Your Personal Contact

Professors and Their Research Groups

Universität Potsdam

HPI | Hasso Plattner Institut

Digital Engineering · Universität Potsdam

The various research groups (fields of specialization) and the School of Design Thinking, each area led by a professor, offer a broad spectrum of research topics. These research groups also represent the most important teaching contents.

Enterprise Platform and Integration Concepts
Prof. Dr. h. c. mult. Hasso Plattner

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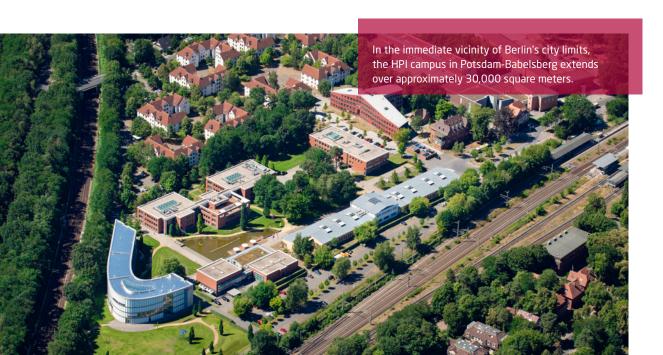E-Mail: office-epic@hpi.de

The Enterprise Platform and Integration Concepts research group, chaired by Prof. Dr. h. c. Hasso Plattner, focuses on the technical aspects of business software and the integration of different software systems into a single system that meets customers' needs. This involves studying the conceptual and technological aspects of basic systems and components for business processes. The focus is on future users, for whom custom-made solutions are to be realized quickly.

Internet Technologies and Systems
Prof. Dr. Christoph Meinel

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The Internet Technologies and Systems research group is led by Prof. Dr. Christoph Meinel, HPI's director and dean. The group designs and develops new methods and techniques for the Internet of the future, as well as devising and testing next-generation Internet applications. Special emphasis is placed on innovative digital education (openHPI.de, School Cloud, Digital Awareness), IT security and the efficient handling of big data and in-memory.

In the immediate vicinity of Berlin's city limits, the HPI campus in Potsdam-Babelsberg extends over approximately 30,000 square meters.

Digital Health – Connected Healthcare
Prof. Dr. Bert Arnrich

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The research group Digital Health – Connected Healthcare headed by Prof. Dr. Bert Arnrich aims to pave the way for transforming healthcare systems from purely managing illness to maintaining wellness. Ubiquitous sensing and computing technologies are foreseen as the key enabler for pushing the paradigm shift from the established centralized healthcare model to a user-centered and preventive overall lifestyle health management that is available anywhere, anytime and to anyone.

Human Computer Interaction
Prof. Dr. Patrick Baudisch

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The Human Computer Interaction research group, headed by Prof. Dr. Patrick Baudisch, is concerned with the design, implementation and evaluation of interaction technologies, devices and systems. Emphasis is placed on investigating physical interaction in the form of haptic interaction as well as interaction with fabrication technologies, such as 3D printers. Tools are derived from computer science, industrial design and empirical science.

Digital Health – Personalized Medicine
Prof. Dr. Erwin Böttinger

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The Digital Health – Personalized Medicine research group, headed by Prof. Dr. Erwin Böttinger, explores the challenges and opportunities of the digital transformation for healthcare. The group's focus on personalized medicine uses approaches from genomics and bioinformatics to identify molecular disease mechanisms. It aims to improve prevention, diagnosis and therapy objectives, while simultaneously creating a more efficient health care system.

Computer Graphics Systems
Prof. Dr. Jürgen Döllner

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The Computer Graphics Systems group chaired by Prof. Dr. Jürgen Döllner deals with computer graphics systems and technologies together with their software architectures. The main areas of research are new principles and techniques for the real-time rendering of complex virtual 3D worlds, geo-visualization, and the extraction, analysis and visualization of complex software systems, their dynamics and development processes (software visualization).

Algorithm Engineering
Prof. Dr. Tobias Friedrich

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The research group of Algorithm Engineering, led by Prof. Dr. Tobias Friedrich, deals with the theoretical foundation of computer science. This area involves both the design and the analysis of efficient algorithms and the limits of predictability. The Research Group places a special focus on randomized processes and optimization. The main research topics are algorithms, which are investigated mathematically as well as empirically.

System Analysis and Modeling
Prof. Dr. Holger Giese

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The System Analysis and Modeling group chaired by Prof. Dr. Holger Giese concentrates on model-driven software engineering. It explores techniques for modeling flexible systems and analyzing and formally verifying such systems with the help of these models. The group also conducts research into model integration, model transformation (synchronization), consistency testing, model synthesis and code generation.

Software Architecture
Prof. Dr. Robert Hirschfeld

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The Software Architecture Group, led by Prof. Dr. Robert Hirschfeld, explores means to improve the overall programming experience for both professional and non-professional programmers to help them understand, develop, and evolve concepts and designs of complex software systems. The group's research focuses on programming languages, software modularity, tool support, runtime artifacts, and execution environments.

Every year the graduation ceremony is a special event, with graduates wearing caps, gowns and sashes.

Digital Health – Machine Learning
Prof. Dr. Christoph Lippert

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Technical advances in imaging and DNA sequencing enable diagnosis of disease earlier and more accurately than ever. Innovative use of data promises to revolutionize clinical practice and to turn medicine into a data science. In the research group Digital Health – Machine Learning, led by Prof. Dr. Christoph Lippert, the theory of machine learning and artificial intelligence and their application in medical data is researched. Models are developed to detect disease patterns in MRT images and molecular data and to statistically describe them on large amounts of data.

Information Systems
Prof. Dr. Felix Naumann

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The Information Systems research group, headed by Prof. Dr. Felix Naumann, researches the efficient and effective management of heterogeneous data and texts in large, autonomous systems. The guiding principles are information integration, data quality and data analysis. The work of the research group includes methods for schema management, data profiling and data management. Web science is a further research area where companies, people, places, products, and their relationship to each other, are extracted and analyzed from large text files.

A broad spectrum of research topics

Operating Systems and Middleware
Prof. Dr. Andreas Polze

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Prof. Dr. Andreas Polze's Operating Systems and Middleware group works on programming paradigms, design patterns and description methods for large, distributed component systems. The group concentrates on the integration of middleware with embedded systems and the predictability of their behavior with respect to real-time capability, fault tolerance and security. Professor Polze is also speaker of the HPI Research School, the institute's international post-graduate program.

Data Engineering Systems
Prof. Dr. Tilmann Rabl

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The research group Data Engineering Systems, chaired by Prof. Dr. Tilmann Rabl, focuses on methods of processing and storing large and dynamic data sets. Relevant topics include the efficient processing of event and data streams, complex data analysis on parallel distributed infrastructures, modern database system architectures and benchmarking.

HPI School of Design Thinking
Prof. Ulrich Weinberg

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Under the direction of Prof. Ulrich Weinberg the HPI School of Design Thinking, founded in 2007, offers an innovative, supplementary study program that is unique throughout Europe. Based on the model of its sister institute, the "d-school" at Stanford University in California, the academic program is offered to students in higher semesters and in nearly all disciples. At the HPI School of Design Thinking, students develop user-friendly products and services for all areas of life while working in interconnected, multidisciplinary teams.

Business Process Technology
Prof. Dr. Mathias Weske

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The Business Process Technology research group, led by Prof. Dr. Mathias Weske, focuses on the development of innovative models, methods and tools for the support of knowledge-intensive and flexible business processes. Special attention is given to the analysis and implementation of processes and decisions using the techniques of complex event processing. Research work is evaluated on the basis of the open source platform Chimera.

New Professorships and Topic Areas

IT Entrepreneurship

The act of founding a business lies between successful research and a successful startup. This professorship will carry out research and teaching on the creation and development of start-ups, to better bring innovative research results to the market. At the same time, it will benefit the HPI School of Entrepreneurship.

Cybersecurity – Enterprise Security

This planned professorship targets Enterprise Security. It will concentrate on the development of a new generation of security strategies, methods, and techniques for the monitoring and defense of large-scale IT infrastructures, such as complex corporate networks in enterprises, institutions and government agencies.

Artificial Intelligence – Intelligent Systems

The professorship for Intelligent Systems focuses on the design and development of scalable intelligent systems. These systems include those for voice processing, image and video recognition, image and video recognitions, as well as multi-agent systems.

Cybersecurity – Identity Management

The focus of this professorship is on Identity Management. Research will be conducted on the secure use of various digital identities, as well as innovative authentication and access control mechanisms for complex applications. Application areas include e-government, digital health, e-commerce and the education cloud.

Artificial Intelligence – Machine Learning

The professorship for Machine Learning will concentrate on the design, development and research of machine learning algorithms and deep learning technologies in various test and application areas.

Design Thinking Research

Design Thinking research, at the intersection of society, business, and technology, is characterized by its strong interdisciplinary nature. The core research of the professorship deals with the innovation and transformation processes of teams and organizations.

Computational Statistics

The focus of the professorship is on method-oriented research, which is closely related to IT systems and applications in science, industry and society. Relevant topics include probabilistic inference, machine learning, numerical optimization, model selection and multivariate statistics.

Contact

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