# Report from the Stuttgart Machine Vision Show:
## CMOS Imager Innovation International



*Muriel Ancion and Patrick Buve of Euresys intro Europe's first Camera Link hardware.*

In a slight variation on the old slogan, the U.S. Automated Imaging Association apparently took the line "If you can't beat 'em, get them to join" when it made a strong pitch to get European vision suppliers to join the AIA during an after-hours reception at Vision 2000 in Stuttgart, Germany.

The star of AIA's presentation was David Dechow, president of the Association, who gave a speech in German that drew loud applause when he completed it. He told *Advanced Imaging* that he has taken private lessons during the past year, since he merged his company with German-based **ISRA Vision**. In fact, comparisons drawn by several exhibitors who had been present at the AIA's own, sparsely-attended show in San Jose two weeks earlier were all highly favorable to the German show.

As the show closed in Stuttgart, initial figures put the attendance at 5,200, an 8% increase over 1999, with an increase in foreign visitors from 13% to 18%. Exhibitors numbered 154 and were drawn from 17 different countries, making the event truly international in flavor.
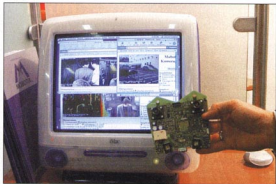
## CMOS INNOVATION

One of those non-German exhibitors was **CSEM Zurich**, which won the hotly contested competition for the best innovation with its very high dynamic range LinLog photo-sensing principle. This enables CSEM to claim high dynamic range, high-speed image sensing

*Mobotix: CMOS imaging-based home surveillance via the Mac.*

with the world's best low-light level performance. The CMOS camera combines the advantages of linear response for low-light levels and logarithmic compression at higher illumination. The changeover point is controlled by software with a simple slider control in the user interface.
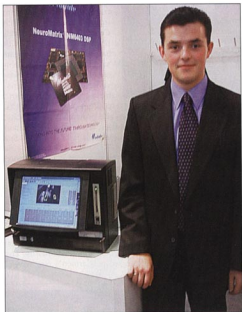
And here's some news: Peter Seitz, until very recently head of the Image Sensors Group at CSEM Zurich, now heads the entire operation there, and indicated that the CSEM Mountain View range of cameras is likely to soon be the subject of a spin-off into a separate company, following the example of other recent developments from the organization. More details can be found about the cameras at *www.mountainview.ch*, and about CSEM at *www.csem.ch*.

In fact, extensions of CMOS technology were among the notable demonstrations at the show, across international boundaries.

**Integrated Vision Products** of Sweden has teamed up with the **Integral Vision/Stemmer Common Vision Blox** to provide a much-needed, simple user interface for the range of the established IVP systems, which are based on CMOS sensors with on-board multiple processors. The IVP MultiSense device can yield 2-D and 3-D images (in full color, if required) all from a single, high-speed sensor. IVP's Mats Gokstorp pointed out that the range images are shown as variations in grey level, and these can be treated as if they were 2-D monochrome images for tasks such as template matching and creating artificial boundaries.

*Michael Parakhin and "Module" Russia.*

matching, thus yielding 3-D pattern matching capabilities from standard 2-D software algorithms!

Other CMOS enthusiasts present at Stuttgart were Belgian camera supplier **C-Cam Technologies** and sensor-designer and supplier **FillFactory NV**, a spin-off of **IMEC**, where much of the technology was developed. Their sensors are used by **Fastcom Technology SA** of Lausanne, Switzerland, also present and showing an ever-widening range of CMOS-based intelligent cameras. See more on these sensors at *www.fillfactory.com* and on the intelligent cameras at *www.fastcomtechnology.com*.

An alternative source of CMOS cameras is the **Institute for Microelectronics Stuttgart**, a really close-to-home exhibitor! See its Web site at: *www.ims-chips.de*.

And still on the subject of CMOS sensors, the latest "miniature" intelligent camera from **Vision Components** was on display in fully-developed form (a prototype was seen at the AIA Boston show in April) and attracted considerable attention. It is small enough to mount directly onto a bowl-feeder, so that it can (for instance) check for the orientation of emerging components, rejecting ones that are not as required; because it vibrates with the bowl, sharp images are readily obtained.

Low-power consumption by its CMOS sensor is a feature of a new surveillance system from start-up **Mobotix**, *www.mobotix.com*, which can draw the one watt it needs from ISDN phone lines; ISDN being very widely in use even in private homes in Germany. Although Mobotix is itself a start-up, it was founded by Dr. Ralf Hinkel who had earlier founded and eventually sold a company that makes surveying

equipment for building sites, so he had plenty of experience in making rugged and weatherproof instruments, and sufficient capital to design a highly-developed product, even to its consumer-oriented packaging, before launch.

With the new generation of image-enabled mobile phones, one can imagine the system (which costs only DM1000 or DM1500 with dual cameras) automatically phoning the owner of a holiday home and inviting him to watch it being burgled or burnt down on the phone!



IVP MultiSense.

The new "Camera Link" standard for high-speed links from digital output cameras to framegrabbers was much in evidence, following its official launch earlier at San Jose. Some of the CMOS-camera suppliers, we noted, were a little unhappy that the standard, unlike IEEE 1394, does not carry its own power. It seems that the standard was set by suppliers of CCD cameras and of framegrabbers, who realized that the latter could generally not supply enough power for CCD cameras, ignoring the fact that CMOS cameras with much lower power requirements could well have been supplied adequately.

Nevertheless, the standard was certainly welcomed, and we can expect its rapid adoption in Europe. Belgian framegrabber manufacturer **Euresys** featured the link prominently; they're apparently the first European framegrabber supplier to adopt it.

It operates across multiple lanes and provides flow, velocity, headway (average distance between vehicles) and occupancy (percent of time some vehicle is in field of view). See more at www.module.ru.

Two entries from Hungary also appeared well-developed and claimed existing commercial potential. A passport "reader" from **Dyawell Ltd.**, www.dyawell.com, not only reads the machine-readable page of passports, but captures images in infrared and ultraviolet light to allow a range of security checks to be made automatically. **Adaptive Recognition Hungary** provides a software package for identification and recognition of vehicle license plates, claimed to be country and type independent, which of course is important in Europe with its multitude of national license-plate standards. The product is known, excruciatingly, as "Carmen"! No "www," but their fax is +36 1 222 9242. ◆

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