Log*Dynamics* News

Professor Thoben is New Spokesman of LogDynamics

Starting September 2012, Professor Dr.-Ing. habil. Klaus-Dieter Thoben is the new spokesman of the Bremen Research Cluster for Dynamics in Logistics (LogDynamics). Professor Thoben holds the Professorship in the field of Integrative Product Development in the faculty Production Engineering at the University of Bremen, is managing director of BIBA – Bremer Institut für Produktion und Logistik GmbH, and head of the BIBA research division "ICT Applications for Production" (IKAP).

The research interests of Professor Thoben include efficient and effective collaborative design and production processes by applying innovative information and communication technologies. The focal points are: collaborative acting of enterprises during distributed design and production processes as well as during the late processes of the product life cycle, such as the usage phase or the recycling phase.

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Log*Dynamics* Lab Welcomes a New Managing Director

The commitment in the demonstration and application centre of research in logistics at the University of Bremen continues and will be expanded: starting September 2012 Marco Lewandowski leads the LogDynamics Lab. Lewandowski studied industrial engineering at the University of Bremen and was employed by BIBA - Bremer Institut für Produktion und Logistik GmbH as a research assistant in the fields of Auto-ID/RFID, sensor systems, port and terminal management, maintenance and spare parts management.

As a laboratory and experimental environment, LogDynamics Lab is conducting research and is testing application possibilities of key technologies in technical production and logistic scenarios. During the last few years, for example, it pushed the application of technologies in practice and studied it in different case scenarios, as part of the research conducted in the RFID field. "Interest in the application of modern technologies within logistic networks will continue to increase", says Lewandowski, "yet new innovations, tailored to specific challenges, are constantly required." As a consequence, LogDynamics Lab will be more open to

ideas coming from customers, partners and employees and will provide a platform for the co-creation of innovative logistics systems.

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CyProS: Successful Start for a Project that Promises to Lead the Way

On the 19th of September the joint-project CyProS was started with a kick-off event at the WITTENSTEIN AG in Harthausen. CyProS stands for Cyber-Physical Production Systems. It is one of the first implementation projects of the future initiative Industry 4.0. The consortium leader WITTENSTEIN welcomed over 50 guests and representatives of the 21 joint-project partners from industry and research. The introductory words held by Dr. Manfred Wittenstein and Prof. Dr. Reinhart (iwb) confirmed CyProS to be a "first breakthrough of a practical implementation of the vision Industry 4.0 into the real production environment". The overall objectives of CyProS include:

- the development of a representative range of Cyber Physical System modules for production and logistics systems,
- the provision of universal approaches, auxiliary materials and platforms for the introduction of CPS
- as well as the creation of the technical and methodological basis for the efficient operation of Cyber Physical Systems in real production environments in the form of a Shop Window Factory.

The duration of the project with the full title "Cyber Physical Production Systems – Enhancement of Productivity and Flexibility by Networking Intelligent Systems in the Factory" with an entire budget of 9.9 million euros is estimated for three years and is funded by the German Federal Ministry of Education and Research. During the course of the project the BIBA will develop a Cyber-Physical Logistic System which will be evaluated in a Competence and Transfer Center at the BIBA. The Competence and Transfer Center is a demonstration platform which is on the one hand used for the qualification of components of a Cyber-Physical Logistics System and on the other hand it can also be used for training purposes. The BIBA focuses on the adaptation of autonomous controlling methods which enable logistical objects to make decentralized decisions. It also focuses on the development of a mechanism which can implement semantic data integration.

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Details: www.projekt-cypros.de (coming soon)

IGS Contributes to University's Internationalisation

Since 2005, living internationality is the programme of the International Graduate School for Dynamics in Logistics (IGS) at the University of Bremen. For eight years now the IGS has offered researchers from all over the world the opportunity to complete an efficient, structured doctoral training programme at a logistic location of long standing tradition. So far, doctoral students from 19 different nations have come to Bremen and an average of 80% of foreign students tops the German federal mean by far. For its degree of internationalisation the IGS has been awarded a prize in a special competition in 2011 by the German National Academy of Science and Engineering (acatech). Further accomplishments have been achieved recently by the acquisition of two new projects for the University of Bremen.

To begin with, the IGS is partner of the ERASMUS MUNDUS project cLINK – Centre of Excellence for Learning, Innovation, Networking and Knowledge. This cooperation of Europe and Asia will facilitate the transfer of people, know-how, culture and best practice in training the next generation of students, researchers and academic staff. European Universities in Great Britain, France, Romania and Hungary offer scholarship holders of the following nationalities to spend a research period between one month and two years with them: Bangladesh, Bhutan, Nepal, Pakistan, China, India, Malaysia and Thailand.

Moreover, the IGS has been successful in the competition of the DAAD within the GSSP – Graduate School Scholarship Programme. Thus, beginning in 2013, the IGS is going to offer up to four grants of three to four years to outstanding international doctoral candidates. These achievements affirm the concept of a structured doctoral training and the internationalisation of the IGS. At the same time they strengthen the position of the University of Bremen in global networks in regard to scientific excellence and by this are also to the benefit of students and postgraduates.

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BIBA Gaming Lab

On September 26th 2012, BIBA proudly launched its new Gaming Lab, organized together by the University of Bremen and BIBA, during the SGDA/ICEC conferences. For more than two decades, Serious Games have been used by BIBA in the education of engineers in the field of production and logistics. BIBA is a leading European research institute in the development and application of serious games in this area. Currently, BIBA is a participant in the Network of Excellence GaLA on Serious Games, in which one key activity is to establish local multi-disciplinary communities working on topics related to Serious Games. Consequently, throughout the last year, we have been working on establishing a new lab with all our games accessible to external and internal stakeholders. The aim of this Gaming Lab is to be of use for educational purposes as well as to offer an environment in which different stakeholders can meet, try out games, test and collaboratively develop ideas for new Serious Game applications in the field of logistics and manufacturing. The new Gaming Lab is located in the IKAP department.

We are glad to invite you to visit and enjoy our Gaming Lab!

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Research Study on Possible Applications and Potentials of Modular Logistics

Current production and logistic systems are characterized by high dynamics and complexity. Short innovation and product life cycles require the adaptability of organizations to continue serving the market efficiently and effectively. To handle these difficult challenges in production and logistics new methods and concepts are required. Automation is a key solution to problems in these fields but its full potential has not been reached yet. The study aims at identifying potential barriers and options to avoid them, concentrating on the analysis of flexible and modular solutions. The study is supported by the Kieserling Stiftung.

Participation in the study is possible until **31st of December 2012**: www.biba.uni-bremen.de/modlog

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Agent-Based Simulation Platform PlaSMA

PlaSMA is an agent-based event driven simulation platform that has been designed for modeling, simulation, evaluation, and optimization of planning and control processes in logistics. It extends the FIPA-compliant Java Agent DEvelopment Framework (JADE) for agent communication and coordination and provides discrete time simulation that ensures correct synchronization while satisfying time model adequacy, causality, and reproducibility.

In order to simulate industrial and transport processes reliably and to cover the new requirements of Cyber-Physical-Systems (CPS), PlaSMA has been improved by the research group Artificial Intelligence at the Center for Computing and Communication Technologies (TZI). It enables the simulation of real-world infrastructures and supports their import from OpenStreetMap as well as the integration of public transport data, e.g., stops, lines, and schedules of passenger transport providers for buses, subways, trams etc. Moreover, PlaSMA is capable of linking process data of cooperating companies and partners, e.g., customer orders or service requests, directly into the simulation platform to induce plausible, pertinent and precise results that permit conclusions and analyses of real logistic processes with low costs. Batch-runs, process visualization as well as automated measurements of individually defined performance indicators allow fast and significant process evaluations.

Recently, PlaSMA has been applied successfully within a Last-Mile Connectivity Study for Bangalore, India, for acatech - National Academy of Science and Engineering. Additionally, it is used within the transfer project Autonomous Groupage Traffic of the Collaborative Research Centre 637 (CRC 637), smaller research projects as well as in academic teaching.

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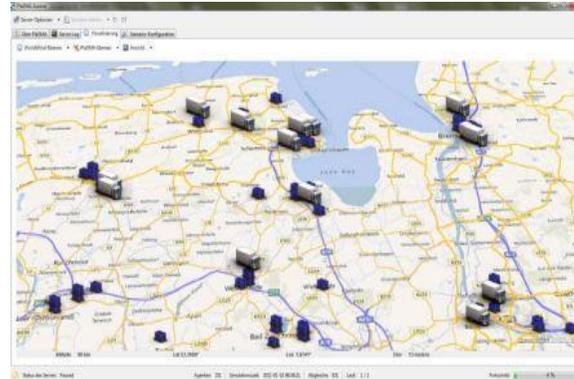
"Serious Games" for the Industry – How Organizations Can Build Competence Effectively

Learning faster and adjusted to the needs, from anywhere, while staying up-to-date with the latest knowledge from all over the world – this is a challenge that conventional educational methods cannot meet any longer. Within the TARGET project, scientist groups from all over Europe committed themselves to answer questions like "How can education and training be accelerated? How can it better meet the individual needs and be less cost and time-intensive? How can education keep up with technological advances?" The Institut für Produktion und Logistik GmbH (BIBA) was the German project partner.

The TARGET (Transformative, Adaptive, Responsive and enGaging EnvironmenT) project started on the 1st January 2009 and was completed in late October 2012. The European Commission funded the "Integrated Project" within the 7th Framework Programme for Research (in the area of application Technology-Enhanced Learning) with 6,8 Million Euros. Under the direction of SINTEF (Norway) 17 academic and industrial partners conducted research together over a period of 46 months on a Learning Management System with an electronic learning environment and succeeded in developing the prototype of a learning platform.

The main aim of the TARGET Project was to optimize the "Time-to-Competency"(TTC). This is how experts call an accelerated update of knowledge by means of new methods. The main focus was on the research, analysis, and development a new genre of Technology Enhanced Learning (TEL) environment that supports rapid competence development of individuals, namely knowledge workers within the domains of living labs (innovation) and project management. BIBA's role in TARGET was to develop the system architecture and therefore to support the integration of many different software components. Another important task, playing a global role in the system, was the creation of requirement–based story contents, especially within the field of sustainable production.

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New Insights in the Area of Robotics-Logistics

The globally distributed production requires efficient logistics. Logistics companies are therefore increasingly employing robots. These robots need to be flexible, easy to integrate and to manage. The new study „RoboScan'12" conducted by the Bremer Institut für Produktion und Logistik GmbH (BIBA) shows that logistics companies who do not use robotic solutions are still missing a suitable solution. This study was made in co-operation with ISEIC Pfeffermann Consulting and has been funded by the Kieserling Stiftung, with the journal "Logistik für Unternehmen" (Logistics for Business) published by Springer-VDI-Verlag being the media-partner. This study is the next step in the 2007 initiated and 2010 continued series of exploring the development and potential applications of robotic logistics.

Participants of the study find that important criteria for the implementation of robotic solutions are: adaptability to changing parameters, ease of integration with existing technology, and ease of use. A proposed solution was, amongst others, intuitive robot programming, which offers a simple adaptation of a robotic system to changing parameters by not specially trained employees. About four fifths of the participants, who considered this new technique as relevant, admitted it to be an influential factor for their readiness to apply robotic solutions. This view was shared by all interviewed logistics companies.

The brief report is viewable for free online, downloadable or can be mail ordered via fax-form. A more extensive study report "RoboScan'12 – Studienergebnisse der Onlinebefragung zum Markt der Robotik-Logistik" can be mail ordered via fax-form or Email.

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LOGINN: BIBA and ISL Participating in Coordinated Action on Improving the Innovation Uptake in the Logistic Sector

Logistics Innovation uptake (LOGINN) is a coordinated action aiming at bringing together leading logistic companies, technology providers and research organizations working on innovative ICT solutions to ensure long-term sustainability of the logistic industry. LOGINN aims at coordinating and supporting RTD projects in the logistics area to improve their capabilities to bridge the gap between pilot implementation and marketable solutions. To achieve this goal LOGINN will set up a collaborative platform to allow the main stakeholders of the logistics domain to work together on promoting innovative transport logistics solutions which aim at increasing efficiency and focus particularly on intermodal transport. Over the past decade, several research initiatives have dealt with and proposed innovative solutions for transport logistics, but the level of adoption in the transport industry has been low, in particular compared with other industry sectors. LOGINN will drive innovation adoption in transport logistics by taking a holistic approach that considers several mutually reinforcing aspects of innovation: business models, logistics practices and technologies. The main result of LOGINN will be an innovation action plan that will integrate the proposed initiatives for market uptake, an innovation accelerator and an innovation toolbox, containing practical guidelines for transport logistics companies interested in innovations boosting intermodal transport and efficiency.

The kick-off meeting will be on 6. & 7th of November in Gothenburg, Sweden and is organized as a pre-event of the European Conference on ICT in Transport Logistics (ECITL). The LOGINN Consortium is formed by 12 partners. BIBA is responsible for the "Market uptake and acceleration & dissemination" workpackage in which the innovation action plan will be developed. With their long histories in logistics research, ISL and BIBA are involved in the "innovative business models", "innovative technologies" and "innovative logistics" workpackages. BIBA and ISL aim at strenghtening Bremen's position as a leading logistic site by providing relevant information for regional companies and policy makers.

LOGINN is a coordination action supported by the European Commission in the 7. Framework (Theme GC.SST.2012.3-3, no. 314338).

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Industry 4.0 - Flexible and Individual Production Information Event of the Machining Innovations Network in Cooperation with BIBA

Date: **19th of November 2012, 10:00 – 16:30**
Venue: BIBA – Bremer Institut für Produktion und Logistik GmbH,
Hochschulring 20, 28359 **Bremen**

Within the conference we will inform you about potentials and application options of Industry 4.0 (industrial process control systems and automation systems). Our intention is on the one hand to identify technologies to control and self-control your own production and on the other hand to know about development trends in the aerospace supply chain to be able to response adequately. Therefore we will present a project of the Institut für Fertigungstechnik und Werkzeugmaschinen (IFW) and Premium AEROTEC GmbH: Agilita – Agile Produktionslogistik und Transportanlagen. In addition to that all participants have the opportunity to get in contact with competent partners and get an overview about current sponsoring programs for the topic Industry 4.0.

The participation for members of the Machining Innovations Network is free. Please register by **12th of November 2012.**

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Programme and Registration: www.biba.uni-bremen.de/fileadmin/Aktuelles/Industrie_4-0.pdf.pdf

BreTeCe at the ILA Berlin Air Show

After the year 2010, the Bremen Technology Center (BreTeCe) once again was present at the ILA Berlin Air Show as an exhibitor at the joint stand of the federal states Bremen and Hamburg. For the first time, the venue of this year's ILA was the new international airport Berlin Brandenburg. BreTeCe presented innovative solutions for the efficient testing of mechatronic systems. These were introduced to an audience of experts with the help of different demonstrators.

The shown solutions included the FastWAN networking technology for the temporary interconnection of physically distributed test facilities, a software tool for the method-driven generation of test cases, as well as a generic system simulator for the early testing of control units. The functionality of the generic system simulator was demonstrated with an inverted pendulum, which was embedded in the simulator as an exemplary specimen or system under test (SuT).

This year again, the project consortium, consisting of the partners FTI Technologies GmbH, ExxpertSystems GmbH, and BIBA - Bremer Institut für Produktion und Logistik GmbH, was able to welcome high-ranking guests from politics and economy at the joint stand. Most noteworthy are the visits of Mr. Martin Günthner, Senator for Economy, Labor and Harbors of the Free Hanseatic City of Bremen, as well as Mr. Günther Butschek, chairman of the management board of Airbus Operations GmbH. Senator Günthner has even been actively integrated into one of the demonstration scenarios. He did start the slat's movement in Bremen by operating a flaps lever at the fair.

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DASH7 UAG Research Symposium

The first UAG (University Actions Group) meeting of the DASH7 Alliance was held on 18th and 19th October 2012 in Ringhotel Munte am Stadtwald, Bremen, Germany. This international event featured many researchers from Europe, USA and Asia, who came together to discuss the research progress in DASH7 technology. Renowned special guests were talking on 6loWPAN, CoAP, Distributed Queuing and DASH7 in Logistics and more. The symposium was organized by an PhD student of the International Graduate School for Dynamics in Logistics – Chanaka Lloyd.

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Journal of Real-Time Image Processing Special Issue on Real-Time Image and Video Processing in Production and Logistics (P&L)

The aim of this Special Issue is to establish new fields for real-time image processing and computer vision applications in production and logistic networks. This includes recent results from research and development in academia and industry with respect to real-time image processing with application-related algorithms and architectures.

Submitted manuscripts must be unpublished and may not be under consideration elsewhere. It is recommended to check appropriateness of manuscripts for the scope of this special issue by submitting an extended abstract to the Guest Editors by email before submitting the full manuscript! Manuscripts should conform to the standard guidelines of the Journal of Real-Time Image Processing (http://www.springer.com/computer/image+processing/journal/11554). Prospective authors are required to submit an electronic copy of their manuscript through the Editorial Manager (https://www.editorialmanager.com/jrtip). Papers should be marked as "SI: Real-Time Image and Video Processing in Production and Logistics" in the Article Type section. It is expected that all potential authors would volunteer as reviewers to support the efficiency of the review process for this special issue. They can register as reviewers with their profile of expertise and contact information in the Editorial Manager: www.editorialmanager.com/jrtip
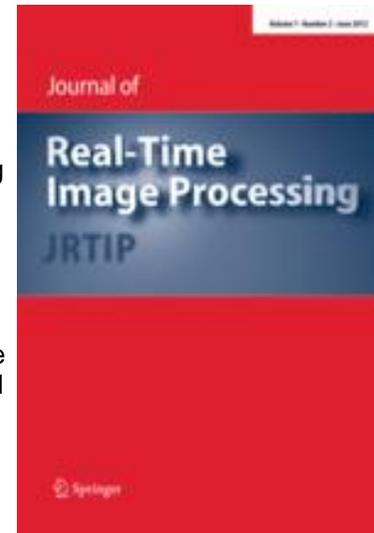
Submission should address topics that include, but are not limited to the following topics as related to production and logistics applications (P&L):

Applications
• Quality and Surface Inspection
• Bulk Handling
• Human-Machine Interaction
• Material Handling by Robots
• Security and Surveillance (in P&L)
• Localization, Tracking and Identification of Humans and Objects
• Multi-Sensor Systems
• Smart Warehouse by Vision
• Autonomous Vehicles (in P&L)
• Sign and Label Recognition
• Cyber Physical Systems (CPS)
Algorithms
• Abnormality and Defect Detection
• Object Recognition and Tracking

- Face and Gesture Recognition (for P&L)
- Sensor Data Fusion
- Camera Pose Estimation for Industrial Robots
- Model Fitting
- Registration and Segmentation

Platforms and Hardware
- GPU
- FPGA, ASIC, DSP
- Special Hardware Architectures (Raspberry Pi, Pandaboard, etc.)
- Cross-Platform Applications
- Smart Cameras
- Low-Cost Sensors
- Smart Phones

Important Dates
Submission of full-length papers: 31.03.2013
Notification of initial editorial decisions: 01.7.2013
Submission of revised papers: 01.09.2013
Notification of final editorial decisions: 01.12.2013

Publication of special issue papers will occur online first through Springer Online-First soon after acceptance notification, return of copyright form and proof-read corrections while the print version will appear later depending on the number of previously accepted papers in the production pipeline.

Guest Editors

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