

Press Release

# Hasso Plattner Institute at CeBIT 2012

March, 2012

Hannover/Potsdam. The Potsdam Hasso Plattner Institute will be presenting its research projects and exhibits at the CeBIT 2012, in Hall 26 (9) booth H12, from 6-10 March 2012. The “Greenhouse” booth will be sure to follow in the exceptional path established by the Potsdam center for excellence in IT-Systems Engineering in Germany. Here, young talents are symbolically “growing”, and will be presenting their research projects to fair visitors. Tele-Board is a representative of one of HPI’s exemplary research projects. With the help of an interactive Smart Board, it allows teams separated over large distances to “virtually” meet in one room. Tele-Board was developed and tested within the framework of the Design Thinking Research Program, in partnership with Stanford University in the US. The innovative culture of “Design Thinking” supports the development of particularly creative solutions. This inventive development, as is taught at the [HPI School of Design Thinking](#), will be presented at the CeBIT. Representatives from the chair Human Computer Interaction explain how by tracing the shape of a button on any surface an imaginary remote control which operates a device can be created. Together with SAP AG, HPI presents the HANA Oncolyzer, an exemplary model of how personalized health care in the field of cancer research receives IT technical support, thanks to the in-memory technology researched at HPI.

## **Book raffle at the HPI booth**

Besides getting information about the individual exhibits, fair visitors can also pick up a “QR-Code raffle ticket” at the HPI booth and win a book by HPI scientists. Every ticket is a (knowledge) winner. The QR-code on the ticket leads either to a learning video from HPI’s own Teleteaching platform [tele-TASK.de](#) or to a book, handed out as an original edition at the HPI booth.

## **CeBIT Adventure for students**

On Saturday March 10, the last day of the fair, the theme “Education” stands in the forefront with HPI students organizing a CeBIT adventure for 12 high school students. The young people are given the opportunity to visit interesting CeBIT booths, meet prominent figures from the IT branch and talk with HPI students about the possibility of later studies in computer science. Conditions for participation are based on successful participation in the first round of the 30<sup>th</sup> Federal Competition in Computer Science and selection by the HPI and Federal competition jury. For more information: <http://www.bwinf.de/> und [http://www.hpi.uni-potsdam.de/hpi/schuelerakademie/bwinf\\_camp/bwinf\\_camp\\_2012.html](http://www.hpi.uni-potsdam.de/hpi/schuelerakademie/bwinf_camp/bwinf_camp_2012.html)

Exhibits of Hasso Plattner Institute at CeBIT 2012:

1. [Turning Point in the Development of Business Software: The New Data Management Technology that Makes Analyses Lightning Fast](#)
2. [Draw Your Own Interface](#)
3. [Visual Analysis of Software Systems](#)
4. [Virtual 3D City Models on Tablets and Smart Phones](#)
5. [Tele-Board Eases Creative Idea Exchange in Spatially Separated Teams](#)
6. [Browsing Through German History: A New Search Experience in Historical Video Archives](#)
7. [How a Hacker Works – Cyber Security Training in the Virtual Lab](#)
8. [Teleteaching - Learning at any Time, any Place](#)
9. [Design Thinking – User-Centered Innovations for All Areas of Life](#)
10. [Cloud Computing: HPI Competence Sought at National Research Program](#)
11. [HANA Oncolyzer: HPI Technology Supports Personalized Healthcare](#)

Please find all information on HPI at CeBIT: [www.hpi.uni-potsdam.de/cebit](http://www.hpi.uni-potsdam.de/cebit)  
Press pictures from 6 March on: [www.hpi.uni-potsdam.de/cebit\\_2012\\_bilder](http://www.hpi.uni-potsdam.de/cebit_2012_bilder)

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## **1. Turning Point in the Development of Business Software: The New Data Management Technology that Makes Analyses Lightning Fast**

The in-memory database technology, developed by scientists from Hasso Plattner Institute in the research group Enterprise Platform and Integration Concepts, dramatically speeds up the processing rate of business data. Analytical and transactional data, which has until now been stored separately, is unified in a single database in the main memory of a high performance computer. The in-memory database technology will fundamentally revolutionize how business data is analyzed. Management is now in a position to flexibly access analyses in real time and has the most current data for decision-making at hand. At the same time, it is possible to speed up and optimize business processes, as all existing data can be taken into account at any one time. For example, the time needed for the analysis of 280 million orders in the framework of a dunning run decreases from 20 minutes to one second. The new technology is facilitated through the most modern computer architectures with up to 128 logical cores and a two terabyte main memory capacity, as they are used in the HPI state-of-the-art research lab, "Future SOC Lab." These are optimized and supplemented through the use of cloud computing and mobile end devices. HPI founder, Prof. Hasso Plattner, together with Dr. Alexander Zeier, provide a comprehensive look at this system for the first time in their book, "In-Memory Data Management - An Inflection Point for Enterprise Applications," published in 2011 by Springer Verlag.

[www.hpi.uni-potsdam.de/forschung/fachgebiete/enterprise\\_platform.html](http://www.hpi.uni-potsdam.de/forschung/fachgebiete/enterprise_platform.html)

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## 2. Draw-Your-Own Interface

Part of the larger “Imaginary Interfaces” research project, the *Draw-Your-Own Interfaces* demonstration shows an exploration into the future of home interfaces. By tracing the shape of a button on any surface in your home you can create an imaginary button that will turn on your TV or dim the lights. Since the button exists only in their imagination, residents of a house are able to place a light switch where it is most convenient for each of them. Instead of searching for the TV remote control you can just draw it on the arm of the couch and use that. With a set of depth cameras, the demonstration system senses touch on arbitrary surfaces and recognizes when someone draws a new button. Simply touch the imaginary button where you remember drawing it and the TV turns on.

[www.hpi.uni-potsdam.de/baudisch](http://www.hpi.uni-potsdam.de/baudisch)

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### 3. Visual Analysis of Software Systems

CeBIT visitors can marvel at innovative tools for the automatic analysis of complex software systems and for monitoring software development processes. A new type of technology for software diagnostics allows the development history, program structure and runtime behavior of software to become visible in the form of dynamic, interactive software maps. With the help of these tools, development costs and risks can be considerably reduced. Software developers, project managers and others involved in the project are made aware early on of crucial situations, and are therefore in a better position to control development projects. The tools for software analysis function fully automatically and independently of programming language and procedural models. An example is demonstrated in the Goggle browser "Chrome," whose inner structure, dynamics and development steps are visualized by the computer graphics scientists of HPI.

[www.hpi.uni-potsdam.de/?id=5381](http://www.hpi.uni-potsdam.de/?id=5381)

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#### **4. Virtual 3D City Models on Tablets and Smart Phones**

At CeBIT, scientists from Hasso Plattner Institute show how virtual 3D worlds, cities, landscapes and models can be visualized interactively on small, and even smaller, devices such as tablets and Smart Phones. This new type of approach facilitates a more efficient server-side 3D rendering and interactive visualization of three-dimensional models – independent of their complexity. In this way, interactive 3D models can be employed in mobile devices and web applications in a safe, robust and portable way, with the highest quality. By means of a service-oriented architecture, customer-specific 3D solutions can be built up systematically and inexpensively. These can be scaled to fit requirements and, for example, integrated seamlessly in existing work processes and Internet portals.

[www.hpi.uni-potsdam.de/doellner/research/geovis.html](http://www.hpi.uni-potsdam.de/doellner/research/geovis.html)

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## **5. Tele-Board Eases Creative Idea Exchange in Spatially Separated Teams**

Until now the collaborative work of distributed teams has often been impaired by problems such as separate work surfaces or the lack of a team feeling. Working closely with the School of Design Thinking, researchers at Hasso Plattner Institute have developed the collaborative system of "Tele-Board." In this way, methods of Design Thinking have become reality for distributed working groups throughout the world. What was purely an information exchange becomes a creative collaboration spanning time and space. Tele-Board was developed and tested in the framework of the HPI-Stanford Design Thinking Research Program in partnership with Stanford University in the U.S. (Silicon Valley). Thanks to Tele-Board, brainstorming and creative discussions have now been made possible across distances using electronic sticky notes ("Post-its") on an interactive board. And this is irrespective of whether the communicating partner is working in the next room or in a different continent. Enabled by unique recording capabilities, the creative process can be documented and traced.

[www.hpi.uni-potsdam.de/meinel/systeme/tele\\_board.html](http://www.hpi.uni-potsdam.de/meinel/systeme/tele_board.html)

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## 6. Browsing Through German History: A New Search Experience in Historical Video Archives

The content-based search in large video archives presents a new challenge in the age of digital media that requires new technologies. One example of this is the semantic multimedia search. With automatic procedures for the semantic analysis of audiovisual contents, scientists from the chair of Internet Technologies and -Systems demonstrate how the user can gain access to the constantly growing quantities of information. The main focus is the search experience. The user is offered the possibility to discover and explore a large video archive. While the classic search engine delivers exact hits to concrete search requests, the explorative semantic search of the "Semantic Media Explorer" offers support when the formulation of a precise search request proves difficult. Through semantic links, the user is led to new ideas and alternative search results that help to make the search more specific, discover new connections or simply to "browse" through an archive. The Semantic Media Explorer combines the latest media analysis procedures, eg., audio analysis, intelligent character recognition, as well as visual concept recognition in videos, thereby opening the content of videos optimally. Content-descriptive data gained this way is semantically linked, enabling a journey of discovery through the hidden treasures of the archive. The user is optimally supported through intuitive user interfaces. In developing the Semantic Media Explorer, HPI scientists implemented especially efficient procedures to process the huge amounts of data from the new high performance computers at the HPI state-of-the-art research laboratory [Future SOC Lab](#).

[www.hpi.uni-potsdam.de/meinel/forschung/future\\_internet/semantic\\_technologies/semantic\\_media\\_explorer.html](http://www.hpi.uni-potsdam.de/meinel/forschung/future_internet/semantic_technologies/semantic_media_explorer.html)

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## 7. How a Hacker Works – Cyber Security Training in the Virtual Lab

A main focus of scientific work in the specialized area of Internet technology and systems is concerned with the question of how IT security issues can be addressed in a classroom environment. There is a wide-spread consensus that a course of studies limited to subject-related literature or lectures on the topic of cyber security can only be part of such an education. In order to acquire truly sustainable knowledge, students should also have the opportunity to manage practical tasks. In particular, this means understanding fully the methods of hackers. For this purpose, HPI researchers have developed a virtual security lab – the so-called “Tele-Lab Internet Security.” It offers students a realistic but secure training environment based on virtual machines. Here, they can crack a password or eavesdrop on network traffic between simulated “victims” by means of a “sniffing attack.” This can be carried out without endangering one’s own computer, the campus network or other Internet users. A second component of the Tele-lab is occupied with security in service-oriented architectures, the so-called SOA security. While a huge amount of security standards and technologies are necessary for the safe operation of SOAs, based on their number and complexity it is even difficult for experts to figure them out. The “Tele-Lab SOA Security” offers both future and experienced experts the chance to try out security mechanisms and standards for web services and distributed applications and to analyze their effects. With this research project, the HPI team won first prize in the international computer science contest “IEEE Service Cup 2010.”

[www.hpi.uni-potsdam.de/meinel/forschung/security\\_engineering/soasecurity1.html](http://www.hpi.uni-potsdam.de/meinel/forschung/security_engineering/soasecurity1.html)

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## 8. Teleteaching - Learning at any Time, any Place

The tele-TASK system is a technology from Hasso Plattner Institute for the recording and transmission of lectures and talks over Internet. Thanks to tele-TASK, every interested party world-wide can gain access to trainings, presentation and events – even live transmission - as well as archived recordings. The contents are accessible over HPI's own portal [www.tele-TASK.de](http://www.tele-TASK.de) and also at iTunes U. For a person on the go, whether it be on the bus, in a waiting room or outside in the park, the time used for acquiring information or learning can be decided flexibly. In contrast to other solutions, the tele-TASK videos and Podcasts additionally show the respective laptop or board presentation to the audience. The tele-TASK recording system is in a compact box and consists of an especially configured computer on which the recording software is installed ready for use. In addition, the equipment includes video cameras, wireless microphones and all the necessary connection cables. Lectures can be transmitted on the Internet per live stream, as well as subsequently released in a media library.

[www.tele-TASK.de](http://www.tele-TASK.de)

[www.hpi.uni-potsdam.de/meinel/projekte/tele\\_task.html](http://www.hpi.uni-potsdam.de/meinel/projekte/tele_task.html)

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## 9. Design Thinking – User-Centered Innovations for All Areas of Life

With the ever-increasing efficiency and complexity of products and services, many users despair when confronted with software programs or devices. In part, this is due to developers placing too much emphasis on technical feasibility and too little on the wishes and needs of the user. The innovative approach of “Design Thinking” already counters this situation in the conception phase of products, services and ideas for all areas of life. At the CeBIT, members of the HPI School of Design Thinking present their innovative approach uniting methods from the areas of engineering, social science, design and business. Teaching and research are carried out at both the Hasso Plattner Institute at Stanford University and in Potsdam. Whether it involves coordinating the admittance process in the hospital emergency room, for example, or a new purchasing system in the retail food sector, small interdisciplinary teams of four to six students at the HPI School of Design Thinking come up with more useful solutions than it would be possible for an individual expert to do. They work on true “design challenges” developed with project partners from business, administration and society.

[www.hpi.uni-potsdam.de/d-school](http://www.hpi.uni-potsdam.de/d-school)

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### **Event tip: d.confestival 20. – 22. September 2012**

The HPI School of Design Thinking is organizing its first international Design Thinking symposium for experts and interested parties in the field of innovation. The new event format combines the benefits of a conference with those of a festival. Further information at [www.hpi.uni-potsdam.de/d-school/dconfestival.html](http://www.hpi.uni-potsdam.de/d-school/dconfestival.html)

## **10. Cloud Computing: HPI Competence Sought at National Research Program**

Cloud Computing is not only popular among IT providers, but it is also on the political agenda of the Federal Ministry for Economics and Technology (BMWi). To support German enterprises in tapping into the potential of cloud computing, the BMWi has begun the technology program Trusted Cloud. It is intended to support German companies to tap the economic potential of cloud computing. A total of 14 research projects and develop and test innovative, safe and legally compliant cloud solutions. To accompany the technology program, the BMWi has commissioned a team of experts with the development of the Competence Center Trusted Cloud. As a scientific research center, HPI supports the 50 million euro funded program. Together with partners the HPI chair Internet Technologies and System is responsible for supporting the scientific analysis, evaluation and monitoring of projects and to lead a working group on "Standards".

[www.trusted-cloud.de](http://www.trusted-cloud.de)

On the following days of the fair, HPI scientists will be glad to provide information on their work in the field of cloud computing: Tues. 12.00–18.00, Wed. 15.00–18.00 and Thurs. 9.00–15.00, at the booth of the Federal Ministry for Economics and Technology in Hall 26 (9), Booth G50.

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## 11. HANA Oncolyzer: HPI Technology Supports Personalized Healthcare

The Institute of Pathology at the University Hospital Charité Berlin, SAP's Innovation Center in Potsdam and Hasso Plattner Institute have made a commitment to a common goal in the interdisciplinary research initiative HANA Oncolyzer. This goal is to implement in-memory technology - which until now has been primarily used for business software - in the medical sector. The first result of this research initiative is an iPad application optimized for mobile use in the hospital setting. Here, data from a variety of hospital information systems is combined to facilitate translational cancer research for the attending physician and the researcher. With the possibility of selecting the level of detail required, the doctor can check the patient's entire medical history. Using a text search function similar to Google, the search combines unstructured and structured medical data. Researchers and medical doctors can examine patient groups based on individual characteristics. What used to take days for each patient is now a matter of seconds, even for groups. This personalized health care builds on the evaluation of continually new information sources to identify targeted treatment therapies and minimize side effects. In-memory technology, researched by HPI, makes a significant contribution to handling the mountain of available data. It has the capabilities of analyzing huge amounts of medical data in an instant and evaluating special characteristics. Data is not kept on hard disks, as had been the case up to now, but compressed in the main memory. This means an increase in speed by a factor of 1000 and higher.

<http://epic.hpi.uni-potsdam.de/Home/HanaOncolyzer>

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