

newsletter 3

Verantw. Uitg.: Peter Simkens | DSP Valley vzw., Gaston Geenslaan 9, 3001 Leuven, Belgium
tel. +32 (0) 16 24 14 40 | fax +32 (0) 16 24 14 49 | www.dspvalley.com

designing smart products



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Xenics' InGaAs SWIR detectors observe the earth out of space

Three of Xenics' new Xlin-1.7-3000 SWIR InGaAs detectors are aboard the ESA satellite Proba-V to map vegetation patterns across the face of the earth. This data can be used for alerting authorities to crop failures or monitoring the spread of deserts and deforestation. The first images were captured over Western France on May 15, 2013.

Proba-V got successfully launched by the new VEGA launcher from the Kourou space center on May 7th at 4am CET, after a 24 hour delay due to the local weather conditions. After starting up the satellite and stabilizing its position and orientation, the Vegetation instrument with the VNIR and SWIR imagers could be switched on for the first time on May 15th, well ahead of schedule. The extensive detector test and qualification program

ensured the durability against the harsh launching conditions (shock, vibrations, temperature and pressure variations) and all systems turned out to be fully functional.

Xenics
Infrared Solutions

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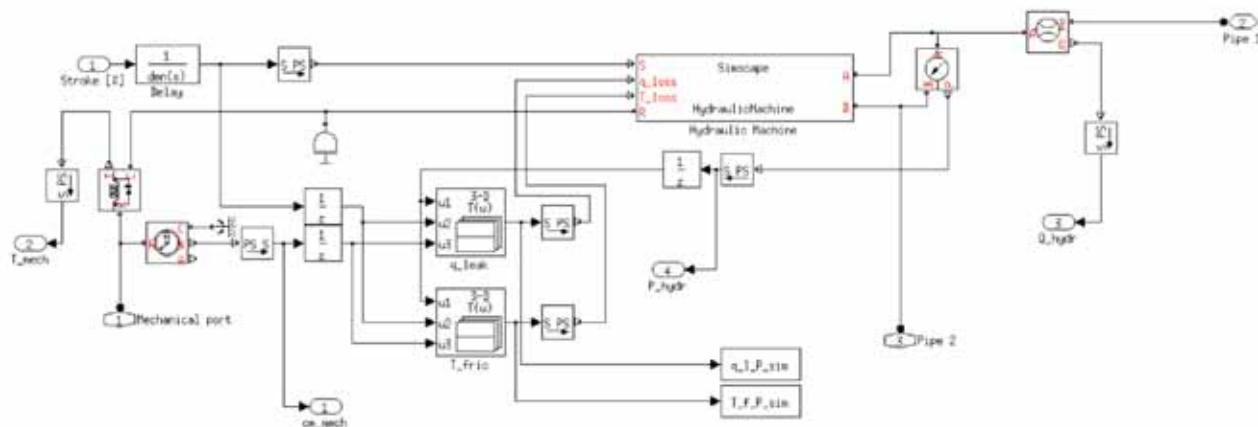
FMTC makes better machines with model-based design



In the middle of last year the Flanders' Mechatronics Technology Centre (FMTC) started a research program on the model-based design of machines. By using models during the design the quality and performance of the machines is improved. Moreover, the design time and costs decrease so that companies

can get faster on the market with new products. On April 24, 2013, during the Model-Driven Development Days (MDD 2013) in Eindhoven, FMTC presented the first results of this new research program. In the first presentation, the use of models during the design of the new version of FMTC's badminton robot has been explained. A second presentation showed how up to 25% fuel reduction is obtained by using models in the design of a hybrid powertrain.

To bring innovative products to the market, the Flemish machine builders are during their design process increasingly faced with the growing complexity of their products. Only with the help of computer support based on models the designers are able to realize optimal products quickly and efficiently. At the request of several leading Flemish companies FMTC therefore started last year a new research program on the design of machines with computer models.



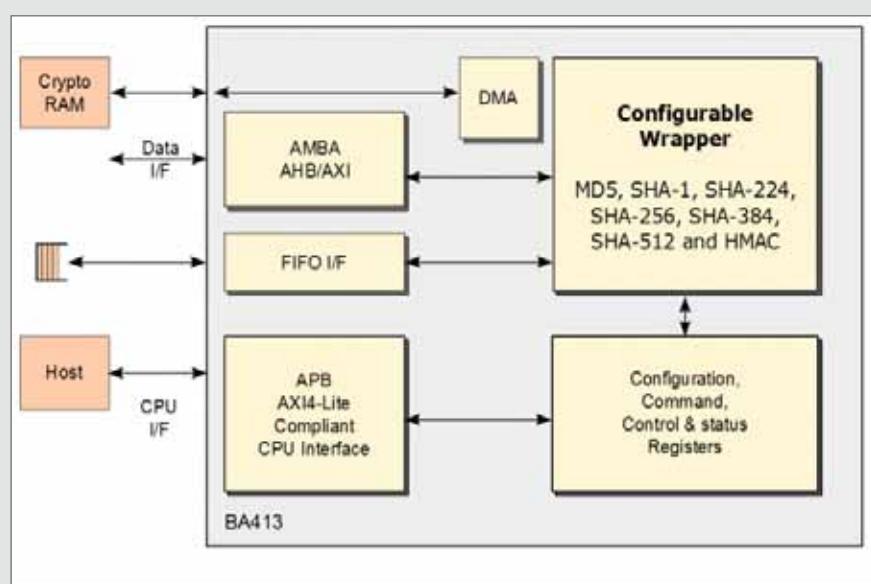
Barco Silex FPGA design speeds transactions in award-winning Atos Worldline HSM

Atos Worldline's Hardware Security Module ADYTON integrates Barco Silex's FPGA design and crypto IP to handle 7000 RSA op/s @ 250 MHz

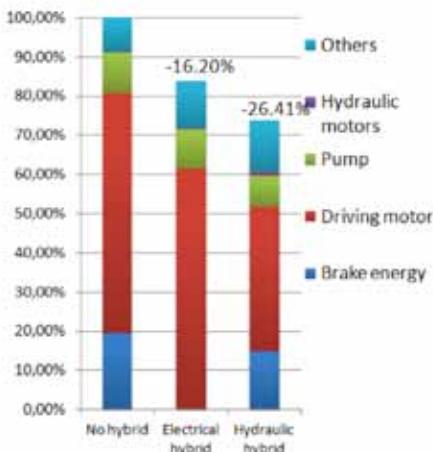


Barco Silex, a leading provider of crypto IP solutions and ASIC / FPGA design services, announced that hi-tech transactional services expert, Atos Worldline, uses a Barco Silex FPGA crypto platform in its ADYTON. The ADYTON, which recently received an iF product design award in addition to its red dot product design award, integrates Barco Silex's IP to achieve RSA and ECC performance levels of over 7000 op/s in RSA CRT and FIPS 140-2 Security level 4 certification.

"We chose Barco Silex IP because it offered the highest RSA and ECC performance available, allowing us to balance high speed transaction capability with



Christophe Thomas, Manager Controls Development at Spicer Off-Highway Belgium, was closely involved in the definition of this program: "At Spicer Off-Highway Belgium we started a few years ago with the intensive use of models during the design of new transmissions. Through the new FMTC program we keep abreast of the latest developments in the field of model-based design."



Gregory Pinte, program leader of the new program, adds: "In this program FMTC examines how models can be used to streamline the exchange of information between the different



designers and to develop better products. FMTC has the ambition to become a leading knowledge center in the field of model-based design for machines."

At MDD 2013 FMTC demonstrated its expertise in model-based design with some initial achievements. A first presentation showed how models were used in the design of the new version of a badminton robot. Andrei Bartic, project leader of the badminton robot project, explains: "In 2010 FMTC created a world first with its realization of a badminton robot. Model-based analyses helped in developing a new robot

that autonomously drives around the playing field". In a second presentation Kristof Berx, project engineer at FMTC, discussed how the drive train of a heavy vehicle, such as used in agriculture, mining or road construction, was optimized using energy models. Using these models for analyses he compared different options for energy recovery. By proper selection and dimensioning of the energy recovery system he obtained a reduction in fuel consumption of 25%.

About FMTC

FMTC is the research center of the leading mechatronic companies in Flanders and is an initiative of Agoria, the Belgian federation for the technology industry. FMTC helps to bridge the gap between academic knowledge in mechatronics and its use in industrial applications. In order to accomplish its mission FMTC has a unique operation model of joint research projects. FMTC is supported by the Flemish government.

the cost benefits of an FPGA solution. We have collaborated with Barco Silex on many projects. The combination of their scalable crypto IP and excellent design services have helped make the ADYTON a market success" said Filip Demaertelaere, Product Manager, Atos Worldline.

"Achieving over 7000 op/s on an FPGA running at 250 MHz is quite an achievement and shows how powerful our crypto IP platform is," commented Sébastien Rabou, Product Manager, Barco-Silex. "Today there is an increasing need for security in data communications systems, to handle financial transactions including mobile and online payments as well as to protect data and content. These systems must offer very high levels of protection and manage large numbers of transactions at high speed. The ADYTON shows that hardware security modules using our IP and

FPGA can achieve the required performance cost-effectively."

Barco Silex offers a broad portfolio of flexible and scalable security IP cores for symmetric and asymmetric cryptography. For Atos Worldline, Barco Silex drew on its BA414E (Public Key crypto Engine), BA413 (Hashing engine) and BA431 (True Random Number Generator). Combined with the company's expertise in FPGA, ASIC and SoC design, this delivered an autonomous

platform supporting key generation, signature verification, prime number and FIPS compliant random number generation.

The high level of flexibility and scalability of Barco Silex crypto IP enables customers to optimally balance gate count and performance by selecting appropriate core options. And the highly pipelined and optimized architectures generate the fastest and smallest solutions on the market.

About Barco Silex

Barco Silex is a leader in contract engineering services, custom hardware and software development, as well as Intellectual Property (IP). Thanks to its continued stream of aggressive innovations, Barco Silex stays ahead of the competition. Barco Silex's history as a custom electronic design house (ASIC, FPGA, DSP, Board) specialized in video coding, cryptography, security and memory controllers goes back to 1991, offering the best guarantee for continuous support throughout the complete lifecycle of products.

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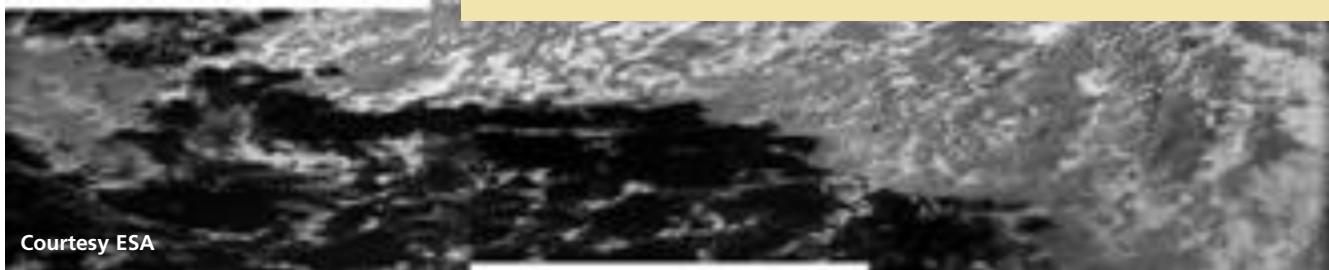
The image in attachment is the first raw SWIR image transmitted by the Proba-V satellite to the ground station. It shows excellent central on-ground resolution of 100 meters, with a swath of approximately 400 kilometers. Having such high-quality images ahead of schedule without calibration correction, underlines the high intrinsic performance of the InGaAs sensor, the ROIC and the corresponding read-out electronics, all designed and manufactured by Xenics. The stitching of the individual images of three mechanically butted InGaAs arrays results in the typical shape of the image with an upward offset of the central 1024 pixels. Proba-V is equipped

with three such detectors, expanding the total swath to 2200 km (divided over approximately 9000 pixels) with a reduced on-ground resolution of

the outer sensors. With the support of Xenics, Proba-V is set to provide the world with valuable daily updates of the global vegetation status. ■

About Xenics

Xenics is a pioneer of path-breaking infrared technology with a proven track record of more than ten years. Xenics designs and markets infrared imagers, cores and cameras of best-in-class image quality to support innovative R&D, industrial automation, machine vision, process control and high-end security applications. The company offers a complete portfolio of line-scan and 2-D area-scan products for the VisNIR, SWIR, MWIR and LWIR ranges. A vertically integrated manufacturer with advanced production facilities and in-house know-how on detector, systems and software development, Xenics delivers state-of-the-art imaging solutions as well as specifically targeted and optimized custom designs. Due to its Western European location and a worldwide sales and service network, Xenics is able to support its customers with simplified export procedures.



Courtesy ESA

DSP Team grows with 3 additional Colleagues!

With the implementation of the new DSP Valley 2.0 strategy, expanding to smart electronic systems application domains, additional resources are necessary to make this possible. Therefore, DSP Valley has recruited new colleagues for the team, bringing fresh ideas and new energy for realizing our ambitious growth.

Already in February 2013, our DSP Valley team was reinforced with **Jan Verlaak**. As a project manager, Jan is developing the newly approved DSP Valley 2.0 project, funded with European EFRO money and co-financed by the region of Flanders and the province of Vlaams-

Brabant. With this project, DSP Valley aims at supporting Flemish companies in the domain of nanoelectronics and embedded systems. The very first priority is to stimulate new innovation projects in new application domains such as "Smart Home", combined with technologies such as "Smart Vision". In addition, this EFRO-funded project also wants to support the creation of new spin-offs and start-ups. Thirdly, DSP Valley will help in searching for the required talent for these innovation and start-up initiatives.

Jan holds a master degree in Comparative and International politics from KULeuven and International Business Economics & Management from VUB. For the EFRO project, Jan teams together with Björn Van de Vondel as project co-ordinator.

by NanoElectronics and Smart Specialization - see article on page 8). This project, financially supported by the Flemish Agency for Entrepreneurship (Agentschap Ondernemen), aims at stimulating the utilization of nanoelectronics as key enabling technology for new products and applications in Smart Health Systems, mainly innovative medical devices, and aims at building new value chains in Smart Health Systems, bringing together technology providers and product developers / system integrators. Frederik brings fresh experience in biotech and medtech, from a background of a Master in Biomedical Sciences and a related PhD in Biochemistry, and research as a Postdoc, from Hasselt University and Maastricht University. Frederik will team together with Geert Adriaens.

Another new colleague is **Frederik Horemans**. Frederik will be project coordinator for the project "GENEESS" (GEzonder door NanoElektronica & Slimme Specializatie – Healthier

Finally, to better streamline the communication within this growing community of DSP Valley, the team has been expanded with **Shirine Irani**. She will take care of the development of com-



From left to right: **Jan Verlaak, Shirine Irani and Frederik Horemans**

GreenPeak Announces The Year of ZigBee

ZigBee Technology is Backbone of the new Smart, Connected Home



GreenPeak Technologies, a leading low power RF-communication semiconductor company, announced the year of ZigBee. Worldwide, GreenPeak and other ZigBee semiconductor suppliers are now shipping millions of ZigBee chips every week, making ZigBee the only credible open worldwide standard for the smart home supported by cable and satellite operators and other companies playing in the smart home space.

"ZigBee has been recognized as the connected and smart home technology of choice, due to its worldwide standard-

munication through new and existing channels, such as our newsletter, the newsflashes for our members, the DSP Valley website, and the organization of networking and matchmaking events. In addition, Shirine will take responsibility for office management tasks. Shirine holds a master degree in Communication from KULeuven, and has got valuable experience from previous assignments in communication and marketing. Shirine will support Vera Geboers in the communication for DSP Valley

We are convinced that these 3 new colleagues will bring very fresh ideas and they are a very strong reinforcement of the DSP Valley team. With their help, we will be able to deliver even better services and even more added value to our members.

With Jan, Frederik and Shirine, the DSP Valley team now has 9 colleagues, at your services through the Leuven and Eindhoven offices.

Best regards,
Dr. Peter Simkens
Managing Director DSP Valley

ization and acceptance via the cable TV and service provider industries," says Greg Potter of Multimedia Research Group. "Once the cable companies have taken the first step of providing ZigBee networks in the majority of new set-top boxes, it helps create a thriving industry of ZigBee add-on devices for the home - making it easy for installers, system integrators, and home do-it-yourselfers to install a wide range of ZigBee devices onto the cable companies' ZigBee backbone within the home. Revenues from services derived from ZigBee backbones within the home are set to skyrocket from \$80 million in 2012 to over \$1.7 billion in 2017."

According to IMS Research – now part of IHS (NYSE: IHS) – one of the key trends driving the use of ZigBee in the 'smart home' is the adoption of the technology by managed service providers in the U.S. and Europe, offering home monitoring and energy management systems via cloud-based home management platforms. The growing traction of ZigBee RF4CE in home entertainment devices is set to continue. IHS projects that shipments of ZigBee RF4CE ICs will grow with a CAGR of 29.1% in the period 2012 to 2018 as ZigBee RF4CE is increasingly incorporated in a range of devices such as set-top boxes, television sets and the accompanying remote controls as an IR replacement technology, enabling more sophisticated interaction with home entertainment devices.

According to Greg Potter of MRG, *"The ZigBee revolution is driven by cable companies and service providers who wish to expand their market by a wide variety of home services, in addition to delivering content. Often called the Fifth Play, cable companies are now adding home services to the previous four plays: TV & movies, broadband Internet, VoIP and wireless phone services."*

"There are approximately 600 million homes connected to the internet – each



of these is a potential customer for a ZigBee home network, with over a hundred possible devices in each home talking to the network: from thermostats, lights and switches, security sensors, door locks, appliances, remote controls, etc." says Cees Links, Founder and CEO of GreenPeak Technologies, the market leader for ZigBee silicon. *"GreenPeak's Open Smart Home Framework provides*

About GreenPeak Technologies

GreenPeak Technologies is a fabless semiconductor company and one of the leaders in the ZigBee market segment with a rich offering of semiconductor products and software technologies for Smart Home data communications and the Internet of Things. GreenPeak is privately funded. It is headquartered in Utrecht, The Netherlands and has offices in Belgium, France, USA, Japan and Korea. GreenPeak has won the prestigious 2012 Red Herring Top 100 Europe award and is recognized as a leader in developing new wireless technologies for consumer electronics and smart home applications, demonstrating rapid growth and adoption by major customers.

a context in which all these devices seamlessly connect to each other and to the internet via the low power ZigBee standard, complementary to WiFi for data sharing and content distribution."

ZigBee is a trademark of the ZigBee Alliance.

Verum's Analytical Software Design (ASD) Technology Receives U.S. Patent

Verum announced that the United States Patent and Trademark Office has issued a patent for its Analytical Software Design (ASD) system, the foundation of the ASD:Suite. The patent recognizes that ASD is, among other things, unique in its approach to the construction of formal mathematical models to verify the completeness and precision of software designs.

Because ASD applies to software engineering the mathematical rigor that is fundamental to other engineering disciplines, it can identify and eliminate

behavioural defects early in the software development cycle rather than at great cost after implementation. This improves software quality, which is critical to many embedded applications, and raises productivity substantially.

Robert Howe, Verum CEO and co-founder, commented on recent market developments, *"The ASD approach is so radically different from traditional approaches to software development that it has been difficult for many to accept. However, we are seeing the tide turn as some of the world's most admired companies have rigorously tested and proved that the ASD:Suite enables them to bring reliable products to market more quickly, predictably and cost-effectively. Receipt of the U.S. patent is well timed as interest in the technology has been expanding to North America."*



Verum's ASD technology already holds a European patent and a Hong Kong patent. ■

About the ASD:Suite

The Verum ASD:Suite is a unique, general purpose, software design automation platform. Incorporating fully automated mathematical verification technology, it enables software engineers to build better, more complex software while delivering a net 30%-50% improvement in productivity and a corresponding decrease in time to market.

ASD:Suite users include ASML, Ericsson, FEI Company, Nanometrics, Nspyre, PANalytical, Philips, Sioux, Solid Semecs and TASS.

MINDCET exhibits at PCIM 2013 in Nürnberg

Power to the People

May 14-16, MinDCet exhibited at PCIM in Nürnberg, Germany. PCIM (Power Conversion Intelligent Motion) is Europe's leading meeting-point for specialists in Power Electronics and its applications in Intelligent Motion, Renewable

Energy and Energy Management. Amongst market leaders and niche players in the field of power electronics, measurement solutions and discrete component manufacturers, MinDCet fitted seamlessly at PCIM in the lower power range for 1uW-1kW applications. This was confirmed once more this year by the large interest from both visitors and exhibitors for MinDCet's products and services. The high-tech competence profile and the unique offering of MinDCet in the field of on-chip and discrete power management solutions proves a wanted combination.

Seeing is believing

One thing is clear: if you are able to show visitors what you sell and to demonstrate its functionality, people are definitely convinced. That is exactly what

MinDCet did again at PCIM this year, showing demonstrations of their latest products. The demos at the booth were a big success: D-BUCK digital DC-DC converters, Near-Field Wireless Power & Data Transfer, Single-Chip 700V to 5V Linear Regulator solutions, MADMIX



AnSem: Continued growth in Analog ASICs & RFIC design



For the 15th year in a row, AnSem is pleased to announce that it ended its fiscal year once again with a positive result. Since its inception 15 years ago, AnSem has consistently generated a

profit every year, which makes AnSem a financially stable and solid partner to its customers.

In 2012, AnSem realized a significant growth in its wireless segment and added NXP Semiconductors, Dialog Semiconductor and Inside Secure to its customer portfolio. Furthermore AnSem acquired several new ASIC projects in the medical and industrial market seg-

ments which will contribute to AnSem's future growth. Next to successfully growing its project and customer base, AnSem continued to hire top talent and added 3 new engineers to the team in 2012.

"AnSem continued the success of 2011, booked new ASIC projects and attracted new RF customers, which has resulted in another profitable year. The recognition from our new customers of our state-of-the-art analog, RF & mixed signal IC design capabilities confirm AnSem's position as Europe's leading Analog ASIC design service company", said Dirk Logie, AnSem's CEO.



About AnSem

AnSem is Europe's leading fabless analog ASIC design service company, designing and delivering state-of-the-art analog, RF and mixed-signal integrated circuits to customers worldwide. Founded in 1998 and based in Leuven, Belgium, AnSem specializes in the development of advanced integrated circuits for wired and wireless data transmission, sensor data acquisition, ultra low-power and high voltage applications. AnSem is ISO 9001 certified and is a proven and solid development partner for ambitious and visionary customers, reaching for leadership in global markets.



Accurate Inductor Measurement - leveraging MinDCet's technological assets towards convinced customers and prospects: "Seeing is believing".

MADMIX, the in-house developed, patented, fully-automated measurement setup for characterizing discrete inductors. Different than standard commercial LCR-meters MADMIX mimics the stimuli that are present in the application, a switched-mode power-supply (SMPS) in this case. Enabling very realistic and accurate modeling of these inductors, MADMIX is crucial for making the right trade-offs in the design of SMPSs. This year demonstrated in combination with

a Thermo-Streamer, heating the inductors up to 225°C or cooling them down to -70°C, attracted even more visitors at the MinDCet booth.

Adding it up

After a 4-day road trip to Nürnberg the conclusion is clear: MinDCet succeeded again in attracting the interest from the power electronics community and industry, proving its complementary and unique competences.

About MINDCET:

MinDCet is an ISO9001 certified fabless mixed-signal electronic design company, with a focus on integrated and discrete Power Management. MinDCet applies their expert-level competences in the field of highly/fully integrated and discrete DC-DC converters, drivers, control systems, class-D amplifiers, power and battery management – empowering your products with cutting-edge technology to be efficient and competitive.

The services of MINDCET include:

- Turnkey IC Solutions
- IC Design Services
- System/Feasibility Studies
- In-House Testing and Inductor Characterization

Healthier by nanoelectronics and smart specialization – GENEESS project



Health is precious to all of us. Therefore, it is a challenge to innovate and to develop smart products to cope with medical issues. In the **GENEESS** (**G**Ezonder door **N**ano**E**lektronica **E**n **S**limme **S**pecialisatie) (Healthier by NanoElectronics and Smart Specialization) project the focus will be on the implementation of nanoelectronics in several medical devices for solutions in healthcare. The main goal of the GENEESS project is to stimulate the use of nanoelectronics as a key enabling technology in the medical field in Flanders. Miniaturized hardware and software components are essential for the development of advanced smart products.

There are many different application domains in the medical context where smart solutions are desirable: pacemakers, hearing devices, vision and sight implants, brain electrodes, heart rate monitors, miniature insulin pumps, small diagnostics with biochips, etc. Worldwide there is a growing demand for such smart applications given the awareness of aging issues, the increase of chronic diseases and the rising costs in healthcare.

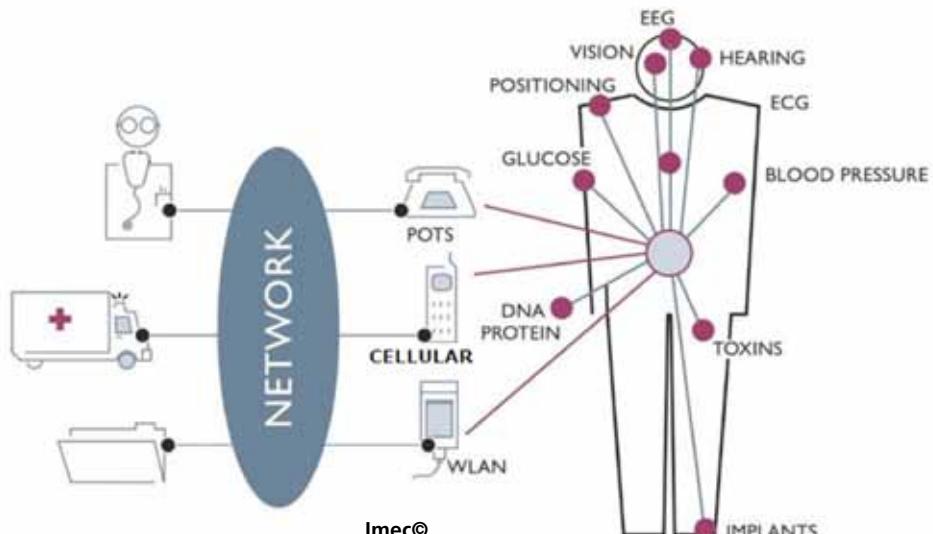
In Flanders several companies are involved in electronics but they still lack sufficient activities in the medical field. During the GENEESS project we aim to identify approach and bring together all players involved in the medical field. In this way cooperation in an atmosphere of open innovation can lead to successful creation of new and smart products. This will increase the competitiveness of Flemish companies and strengthen the technology-driven transformation of the industry.

To achieve the goal of the GENEESS project several actions will be taken:

- A nano-readiness audit will be prepared to query companies about their activities in the medical field. In this way all participating companies get feedback and advice on how to improve their nano-readiness regarding medical technology.
- During matchmaking events and seminars, we will explore the business opportunities around special sub-themes such as personalized diagnostics, personalized measuring devices and implantable solutions.

activities in medical technology. In the end the goal of the GENEESS project is twofold. First of all, helping people by the creation of new smart medical devices to cope with health issues. Secondly, strengthen the Flemish economy by stimulating more entrepreneurship and open innovation.

For all who are interested in the GENEESS project, the kickoff event will take place on June 25, 2013 (in Dutch). More details about the program can be found on the Events page of our website and on the project website www.geneess.be.



- A best practices guide will gradually be prepared to facilitate the implementation of smart technology, using existing business cases and through expert meetings.
- On the GENEESS website an interactive demand-supply portal will be created with information about company

The GENEESS project will run for three years (from February 1, 2013 runs till January 31, 2016), with a total effort of 5 person-years. DSP Valley is main contractor, with imec as a project partner. GENEESS is sponsored by the Flemish government (Agentschap Ondernemen, Nieuw Industrieel Beleid). ■



TOBCAT: Industrial applications of object categorization techniques

During this IWT-TETRA project we will investigate the possibility of using state-of-the-art object categorization algorithms, developed in academic research context, to solve object detection problems in industrial applications.



Object detection is a well spread computer vision algorithm used for the automation of production processes, which tries to solve industrial computer vision problems. These basic camera systems still require that an object, which needs to be recognized and localized, has a known appearance (shape, size, colour, ...) every single time it appears in the image. Simple computer vision techniques like thresholding pixel values in different colour spaces and pattern matching, allow these computer vision systems to successfully detect objects in 2D images.



However, in many industrial applications, we do not want to detect a single object, but rather a set of objects, which is also called an object class. The appearance of these objects inside a single object class vary a lot (e.g.



also create a robustness against multiple object variations like illumination, object pose, clutter, occlusion and viewpoint. During this IWT-TETRA project, we will study these state-of-the-art object categorisation algorithms, in order to be able to apply and optimize these techniques from academic research, so that we can solve more practical and more realistic industrial problems. Examples of these industrial cases are the detection of pedestrians and cars for traffic analysis, picking of fruit and vegetables, counting of micro-organisms, counting of objects on a conveyor belt, detection of elderly people using walking aids, ...

pedestrians or natural grown products). Simple computer vision techniques do not succeed in detecting these object classes with a large intra-class variability, giving rise to a demanding need for more global and more robust detection techniques.



Object classification algorithms, developed in academic research context, are ideal techniques to cope with this intra-class variability. The proposed techniques

We also want to put some research into simplifying the training process. Until now, multiple thousands of positive and negative images are needed to train a robust object classification algorithm. However, since many of these industrial environments actually form constraints on the scene (constant illumination, known scale, fixed camera position, known background, ...) we are convinced that it should be possible to reduce the amount of needed examples drastically. These known constraints can also be used to reduce the search space in which the algorithm has to look for candidate objects for a specific class. First normalizing each image window to a standard orientation, creating a 2D scale-location map, using colour or movement information to segment interesting regions, ... are all elements that can speed up the classification algorithms a lot.

Altran at the Le Bourget Paris Air show 2013

June 17 - 23, 2013
Le Bourget Exhibition Centre,
Paris, France

With more than 20,000 experts worldwide, Altran is the Global Leader in innovation and high-tech engineering consulting. The group benefits from a 30 year presence and expertise in the field of Aeronautics, Space and Defense. Its 4,000 specialists make it one of the key players in the sector today.

In a complex and centralized aerospace market, geared towards addressing the wide range of issues coming from the environment and from technologies, Altran's role as strategic partner is to meet all of its clients' challenges, wheth-

er they are the need for innovation, supplier optimization, or performance management.

Altran has decided to invest in a dedicated strategic market segment defined as "Air Transport". This will induce a partially new approach to the market, involving partnerships, alliances and co-development with our main clients to develop tangible innovative solutions. For its 5th participation in the Paris Air Show at Le Bourget, Altran goes far beyond the traditional culture of excel-

<http://www.paris-air-show.com/>

lence by managing and developing a proactive, tailor-made approach based on innovative methods specifically designed to offer our clients the best solutions in Innovation, Intelligent Systems, Lifecycle Experience, Mechanical Engineering and Information Systems.

Conferences, Web TV Shows, discussions with the Altran experts, model demonstrations, lunches and cocktails on our terrace will set the tempo for an unforgettable day on the Altran chalet.



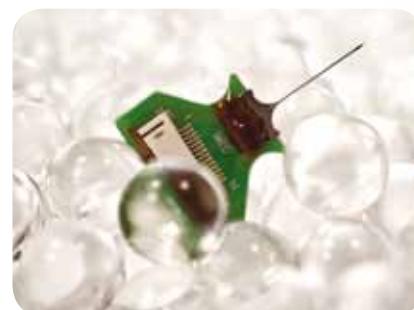
Imec announces a new Convergence Training Program: **NANOTECHNOLOGY FOR HEALTH**

Basics of Biology for Engineers – September 18-20, 2013
Basics of Electronics and photonics for Life-scientists: September 18-20, 2013
Visionary Event Nanotechnology for health – September 23, 2013
Training program Nanotechnology for health –September 24-27, 2013
 Imec, Heverlee, Belgium



A scientist is not just a biologist or chemist, an innovation leader or engineer. The days when scientists' activities were confined to a limited area of expertise are long gone. More often than not, major innovations are the result of bringing together insights from different scientific nature. Therefore, researchers and professionals need to develop the senses to look for the right combinations of knowledge. This is certainly the case in the fields of health and biomedicine, where nanotechnology and nano-materials will fundamentally impact next decades' evolutions and revolutionize care and cure.

New skills require a new approach to training and education, and that is precisely what imec has developed in collaboration with all Flemish universities. Innovation leaders, research professionals, young scientists and trainees are invited to explore the possibilities of converging different fields in a combination of a visionary event and a number



of dedicated courses. This offering is also ideal to get starting PhD students up to speed in this cross disciplinary domain.

www.imec-academy.be



TRAINING
IMEC ACADEMY



The visionary event on Nanotechnology for Health features expert speakers and invites participants (of all profiles) to unleash their creativity and reinvent trends or roadmaps by reflecting on subjects as tissue engineering, DNA sequencing or Photo-acoustic imaging. It is also an opportunity to network with leading business executives and pro-



professionals interested in re-engineering product development, manufacturing processes or research visions.

Following the visionary event, a four day course aimed at young researchers and PhD students provides an in-depth overview of Lab-on-chip applications, microscopy techniques, nano-materials, toxicity of nano-crystals and environmental toxicology, monitoring and care@home and in vivo imaging. The course brings together the latest research knowledge allowing the non-specialist to acquire a number of skills needed for a career in the high growth industry of nanotechnology.

Prior to the visionary event and course, two parallel introductory tracks are foreseen for doctoral scholars and professionals from other fields with a background in technology. These 3 day tracks provide the basic insights in biology and electronics/photonics for life science applications.

More information on imec academy and our new convergence training program on www.imec-academy.be

KU Leuven: Data Mining in Practice

<http://dtai.cs.kuleuven.be/DataMiningInPractice>

September 19-20, 2013

Computer Science Department KU Leuven, Leuven, Belgium

The 6th edition of this course provides a gentle introduction to data mining for professionals who need to analyze data themselves, interpret results obtained using data mining techniques, or give guidance to data analysts. The course introduces the principles, techniques

and methodology of data mining. It provides the attendants with an overview of the wide variety of data mining techniques available, insight in which techniques are useful for what kind of tasks, and expertise with practical data mining tools.

For more information and registration details, please refer to the course website: <http://dtai.cs.kuleuven.be/DataMiningInPractice>



Cosys-Lab: CALL FOR PAPERS - 1st International Workshop on Distributed Embedded Systems

<http://dem2013.cosys-lab.be/>

October 28-30 (half/one day workshop), 2013

In Conjunction with 8th 3PGCIC-2013 Conference

University of Technology of Compiègne, Compiègne, France

The tremendous advances in communication technologies and embedded systems have created an entirely new research field in both academia and industry for distributed embedded software development. This field introduces constrained systems into distributed software development. The implementation of limitations like real-time

requirements, power limitations, memory constraints,... within a distributed environment require the introduction of new software development processes, software development techniques and software architectures. The aim of this workshop is to bring together practitioners and researchers from both academia and industry in order to have

a forum for discussion and technical presentations on the current research and future research directions related to this hot scientific area.

Authors are invited to submit full papers. For more information: <http://dem2013.cosys-lab.be/>

DEM 2013

IMPORTANT DATES:

May 15 th	1 st deadline (short abstract +title+ authors); full manuscript is not required at this time, although the authors can submit it.
June 15 th	Full submission at EDAS conference submission system.
June 30 th	Notification
July 31 st	Final Manuscript at IEEE CPS system.

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As an end result, we want to present a set of open-source object classification techniques, based on available open-source computer vision software like OpenCV, which are easy to adapt and use in an industrial environment. This will push the participating companies into using more robust and better techniques for detecting objects inside the production process pipeline.

Industrial partners / User committee

IWT, DSP Valley, Eurosense Belfotop N.V., Van Hoecke Automation N.V., RoboVision, GeoVisat – Vansteelant, Vistalink, Aris BV, Traficon – FLIR, Grontmij Belgium NV Monitoring & Testing Services, Data Vision, Case New Holland, Biobest, Entelec, Visielab – Universiteit Antwerpen, Creative Computing, Induct

Project title	TOBCAT: Industrial applications of object categorization techniques
Goal	The goal of this project is investigating the possibility of using state-of-the-art object categorization algorithms, developed in academic research context, to solve object detection problems in industrial applications.
Academic	Thomas More, Universiteit Hasselt
Contact person	Toon Goedemé (toon.goedeme@lessius.eu) Steven Puttemans (steven.puttemans@lessius.eu) Campus DE NAYER, KULeuven Thomas More Jan de Nayerlaan 5 • 2860 Sint-Katelijne-Waver
Website	http://www.eavise.be/tobcat/
Start and end date	1/10/2012 – 30/09/2014

Scientific partners

Thomas More Geel – Mobilab, Universiteit Hasselt – IMOB



Contact Information

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Mrs. Myriam Gillisjans, Marketing Xenics • Tel. +32 38 99 00
www.xenics.com • myriam.gillisjans@xenics.com

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Mr. Marc Engels, CEO FMTC • Tel. +32 16 32 80 50 • Fax +32 16 32 27 46
www.fmtc.be • marc.engels@fmtc.be

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Mr. Geert Decorte, Sales and Marketing Manager Barco Silex • Tel. +32 10 486 407
www.barco-silex.com • geert.decorde@barco.com

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Mrs. Elly Schietse, General Manager Greenpeak Belgium • Tel. +32 52 45 87 30
www.greenpeak.com • elly.schietse@greenpeak.com

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Mr. Maarten van Alphen, Marketing Manager Verum • Tel. +31 40 235 9090
www.verum.com • maarten.van.alphen@verum.com

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Mr. Mike Wens, CEO MinDCet • Tel. +32 16 40 14 88 • www.mindcet.com • mike@mindcet.com

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Mr. Joan Ceuterick, Business Development Manager AnSem • Tel. +32 16 38 65 07 • www.ansem.com • business@anse.com

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Mr. Frederik Horemans, Project Coordinator GENEESS DSP Valley • Tel. +32 16 24 14 46
www.dspvalley.com • frederik.horemans@dspvalley.com

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Mr. Toon Goedemé • toon.goedeme@lessius.eu

Mr. Steven Puttemans • steven.puttemans@lessius.eu • <http://www.eavise.be/tobcat/>