

# Global and China Machine Vision Industry Report, 2017-2021

Apr.2017





#### STUDY GOAL AND OBJECTIVES

This report provides the industry executives with strategically significant competitor information, analysis, insight and projection on the competitive pattern and key companies in the industry, crucial to the development and implementation of effective business, marketing and R&D programs.

#### **REPORT OBJECTIVES**

- To establish a comprehensive, factual, annually updated and costeffective information base on market size, competition patterns, market segments, goals and strategies of the leading players in the market, reviews and forecasts.
- To assist potential market entrants in evaluating prospective acquisition and joint venture candidates.
- To complement the organizations' internal competitor information gathering efforts with strategic analysis, data interpretation and insight.
- To suggest for concerned investors in line with the current development of this industry as well as the development tendency.
- To help company to succeed in a competitive market, and

#### METHODOLOGY

Both primary and secondary research methodologies were used in preparing this study. Initially, a comprehensive and exhaustive search of the literature on this industry was conducted. These sources included related books and journals, trade literature, marketing literature, other product/promotional literature, annual reports, security analyst reports, and other publications. Subsequently, telephone interviews or email correspondence was conducted with marketing executives etc. Other sources included related magazines, academics, and consulting companies.

#### **INFORMATION SOURCES**

The primary information sources include Company Reports, and National Bureau of Statistics of China etc.

Copyright 2012 ResearchInChina



## Abstract

Machine vision is a system consisting of lens, camera, frame grabber, and image processing software. Compared with manual detection, machine vision has the advantages of high efficiency, being less error-prone, stable detection, and low cost of use.

Global machine vision market size reported about USD6.8 billion in 2016, up 6.3% from a year ago, and is expected to reach USD7.2 billion in 2017 and exceed USD9 billion in 2021 at a CAGR of around 7.5% during 2017-2021. Germany and America are the two largest markets, each holding over 30% shares of the global machine vision market in 2016.

Machine vision industry started in China after 2010 and now develops rapidly. The market was worth RMB2.6 billion (about USD390 million) in 2016, 5.7% of the global market and an 18.2% increase over the previous year. As sectors become more automated and intelligent, the Chinese machine vision market is expected to see an AAGR of 20% or so between 2017 and 2021, higher than the global average.

Major global machine vision vendors include Keyence, Cognex, DALSA, Panasonic, and Omron, holding a combined market share of around 35.0% in 2016. Typical Chinese enterprises are Daheng New Epoch Technology and Shenzhen JT Automation Equipment which are less competitive compared with international well-known players and each made up less than 1.5% in 2016.

Machine vision products are primarily applied to semiconductor & electronic manufacturing and automobile, the two fields that accounted for nearly 60% of total demand for machine vision in 2016. The penetration of machine vision in automobile manufacturing is higher as a whole, usually a dozen sets of machine vision systems for one production line. Machine vision will find a broader range of application, such as object recognition for autonomous vehicle, as the car becomes more intelligent,

With growing applications of machine vision, downstream producers have been active in developing their machine vision business to strengthen industry-chain advantage. For instance, Estun Automation acquired Euclid Labs SRL (a provider of automated production line solutions that masters 3D machine vision technology) in Feb 2016; Ford acquired SAIPS (a provider of image & video algorithm solutions, deep learning, and signal processing & classification technology) in Aug 2016.

Copyright 2012ResearchInChina





Chinese Machine Vision Market Size and Growth Rate, 2017-2021

Copyright 2012ResearchInChina



Global and China Machine Vision Industry Report, 2017-2021 highlights the following:

◆Machine vision industry (definition, industry chain, problems in the industry, etc.);

◆Machine vision on a globe scale (development environment, status quo of market, patents, competitive landscape, etc.);

◆Machine vision in China (development environment, market situation, patents, cost structure, competitive landscape, development trends, etc.);

◆Markets for major machine vision components (light source, lens, industrial camera, frame grabber, image processing software, system integration, etc.);

◆Main machine vision applications (semiconductor and electronic manufacturing, automobile, pharmaceutical, food & packaging machinery, robotic vacuum cleaner, etc.);

◆8 global and 12 Chinese machine vision-related enterprises (operation, machine vision business, etc.)

Copyright 2012ResearchInChina



### **Table of contents**

#### **1 Overview of Machine Vision Industry**

1.1 Definition and Classification1.2 Main Functions and Features1.3 Industry Chain1.4 Problems

#### 2 Global Machine Vision Market

2.1 Development Environment
2.2 Market Situation
2.2.1 Market Size and Structure
2.2.2 America
2.2.3 Japan
2.2.4 Germany
2.2.5 UK
2.3 Patents and Distribution
2.4 Competitive Landscape

#### **3 Chinese Machine Vision Market**

3.1 Development Environment
3.2 Market Situation
3.2.1 Market Size
3.2.2 Market Structure
3.3 Patents
3.4 Cost Structure
3.5 Competitive Landscape
3.5.1 Regional
3.5.2 Enterprise
3.6 Development Trends

4 Machine Vision Component Market
4.1 Light Source
4.1.1 Overview
4.1.2 LED Light Source
4.2 Lens
4.3 Industrial Camera
4.3.1 Market Overview
4.3.2 COMS Image Sensor
4.3.3 COMS Camera Module
4.4 Frame Grabber
4.5 Image Processing Software

4.6 System Integration

- **5 Machine Vision Application Market**
- 5.1 Semiconductor and Electronic Manufacturing
  5.1.1 Application of Machine Vision
  5.1.2 Semiconductor
  5.1.3 PCB
  5.1.4 Panel Display Detection
  5.2 Automobile
  5.2.1 Application of Machine Vision
  5.2.2 Status Quo of Automobile Industry
  5.3 Pharmaceutical
  5.3.1 Application of Machine Vision
  5.3.2 Pharmaceutical Industry
  5.4 Food & Packaging Machinery
  5.4.1 Application of Machine Vision

6 Major Foreign Machine Vision System Providers 6.1 Keyence 6.1.1 Profile 6.1.2 Operation 6.1.3 Machine Vision Business 6.1.4 Presence in China 6.2 Cognex 6.2.1 Profile 6.2.2 Operation 6.2.3 Machine Vision Business 6.3 Omron 6.3.1 Profile 6.3.2 Operation 6.3.3 Machine Vision Business 6.3.4 Presence in China 6.4 Panasonic 6.4.1 Profile 6.4.2 Operation 6.4.3 Machine Vision Business 6.4.4 Presence in China 6.5 NI 6.5.1 Profile 6.5.2 Operation 6.5.3 Machine Vision Business 6.5.4 Presence in China 6.6 Others 6.6.1 Banner 6.6.2 DALSA



## **Table of contents**

6.6.3 Baumer	7.7.1 Profile
	7.7.2 Operation
7 Major Chinese Machine Vision Producers	7.7.3 Machine Vision Business
7.1 Daheng New Epoch Technology	7.8 Sking Intelligent Equipment
7.1.1 Profile	7.8.1 Profile
7.1.2 Operation	7.8.2 Operation
7.1.3 Machine Vision Business	7.8.3 Machine Vision Business
7.2 Shanghai Hi-Tech Control System	7.9 OPT Machine Vision
7.2.1 Profile	7.9.1 Profile
7.2.2 Operation	7.9.2 Machine Vision Business
7.2.3 Machine Vision Business	7.10 Others
7.3 Hunan Chinasun Pharmaceutical Machinery	7.10.1 Shanghai BMT Automation
7.3.1 Profile	7.10.2 Changchun Up Optotech
7.3.2 Operation	7.10.3 Shanghai Ximing Vision Technology
7.3.3 Machine Vision Business	
7.4 Shenzhen JT Automation Equipment	
7.4.1 Profile	
7.4.2 Operation	
7.4.3 Machine Vision Business	
7.5 Shenzhen Maxonic Automation Control	
7.5.1 Profile	
7.5.2 Operation	
7.5.3 Machine Vision Business	
7.6 Shenzhen Inovance Technology	
7.6.1 Profile	
7.6.2 Operation	
7.6.3 Machine Vision Business	
7.7 Ningbo Cixing	
Room 502. Block 3. Tower C. Changy	uan Tiandi Building, No. 18, Suzhou St



## **Selected Charts**

- Schematic Diagram of PC-based Vision System
- Merits and Demerits of Embedded Vision System and PC-based Vision System
- Main Application Forms of Machine Vision
- Comparison between Machine Vision and Artificial Vision
- Machine Vision Industry Chain
- Development Cycle of Machine Vision
- Development History of Machine Vision Worldwide
- Sales Volume of Industrial Robots Worldwide, 2008-2021E
- Sales Volume of Industrial Robots (by Country/Region) Worldwide, 2014-2019E
- Global Machine Vision Market Size and YoY Growth, 2011-2021E
- Global Machine Vision Market Structure (by Region), 2016/2021E
- Global Machine Vision Application Structure, 2016
- Machine Vision Market Size and YoY Growth in United States, 2011-2021E
- Machine Vision Market Size (by Type) in United States, 2011-2016
- Machine Vision Market Size and YoY Growth in Japan, 2011-2021E
- Machine Vision Application Structure in Europe, 2014-2015
- Machine Vision Market Size and YoY Growth in Germany, 2011-2021E
- Machine Vision Market Size and YoY Growth in UK, 2011-2021E
- New Patents for Machine Vision and YoY Growth Worldwide, 2006-2017
- Distribution of Patents for Machine Vision Worldwide, 2015
- Products Lines of Major Machine Vision Vendors Worldwide
- Product Application of Major Machine Vision Vendors Worldwide
- Major Competitors in Global Machine Vision Market
- Competitive Pattern of Global Machine Vision Market, 2016
- M&As of Foreign Machine Vision Companies, 2016



## **Selected Charts**

- Policy on Machine Vision Industry in China
- Number of Machine Vision Vendors in China, 2007-2017
- Machine Vision Market Size and YoY Growth in China, 2011-2021E
- Machine Vision Application Structure in China, 2016/2021E
- Total Number of Patents for Machine Vision and YoY Growth in China, 2006-2017
- Distribution of Patents for Machine Vision in China, 2016
- Cost Structure of Machine Vision in China
- Distribution of Machine Vision Vendors in China, 2016
- Leading Machine Vision Vendors in Chinese Market
- Machine Vision Business Layout of Major Listed Companies in China
- Machine Vision Vendors' Position in Industry Chain in China
- Key Components of Machine Vision and Major Producers
- Development Speed of Key Components of Machine Vision in China
- Performance Comparison of Three Types of Light Sources
- LED Industrial Lighting Market Size Worldwide, 2012-2018E
- Impact of Lens on Machine Vision System
- Industrial Lenses for Machine Vision
- Comparison of Key Lenses for Machine Vision
- Ranking of Lens Manufacturers by Shipment Worldwide, 2014-2015
- Key Industrial Cameras for Machine Vision
- Comparison of Key Industrial Cameras for Machine Vision
- Global Shipment of Industrial Cameras, 2011-2020E
- CMOS Image Sensor Sales and Shipment Worldwide, 2004-2019E
- Development Course of Imaging Technology
- CMOS Image Sensor Application Patten Worldwide



## **Selected Charts**

- Revenue of World's Top4 CMOS Image Sensor Venders, 2014-2015
- Global CMOS Camera Module Market Size, 2010-2017
- Ranking of World's CCM Vendors by Revenue, 2010-2016
- Major CCM Module Suppliers
- Classification of Frame Grabbers
- Acquisition Flow of Frame Grabber
- Global Industrial Software Market Size and YoY Growth, 2011-2021E
- China's Industrial Software Market Size and YoY Growth, 2012-2021E
- Global Industrial Software Market Structure, 2016
- World's Major Vision Software Makers and Products
- Diverse Processing Modes of Machine Vision
- Comparison between Smart Camera and PC-based Vision System
- Relation of Smart Camera Development Costs to Time
- Key Machine Vision System Integrators in China
- Main Applications of Machine Vision
- Application of Machine Vision in China
- Consumption of Machine Vision in Semiconductor and Electronic Manufacturing in China, 2013-2021E
- Global AOI Output Value Structure (by Region), 2016
- Competitive Pattern of AOI Vendors Worldwide, 2016
- Global Semiconductor Market Size and YoY Growth, 2011-2021E
- Global Semiconductor Shipment and YoY Growth, 2013-2021E
- Global Semiconductor Shipment Structure, 2016
- Global Semiconductor Market Size (by Region), 2014-2017
- Competitive Landscape of Global Semiconductor Market, 2015
- Sales and YoY Growth of Chinese Semiconductor Market, 2011-2021E



## **Selected Charts**

- Imports and Exports in Chinese Semiconductor Market, 2008-2016
- Proportion of Taiwan's Semiconductor Industry, 2010-2017
- Global PCB Output Value and YoY Growth, 2011-2021E
- Global PCB Output Value Structure (by Product), 2012-2017
- Global PCB Output Value (by Region), 2013-2017
- PCB Output Value and YoY Growth in Chinese Mainland, 2010-2021E
- Distribution of PCB Industry in China
- Total Number of PCB Patents in China, 2006-2017
- Competitive Landscape of Global PCB Market, 2015
- Capacity of Major PCB Vendors in China, 2016
- Global Panel Sales (by Region), 2014-2016
- Global Panel Capacity (by Generation Line), 2016-2022E
- OLED Panel Capacity in China, 2011-2021E
- Application of Machine Vision in Automobile
- Vision Solutions for Automobile Manufacturing
- Consumption of Machine Vision in China's Automobile Industry, 2013-2021E
- Application of Machine Vision in Google Self-driving Car
- Merits and Demerits of Machine Vision Applied in Self-driving Car
- Sales Volume of Passenger Cars Worldwide, 2005-2017
- Sales Volume of Commercial Vehicles Worldwide, 2005-2017
- Automobile Sales in Major Countries Worldwide, 2016
- Automobile Sales in China, 2014-2016
- Sales Structure of Passenger Cars (by Country) in China, 2014-2016
- Competitive Landscape of Chinese Automobile Market, 2015-2016
- Application of Machine Vision in Pharmaceuticals



## **Selected Charts**

- Consumption of Machine Vision in China's Pharmaceutical Industry, 2013-2021E
- CAGRs of Pharmaceuticals Industry in Major Countries Worldwide, 2011-2015
- Output Value and YoY Growth of Chinese Pharmaceutical Industry, 2014-2021E
- Application of Machine Vision in Food and Packaging Machinery
- Consumption of Machine Vision in Food and Packaging Machinery in China, 2013-2021E
- Output Value and YoY Growth of Global Packaging Industry, 2011-2021E
- Structure of Global Packaging Industry, 2015
- Characteristics of Sweeping Robots by Technology
- iRobot 980's VSLAM Visual Positioning Technology
- Dyson 360 eye's Camera
- Applications of Megvii Technology's Machine Vision
- Main Business of Keyence
- Global Presence of Keyence
- Revenue and Net Income of Keyence, FY2011- FY2017
- Revenue Breakdown of Keyence (by Region), FY2014- FY2015
- Main Machine Vision Products of Keyence
- Characteristics of Keyence's Machine Vision Products
- Keyence's Layout in China
- Product Lines of Cognex
- Revenue and Profit of Cognex, 2010-2016
- Revenue Structure of Cognex (by Region), 2012-2016
- Machine Vision Business Development Course of Cognex
- Application Structure of Cognex's Machine Vision, 2014-2016
- Global Presence of Omron
- Revenue and Net Income of Omron, FY2008-FY2016



## **Selected Charts**

- Revenue Structure of Omron (by Business), FY2010-FY2016
- Revenue Structure of Omron (by Region), FY2012-FY2016
- IAB Revenue and Profit of Omron, FY2012- FY2016
- Distribution of Companies Invested by Omron in China
- Revenue and YoY Growth of Omron in Greater China, FY2010-FY2016
- Revenue and Net Income of Panasonic, FY2008-FY2017
- Business Plan of Panasonic, FY2017-FY2021
- Revenue Structure of Panasonic (by Business), FY2013-FY2017
- Revenue Breakdown of Panasonic (by Region), FY2010-FY2016
- Segmentation of Panasonic's AVC Networks Business
- Operation of Panasonic's AVC Networks Business, FY2015-FY2016
- Operation of Panasonic's AVC Networks Business Segments, FY2015
- Business Goals of Panasonic's AVC Networks Business, FY2019
- Revenue and YoY Growth of Panasonic in China, FY2010-FY2016
- Development Course of NI
- Employees and YoY Growth of NI, 2008-2016
- Revenue and Net Income of NI, 2008-2016
- Revenue Structure of NI (by Business), 2014-2016
- Revenue Structure of NI (by Region), 2008-2016
- Main Machine Vision Products of NI
- Comparison between NI's Main Smart Cameras
- Features of NI's Main Smart Cameras
- Key Partners of NI in China
- Global Presence of Banner
- Main Machine Vision Products of Banner



## **Selected Charts**

- Development Course of Banner in China
- Main Machine Vision Products of DALSA
- Main Machine Vision Products of Baumer
- Equity Structure of Daheng New Epoch Technology, 2016
- Revenue and Gross Margin of Daheng New Epoch Technology, 2010-2016
- Revenue Structure of Daheng New Epoch Technology (by Product), 2013-2016
- Output and Sales Volume of Daheng New Epoch Technology (by Product), 2015
- Revenue Structure of Daheng New Epoch Technology (by Region), 2010-2016
- Vision Inspection System Revenue and Profit Margin of Daheng New Epoch Technology, 2013-2016
- Machine Vision Application Structure of Daheng New Epoch Technology, 2015
- Main Machine Vision Products of Daheng New Epoch Technology
- Equity Structure of Shanghai Hi-Tech Control System, 2016
- Layout of Shanghai Hi-Tech Control System in China
- Revenue and Net Income of Shanghai Hi-Tech Control System, 2009-2016
- R&D Costs and YoY Growth of Shanghai Hi-Tech Control System, 2007-2016
- Revenue Structure of Shanghai Hi-Tech Control System (by Business), 2015-2016
- Revenue Structure of Shanghai Hi-Tech Control System (by Region), 2015-2016
- Industrial Intelligent Solution-related Technologies and Products of Shanghai Hi-Tech Control System
- Equity Structure of Hunan Chinasun Pharmaceutical Machinery, 2016
- Global Presence of Hunan Chinasun Pharmaceutical Machinery
- Revenue and Net Income of Hunan Chinasun Pharmaceutical Machinery, 2009-2016
- Revenue Structure of Hunan Chinasun Pharmaceutical Machinery (by Product), 2014-2015
- Revenue Structure of Hunan Chinasun Pharmaceutical Machinery (by Region), 2014-2015
- Main Machine Vision Products of Hunan Chinasun Pharmaceutical Machinery
- Major Customers of Hunan Chinasun Pharmaceutical Machinery



## **Selected Charts**

- Equity Structure of Shenzhen JT Automation Equipment, 2016
- Revenue and Net Income of Shenzhen JT Automation Equipment, 2010-2016
- Revenue Structure of Shenzhen JT Automation Equipment (by Product), 2015-2016
- Main Machine Vision R&D Projects of Shenzhen JT Automation Equipment, 2016
- Machine Vision Revenue and YoY Growth of Shenzhen JT Automation Equipment, 2011-2017
- Equity Structure of Shenzhen Maxonic Automation Control, 2016
- Revenue and Profit of Shenzhen Maxonic Automation Control, 2010-2016
- Revenue Structure of Shenzhen Maxonic Automation Control (by Product), 2012-2016
- Revenue Structure of Shenzhen Maxonic Automation Control (by Region), 2013-2016
- Equity Structure of Shenzhen Inovance Technology, 2016
- Revenue and Net Income of Shenzhen Inovance Technology, 2010-2016
- Revenue Structure of Shenzhen Inovance Technology (by Product), 2013-2016
- Revenue Structure of Shenzhen Inovance Technology (by Region), 2013-2016
- Machine Vision Applications of Shenzhen Inovance Technology
- Equity Structure of Ningbo Cixing, 2016
- Revenue and Net Income of Ningbo Cixing, 2010-2016
- Revenue Structure of Ningbo Cixing (by Product), 2014-2016
- Revenue Structure of Ningbo Cixing (by Region), 2013-2016
- Equity Structure of Shenzhen Sking Intelligent Equipment, 2016
- Revenue and Net Income of Shenzhen Sking Intelligent Equipment, 2013-2016
- Revenue Structure of Shenzhen Sking Intelligent Equipment (by Product), 2013-2015
- Major Customers of Shenzhen Sking Intelligent Equipment, 2014-2015
- Major Suppliers of Shenzhen Sking Intelligent Equipment, 2014-2015
- Global Presence of OPT Machine Vision
- Machine Vision Products of OPT Machine Vision



### How to Buy

#### You can place your order in the following alternative ways:

- 1.Order online at www.researchinchina.com
- 2.Fax order sheet to us at fax number:+86 10 82601570
- 3. Email your order to: report@researchinchina.com
- 4. Phone us at +86 10 82600828/ 82601561

Party A:		
Name:		
Address:		
Contact Person:	Tel	
E-mail:	Fax	

Party B:				
Name:	Beijing Waterwood Technologies Co., Ltd (ResearchInChina)			
Address:	Room 502, Block 3, Tower C, Changyuan Tiandi Building, No. 18, Suzhou Street, Haidian District, Beijing, China 100080			
Contact Person:	Liao Yan	Phone:	86-10-82600828	
E-mail:	report@researchinchina.com	Fax:	86-10-82601570	
Bank details:	Beneficial Name: Beijing Waterwood T Bank Name: Bank of Communications Bank Address: NO.1 jinxiyuan District,Beijing Bank Account No #: 11006066801201 Routing No # : 332906 Bank SWIFT Code: COMMCNSHBJG	, Beijing Ē shijicher 5061217	Branch	

Title	Format	Cost
Total		

### Choose type of format

PDF (Single user license)	.2,600	USD
Hard copy	2,800	USD
PDF (Enterprisewide license)	4,200	USD

※ Reports will be dispatched immediately once full payment has been received.
Payment may be made by wire transfer or credit card via PayPal.







#### About ResearchInChina

ResearchInChina (www.researchinchina.com) is a leading independent provider of China business intelligence. Our research is designed to meet the diverse planning and information needs of businesses, institutions, and professional investors worldwide. Our services are used in a variety of ways, including strategic planning, product and sales forecasting, risk and sensitivity management, and as investment research.

#### **Our Major Activities**

- □ Multi-users market reports
- Database-RICDB
- Custom Research
- Company Search

**RICDB** (<u>http://www.researchinchina.com/data/database.html</u>), is a visible financial data base presented by map and graph covering global and China macroeconomic data, industry data, and company data. It has included nearly 500,000 indices (based on time series), and is continuing to update and increase. The most significant feature of this base is that the vast majority of indices (about 400,000) can be displayed in map.

After purchase of our report, you will be automatically granted to enjoy 2 weeks trial service of RICDB for free.

After trial, you can decide to become our formal member or not. We will try our best to meet your demand. For more information, please find at www.researchinchina.com

For any problems, please contact our service team at: