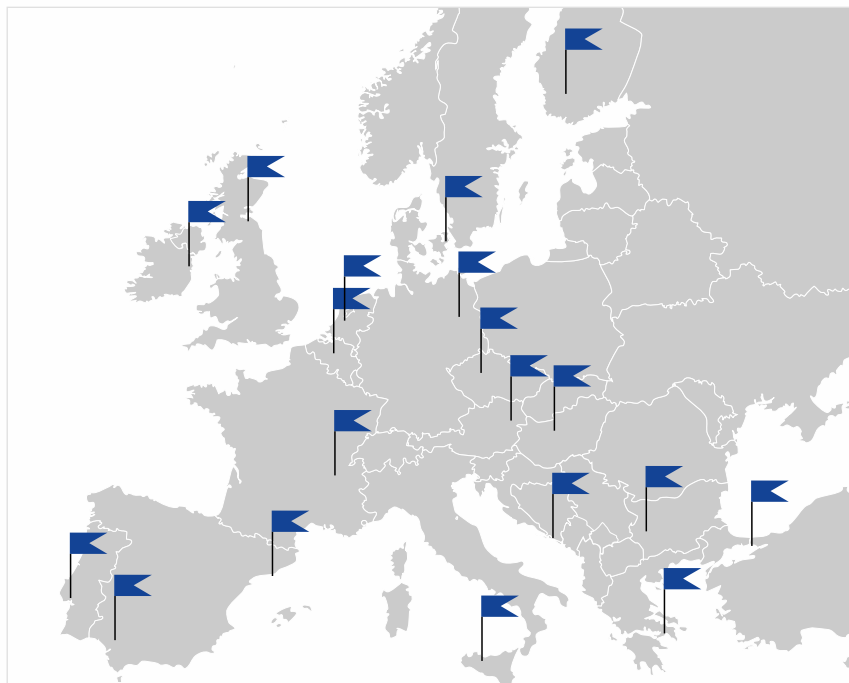
EMVA NETWORKING PLATFORMS

The EMVA runs a series of events to actively promote networking for members of the association, market participants in the vision industry and companies from related fields. The annual highlight of the Vision industry is the EMVA Business Conference, which brings together the who's who of the industry in a different major city each year.

The EMVA Business Conference

The EMVA Business Conference unites business leaders and technical experts within the machine vision industry from Europe and around the world to present and discuss the trends and challenges of our business. It provides a unique platform in Europe for networking, establishing contacts and exchanging ideas. The EMVA Business Conference sets the course for developing and strengthening the industry in Europe and beyond. The annual EMVA Business Conference brings together CEOs, managing directors, corporate strategists, marketing directors, technical managers and other executives of the vision tech industry meet

to exchange market intelligence and news on innovative technologies. The EMVA Business Conference year by year visits a different European city. In 2024 Gdansk in Poland will welcome the machine vision community.

Networking

Being the most important networking event for the Machine Vision industry in Europe, the EMVA Business Conference offers plenty of networking and personal meeting opportunities. Individual face-to-face meetings can be pre-scheduled using a comfortable registration platform.

Previous Conference Locations

EMVA´S NETWORKING GENERATES BUSINESS OPPORTUNITIES

The EMVA continuously looks for new opportunities to promote Vision Tech and to grow the portfolio of benefits for EMVA members.

VISION, Stuttgart

VISION is the world's leading trade fair for machine vision. The who's who in the machine vision industry meets in Stuttgart and presents an incomparable range of products and services: from sensors to processors, from cables to cameras, from software to illumination systems. The EMVA exhibits at VISION 2024 as leading organizer at the International Machine Vision Standards Booth. Machine vision experts present the most commonly used digital interface standards in the industry in their current versions and stand by for advice on which standard should be used best for a certain application. Furthermore, in good tradition the EMVA hosts the popular ´International VISION Night´ event on the evening prior to the fair opening, where the machine vision industry traditionally meets for an informal and relaxing evening with extensive networking opportunities.

LogiMAT, Stuttgart

For the first time in 2024 the EMVA will be present at the LogiMAT, International Trade Show for Intralogistics Solutions and Process Management, with a joint member booth. The EMVA members Advantech Europe, Fraunhofer IFF, Murrelektronik, Phil-Vision, Roboception, Vecow and Vision Components will showcase their expertise and vision solutions for the logistics industry at the EMVA booth located in hall 2. In addition the EMVA will host the presentation track 'Machine Vision – Key for Logistics 4.0' during the LogiMAT Expert Forum.

SPS Italy – The Parma Vision Night

SPS – smart production solutions Italy in Parma is the yearly trade show bringing automation suppliers and manufactures together and covering the whole range of products, from electrical components to complete integrated automation systems. First time introduced in 2016 the 'Parma Vision Night' is organized by SPS Italy and the European Machine Vision Association. Representatives of local Italian vision players and globally acting corporations meet annually for the „Parma Vision Night" and benefit from the networking opportunities.

Image Sensors Europe, London / IS Auto Europe, Stuttgart

The EMVA is partnering with Image Sensors Europe in London, Great Britain. Image Sensors Europe established and held its first conference in 2007, and has since grown to be the go-to annual image sensors technical and business conference. Each year this ever evolving market continuously prompts new and exciting opportunities for the entire supply chain. This esteemed event provides a platform for over 250 representatives from across the digital imaging supply chain to engage in high calibre discussions and face-to-face networking opportunities with key industry experts and colleagues.

NOTES

CONTACT US:

European Machine Vision Association

Gran Vía de Carles III 84 (planta 3ª),

08028 Barcelona, Spain

Telephone: +34 932 20 72 01· E-Mail: info@emva.org

www.emva.org