Room for growth

Although the machine vision industry is being affected by the global recession, Mats Gökstorp, president of the European Machine Vision Association, explains to **Nadya Anscombe** why he is optimistic about the industry's future.

■ What are the main business trends currently affecting the machine vision industry?

As with so many industries, the machine vision sector is suffering during the current economic crisis. The manufacturing industry is the machine vision industry's biggest customer, and the decline in manufacturing will have a big impact in the short-term. However, in the mid-to-long-term, the economic crisis may be a growth opportunity for machine vision technology — when our customers come out of this crisis, there will be a need for increased productivity and efficiency, and this is where investment in a machine vision system makes financial sense. The technology can help manufacturers improve product quality, increase throughput and make processes more efficient — all of which are necessary for companies that want to survive in difficult times. At the end of this crisis, I think we will see more mergers and standardization. The machine vision industry is made up of many small companies who, for many years, have all been developing their own ways of doing things. Although this makes for a very entrepreneurial industry, it can also be an obstacle to growth. Standardization of interfaces and product descriptions will help customers make product choices and also allow easier integration of components, enabling the industry to grow and progress. This is why standardization is high on the agenda for the European Machine Vision Association (EMVA).

■ What market and application trends are you seeing?

Machine vision technology has been in the manufacturing industry for some time now. Although it will be challenging to achieve growth in some areas of manufacturing such as the automotive industry, in other areas there is definitely still room for expansion. For example, the solar-cell industry has experienced rapid growth in recent years, and although the industry is currently changing, I think we'll see it increase its use of machine vision technology in the future. In the near future, however, it is non-manufacturing applications that will see the largest growth, from a turnover point of view. We have also seen growth in the use of machine vision

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in surveillance and security applications, for obvious political reasons. Other areas of growth are logistics applications and traffic monitoring. Governments have come to realize that traffic charges are an area where they can make more money, and the machine vision industry has benefited from this. For example, the congestion charge system in London, UK, the German toll system and the Italian speeding control system all use number plate recognition technology, and thus rely on machine vision. The consumer goods industry is also a potential growth area, as consumers are constantly demanding a higher quality of product. And then there are the innovative applications that have not even been thought of yet. I have been in this business more than 20 years and I am still surprised by the new machine vision applications that emerge every year.

■ How is the technology changing in the machine vision market?

There is a definite move towards products that are easy to use and have a high degree of connectivity. The machine vision industry is now developing smaller smart cameras and vision sensors, rather than the older, larger inspection systems. We noticed this trend in the EMVA's 2007/2008 market survey,

which showed a 4% rise in turnover for smart cameras and 26% for vision sensors, whereas the turnover for frame-grabbers fell by 9%. A smart camera has both the imaging hardware and software integrated into a small, compact system, and can be programmed by the customer for their application. A vision sensor goes one step further, and provides smart camera performance but with the ease-of-use of a standard photoelectric switch. The vision sensor has only a single task, which makes it very easy to use and integrate into the manufacturing process. It is a rather natural chain of development: from the complex vision systems 30 years ago, to the smart cameras 10 years ago, then to the highly integrated easy-to-use vision sensors of today — all driven by miniaturization and software enhancements. A vision sensor is really a compact smart camera that has highly advanced image-processing algorithms and is packaged in an easy-to-use industrial sensor.

Another technology trend that will become increasingly important in the future is three-dimensional (3D) machine vision. This technology has been around for a while, but — thanks to software developments — has become easier to use and therefore more popular with customers. 3D machine vision enables customers to determine the form of an object during inspection, allowing better sorting, classification and quality-control of products. There are three methods of achieving 3D machine vision, and each has different characteristics that are appropriate for different applications. Stereo 3D machine vision involves using two cameras to obtain a 3D image, and is particularly suited to applications with static scenes. Laser-based 3D technology involves using one camera and a line laser. This has proved to be the most robust technology for industrial applications because of the independence of contrast variations and ambient light conditions. The third technology for 3D machine vision is time-of-flight cameras. These are able to measure distances in a complete scene with a single shot and in real time, but still suffer from low resolution.

INTERVIEW BY NADYA ANSCOMBE

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