Computer Vision Technologies and Markets 2020 Report

Part of the AI & Intelligent Automation Service Area Package

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Use Cases, Technologies, and Applications within 25 Industries for Computer Vision: Global Market Analysis and Forecasts

Computer vision (CV) has become commercialized in the past few years and is being deployed in a wide range of applications. The proofs-of-concepts that started a few years ago are now going into production. They are creating a new set of problems that are providing opportunities for yet another group of startups. The rapid growth of technology, accurate results, falling price of hardware, and ease of connectivity are some of the factors enabling the rapid global adoption of CV.

Omdia considers CV to be a horizontal market, as the applications are spread across many different use cases. This report focuses on 69 use cases in 25 industries that are tracked by Omdia. CV has enabled many capabilities in products that were part of science fiction until recently. The global CV market has gained significant momentum in the past few years and does not show any sign of slowing down. As of 2020, the market has started figuring out how to use CV technology for commercial benefit. Global CV market revenue is expected to grow across many use cases in different industries, increasing from $2.9bn in 2018 to $33.5bn by 2025.

This Omdia report analyzes the market trends and technology issues surrounding CV. The study examines the industries and use cases and provides profiles of key industry players. Global market forecasts, segmented by region, industry, and use case, extend through 2025. The report also provides a description of various technical hurdles and the different business models used within the CV industry.
Report Coverage

KEY ISSUES ADDRESSED
- What is computer vision (CV)?
- Why is it so hard to get a computer to recognize a picture just like humans?
- What are the current applications for CV systems?
- What are the key market drivers and challenges for CV systems?
- What are the most popular use cases for CV?
- Which CV industry will exhibit the fastest growth?
- What business models are being used by CV companies?
- How quickly will the global CV market grow through 2025?
- What changes have occurred in the CV market in the last couple of years?

KEY MARKET FORECASTS
- Total computer vision software revenue by region, world markets: 2018-2025
- Total computer vision software revenue, world markets: 2018-2025
- Total computer vision software revenue by technology, world markets: 2018-2025
- Total computer vision software revenue by industry, world markets: 2019
- Total computer vision software revenue by industry, world markets: 2025
- Computer vision software revenue share, top eight use cases, world markets: 2019
- Computer vision software revenue share, top eight use cases, world markets: 2025

TECHNOLOGIES
- Computer vision
- Machine vision
- Deep learning
- Pattern recognition
- Object recognition
- Object tracking
- Facial recognition
- Optical character recognition
- Image processing
- 3D image extraction
- Image stitching
- Morphing

COVERAGES
- Regions
  - North America
  - Europe
  - Asia Pacific
  - Latin America
  - Middle East & Africa

APPLICABLE TO
- Mobile device manufacturers
- Consumer electronics device manufacturers
- Industrial automation companies
- Medical device companies
- Automotive companies
- Semiconductor and component vendors
- Software developers and integrators
- Government agencies
- Investor community

About Omdia
Omdia is a global technology research powerhouse, established following the merger of the research division of Informa Tech (Ovum, Heavy Reading, and Tractica) and the acquired Omdia technology research portfolio. We combine the expertise of more than 400 analysts across the entire technology spectrum, covering 150 markets. We publish over 3,000 research reports annually, reaching more than 14,000 subscribers, and cover thousands of technology, media, and telecommunications companies. Our exhaustive intelligence and deep technology expertise enable us to uncover actionable insights that help our customers connect the dots in today’s constantly evolving technology environment and empower them to improve their businesses—today and tomorrow.

*The majority of Omdia technology research products and solutions were acquired by Informa in August 2019 and are now part of Omdia.
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### Executive Summary
- Introduction
- Changes from the last report
- Key findings
- Business models
- Market forecasts

### Market Issues
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- Market forecasts
- Changes from the last report
- Introduction
- Executive summary

### Pay-as-you-go and services
- Subscriptions
- Product as a service
- Sci-fi-like applications
- Businesses need to reduce costs
- Need for personal security
- Need for automation
- Businesses need to reduce costs
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- Falling prices of cameras and sensors
- Increased safety needs in automotive

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- Medical image analysis
- Human emotion analysis
- Image analysis for journalism
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- Post-event analysis
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- Retail

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- Computer vision pipeline
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- Classic computer vision techniques
- Neural networks and AI
- Post-processing

### Machine vision
- Intelligence location: Edge, on-premise, and cloud
- Edge systems
- On-premise systems
- Cloud-based systems

### Frequently used computer vision algorithms
- Facial recognition
- Optical character recognition
- Object detection and classification
- Sentiment segmentation
- Person tracking
- Video analytics
- 3D object recognition

### Computer vision market ecosystem
- Computer vision software
- Open-source computer vision libraries and frameworks
- AI and deep learning
- Convolutional neural networks
- Computer vision training
- Transfer learning and inference

### Hardware platforms for computer vision
- Central processing units/digital signal processors
- Graphical processing units
- Field-programmable gate arrays
- Application-specific integrated circuits

### Limitations and challenges of computer vision technology
- Conditions beyond human control
- Use of supplemental sensors
- Lack of testing
- Reliability
- Training datasets
- Real-time computation
- Power consumption
- Technology expertise in deep learning
- Availability of middleware and IP for rapid application development

### Key conferences in computer vision
- Industry organizations
- Embedded Vision Alliance
- European Machine Vision Alliance
- Automated Imaging Association
- Universities and research institutions

## Technology Issues

### Computer vision
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## Key Industry Players
- Amazon
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- Ambarella
- Crossmatch (acquired by HID GLOBAL)
- Cognex
- Cruise.ai (acquired by General Motors)
- DJI
- Drive.ai (acquired by Apple)
- Facebook
- Google (Alphabet)
- Hikvision
- Intel
- Megvii (Face ++)
- NVIDIA
- Parrot
- Qualcomm
- Tesla
- UBTECH Robotics
- Velodyne Lidar
- Videantis
- Xilinx
- Other industry players

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