

Topics with Impact: Big Brother Is Watching You?

INSPECT Panel Discussion "Machine Vision and Security" at Vision 2008



How about applying the high performance and industry weathered robustness of machine vision technology to the analysis of surveillance camera images? How far could one get by comparing and matching performance and requirements of both areas – Vision and Security? Could automating the surveillance processes help in protecting privacy?

In this year's panel discussion during the Industrial Vision Days at Vision 2008 in Stuttgart, six experts from both industries were invited by INSPECT to discuss state-of-the-art and future developments of camera based surveillance.

About 160 trade show visitors followed the lively discussion between the six panelists. The allotted hour was much too short to cover all aspects of the topic. Machine Vision and camera based Security Technologies have quite some potential to benefit from closer cooperation of the respective market players. Maybe

this open panel was a first step to fuel a further continuation of the information exchange.

From many a visitor's point of view, the discussion certainly came to a peak when the industry representatives shared their view of the future of video surveillance.*



**Klaus Baumgartner,
Siemens Building Technologies**

I am convinced that we have to get used to the thought that video surveillance will continue to penetrate the public and also the semi-public areas. Does that worry me? It does not. With the huge amount of data, that will thus be provided, there is

no other way than to reduce this data already on a meta level. When an event occurs that was actually supposed to be detected, and only then, original data will be provided to the authorized recipient for evaluation.

Our industry is faced with the important task to design security standards guaranteeing that all acquired data will remain private up until the pre-defined situation occurs that requires the analysis of the data.

**Volkhard Delfs,
Panasonic Systems Solutions**

Today we are at the verge of overcoming the restrictions analogue video technology had imposed on us. That will result in an improvement of options but also in additional challenges. The success will be based on our efforts in making the cameras somewhat smarter to unburden the

* Editor's Note: The panel discussion was originally conducted in German language. Any flaws in the transcription into the English language text of this article lie solely in the responsibility of the editor.

operator. Especially in open air low contrast scenarios it is very, very difficult to detect motion, even for the human eye. Sensors, however, are perfectly capable here, provided that they come with computing power.



Prof. Dr. Jörg Krüger,
Innovation Cluster Secure Identity

It will be no small task to integrate pre-processing functionality into the camera with the goal to distinguish pixel noise from actual object movement, even at low light conditions, as a threshold of what will be presented to an operator. We spoke earlier about applications with 8,000 cameras [editor's note: in casinos], no operator can cope with that. The systems need to be more clever. Event driven display, integration of other sub-systems, visualization of conditions: that is no small task lying ahead of us.

In automation, in production, everywhere we have the same problem of data overflow. The world around us is connected. We can collect data with no end, but we are no longer able to analyze this data. What we need are mining technologies to get information out of data. This will be our task for the next couple of years. One possibility to apply this to video technology is to detect and describe the relations between single objects. To not only detect single objects but to find the logical scenario correlation between these objects. This is still a long way, but first approaches can be seen already manifold in research.

Looking at the hardware aspect, we will see more 2,5 D in the future compared to today's rather 2D products. We will use the depth information in addition since this helps us to detect objects more accurately or to separate objects from each other. There is a lot to achieve methodically. That of course pleases me as a scientist.



Dr. Stefan Gehlen, VMT

The vision of integrating IP and IT in security has already begun. This trend is fast and irreversible. In cameras and system technology we will see more resolution, higher accuracy. This results not necessarily in larger areas to be covered but in higher quality of the captured data, enabling automated image analysis.

On another note and looking at the development in Asia, we come to a totally different aspect: the question on how to open up new fields of application for video analysis. Border control, for example. The driving factor here will be the automation of security. The business case will no longer be the security application but the automation of security processes.



Dr. Dietmar Ley,
Basler Vision Technologies

I am convinced that there will be applications with smaller requirements for data analysis or image analysis. I'm thinking here of applications in retail where a wrong decision does not present a problem. The main task here is to understand how my shop works, which aisles enjoy especially high customer attention, which crowd my shop attracts, how to optimize my business. Another application might be, and here the two worlds will cross each other somewhat,

to monitor production cells by using technology developed for security applications, substituting light curtains by scene analysis to e.g. stop a robot when a human enters the working zone. That is not necessarily the high end application, but something that will already work tomorrow. I think we should look for applications that are already feasible with the state-of-the-art. Along the way we will acquire the skills for the more difficult and demanding tasks. Experience already acquired in machine vision can be used here to implement good and profitable applications. These applications maybe a little bit off the path of traditional security tasks but instead more in the area of surveillance. That is my expectation for the near future.



Rudolf Spielberger,
Bosch Security Systems

I happened to come across a press release last week, stating that three quarters of the German population wishes for an increased video surveillance. That, of course, pleases our industry.

Ultimately, our path will lead us from today's situation of creating video garbage, tera bytes of it, to transforming this data into meaningful meta data. Into information really providing us with the facts we need for decisions. And ultimately we aspire, independent from cross-system usage, a future where video surveillance is not merely relevant after the fact, but where, with the help of smart components, we master the step to act before a critical event takes place, to even prevent this event.

In case you missed this discussion at the Vision and you would like to learn more from the experts, you will find the audio stream of the event at www.inspect-online.com.

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