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Baden-Württemberg International

Baden-Württemberg
The German Southwest.

Baden-Württemberg – Scientific Excellence Made in Germany.

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Vancouver · Canada · February 16 – 20

UNI FREIBURG

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Hochschule für Gestaltung
University of Applied Sciences
Schwäbisch Gmünd

KIT
Karlsruhe Institute of Technology

microTEC Südwest

Baden-Württemberg – Scientific Excellence Made in Germany.

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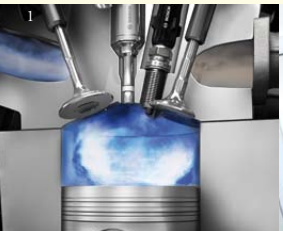

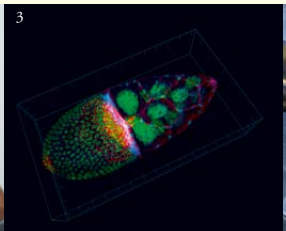

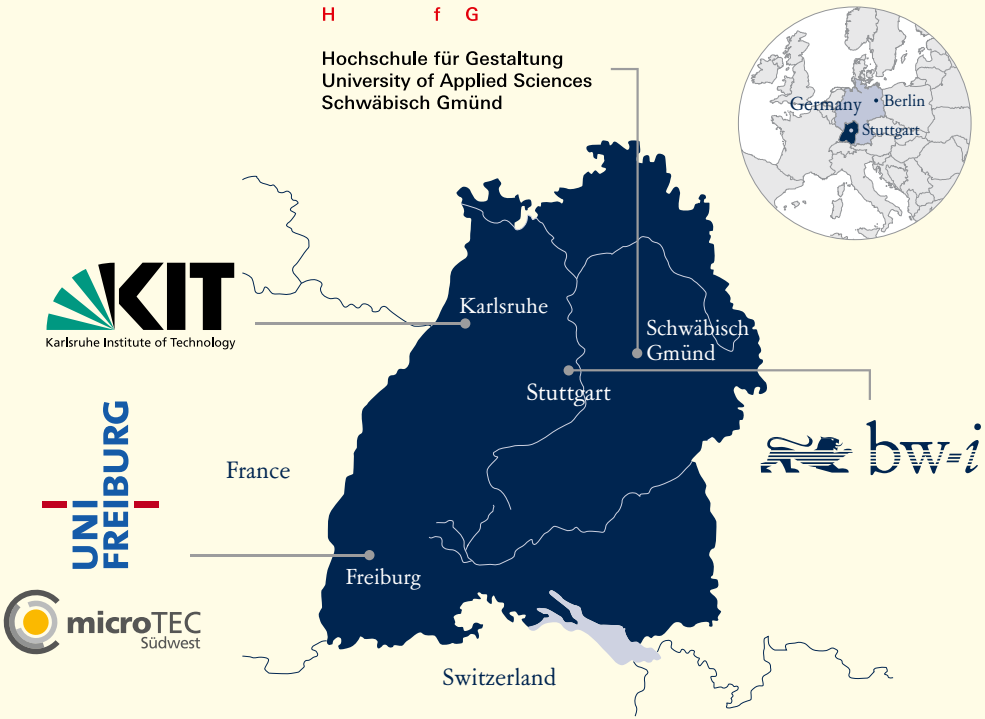
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Baden-Württemberg. The German Southwest.

Research & Innovation

Baden-Württemberg is Europe's most innovative state: It invests more in research and development (4.8 % of GDP in 2009), employs more people in R&D-intensive industrial sectors (22 % of all employees in 2007) and files more patents than any other region in Europe. Baden-Württemberg's industry is funding about eighty endowed chairs at our universities. Countless companies not only have research departments developing their own new products, but also offer research as a service.
Baden-Württemberg offers the highest density of research institutions and universities in Germany. Their world wide reputation as centers of excellence is well deserved.

Technology Transfer and Start-ups

With a wide-ranging network aimed at transferring technologies and implementing patents, innovative research and technology results are efficiently translated into marketable products. Aside from the offices of the major research institutions, marketing is conducted for example by the TLB – Technology Licensing Office of the Baden-Württemberg Universities (www.tlb.de). A key role in technology transfer, in particular in SMEs, is




played by the Steinbeis Foundation in Baden-Württemberg with its transfer centers, which are mainly located at universities. Their service spectrum includes technology consultancy, continuous training and the support of specific market-relevant development ventures. The Steinbeis Group currently includes around 850 institutions around the globe (www.stw.de). Start-ups are funded e.g. by the Initiative Gründungs- und Wachstumsfinanzierung Baden-Württemberg (GuW; www.l-bank.de) and the Baden-Württemberg Ministry of Science, Research and the Arts "Young Innovator Program".

Economy

Baden-Württemberg is among the most prosperous states in Germany and is one of the wealthiest regions in Europe with a traditionally low unemployment rate. A number of well-known enterprises are headquartered in the state, for example Daimler AG, Porsche, Robert Bosch GmbH (automobile industry), Carl Zeiss AG (optics), and SAP AG (largest software enterprise in Europe). In spite of this, Baden-Württemberg's economy is dominated by small and medium-sized enterprises. Medium-sized businesses and a tradition of branching out into different industrial sectors have ensured specialization over a wide range.



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BIOSS Centre for Biological Signalling Studies

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Institution

BIOSS Centre for Biological Signalling Studies

BIOSS is the Cluster of Excellence of the University of Freiburg, Germany. It is jointly supported by seven faculties of the University as well as the Max-Planck-Institute of Immunobiology and Epigenetics and the Fraunhofer Institute for Physical Measurement Techniques in Freiburg.

Research areas

Biological signalling processes are key regulators of cellular activity in all cell types of living organisms. A better understanding of these processes will not only provide solutions to essential biological problems but also have a major impact on medical research and practice. BIOSS applies modern analytical methods and strategies of synthetic biology to study biological signalling processes in a creative and playful way.

The signalling pathway engineering projects of BIOSS are conducted by an interdisciplinary team of researchers and are supported by a new resource centre called the BIOSS Toolbox.

The research strategy of the Cluster is to combine modern analytical and synthetic approaches to analyze complex signalling pathways. With this combined analytic-synthetic strategy, BIOSS scientists want to gain a more detailed functional and quantitative understanding of the working principles of signalling networks.

They will focus on seven major questions which are relevant to the comprehensive study of signalling:

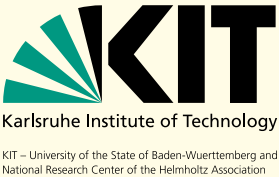
- **Who** is involved and **what** interactions take place?
- **What** are the results of signalling?
- **How** does signalling work and **where** does it occur?
- **When** does a specific signalling event take place and **how much** signalling is necessary or essential for a defined response?

Signalling pathways are the result of evolutionary processes, and the research programme of BIOSS profits from the fact that the major model organisms – including bacteria, yeast, worm, fly, fish, moss, mouse, Arabidopsis, rice, and human – are well studied in Freiburg. BIOSS is building on this foundation of excellent research by pursuing a cross-species and interdisciplinary research programme comprising the two analytical areas of studying signalling processes inside and between cells. BIOSS also has a synthetic area of research that tests analytical results and models by rebuilding the systems analysed. The area focussing on technical developments and technology and services provide the essential tools for the first three areas of research.

Participant

Dr. Johannes Kaiser

KIT



KIT – University of the State of Baden-Wuerttemberg and National Research Center of the Helmholtz Association

Karlsruhe Institute of Technology

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Institution

The Karlsruhe Institute of Technology (KIT) which was founded on October 01, 2009 represents a university of the State of Baden-Württemberg and a national research center of the Helmholtz Association. With about 9,211 emloyees, 22,439 students, and an annual budget of 732 million Euros, KIT has the potential of becoming a leading institution in top research and excellent academic training. KIT is creating structures that enable science to develop and implement new ideas in interdisciplinary forums. Research capacities are bundled in the KIT Centers of Energy, NanoMicro, Elementary Particle and Astroparticle Physics, Climate and Environment, and Mobility Systems as well as in the KIT Focuses of COMMputation, Humans and Technology, Optics and Photonics, and Anthropomatics and Robotics. Excellence in research, education, and innovation are the objectives of KIT. KIT offers more than 80 modern degree programs in engineering and economics, natural sciences and informatics, mathematics, and the humanities.

Speech-to-Speech-Translation – Bridging the Language Barrier

Over the last decades, the process of globalization has dramatically changed the way the world interacts. By extending the network that once started as a telecommunication network to an omnipresent data network in the form of the internet, people worldwide were given the capability to interact with each other and to instantly access huge amounts of information in all countries of the world.

While technology has provided the means for people to interact, either remotely or face-to-face, the diversity of

languages in the world remains a barrier inhibiting inter-cultural communication although trade and travel barriers have been removed.

6,000 languages exist in today's world and this enormous diversity is of great cultural value. Since language governs the mind, people prefer to communicate in their mother tongue.

Speech-to-speech translation offers the technology to bridge the language barrier while keeping the language diversity alive. By combining automatic speech recognition, machine translation, and speech synthesis, systems come into existence that can provide affordable translation for a multitude of different situations. While speech translation technology still is subject to errors, enhancing the systems' performance is a very active research area. Progress over the last decade has produced systems of sufficient quality for use in real life. Among possible applications demonstrated are the interpretation of lectures and the off-line translation of parliamentary debates.

In order to be of value to the user, the translation system has to meet several, diverse requirements:

- It has to produce a correct translation that conveys the key message
- It has to work independently of the speaker
- It has to run in real time with a low latency
- It should run on portable devices
- The translation result should be presented in a way that does not disrupt human-to-human communication

Participant

Prof. Alex Waibel

HfG Schwaebisch Gmuend

H f G

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Institution

The University of Applied Sciences Schwäbisch Gmünd offers excellent BA qualifications in three courses: Interaction Design, Communication Design, Product Design. Interaction Design – unique in Baden-Württemberg – is concerned with the user-friendly application of new technologies. Two MA courses in Communication Planning and Designand Product Planning and Design round off the program. The University consciously avoids artistic premises in its foundation modules and concentrates on scientific principles and uses rational justification as the basis for design decisions. The teaching program methodology is characterized by a balance between the issues of design, science, and technology. With about 450 students the University enjoys the advantages of its manageable size. The intensive atmosphere and cooperation with companies, institutions and universities worldwide provides a firm foundation for the institution's success and explains the above-average employment potential of its graduates.

Notwithstanding the small size of the university, there is a rising research activity. To meet the needs of this development, a research institute was founded in 2009. The IAF – Institut für angewandte Forschung – is part of HfG Schwäbisch Gmünd. It was formed to initiate and support application-oriented research in the area of innovation, development and design of products, product-systems processes and media systems. Therefore characteristical design-methods like projection, simulation and heuristic problem solving are used, which extend the classical research methods.

As a university of design we are interested in research question within the context of our three core areas: Interaction Design, Communication Design and Product Design.

The object of investigation is the interaction between humans and products or systems.

These can be found in:
- Software interfaces
- Man-machine-interfaces
- Web applications
- Information and guidance systems
- Teaching and learning material
- Industrial goods
- Tools
- Furniture
- Medical technology
- Transportation
- Logistic and mobility
- Designing Digital Media

Research areas

- Innovative Ergonomics
- Tangible Interaction Research
- Transmedia Visualisations
- Sustainable Design

Participants

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MicroTEC Südwest

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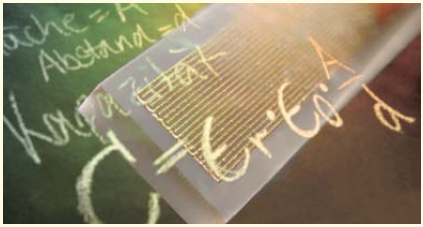
Institution

MicroTEC Südwest (Southwest), managed by MST BW – an innovative cluster in the field of microsystems technology. The cluster brings together over 1,200 researchers from more than 350 companies, organizations, universities, and research institutes, making MicroTEC Südwest one of the largest technology networks in Europe. The aim of the stakeholders involved is to further develop the leading international position that the state of Baden-Württemberg already enjoys in the field of microtechnology into one of true global leadership. With major global players such as Bosch, Daimler, Festo, Roche Diagnostics, Zeiss, Endress+Hauser, Sick, and Testo – plus many innovative small- and medium-sized enterprises – the Spitzencluster (Leading-Edge Cluster) MicroTEC Südwest can provide a crosssector foundation for innovation and growth. You can also profit as an investor or international expert in the fields of microsystems technology from a unique and innovative business and research location in Southwest Germany.

We are pleased to welcome you at the booth 209 and we are looking forward to sharing the special features of MicroTEC Südwest with you.



Research areas

Microsystems technology, in particular

- Mobility and sensor systems
- Life sciences and medical technology
- Mechanical engineering and process technology
- Resources, energy, and environment

Contact

Dr. Christine Neuy

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Institution

Internationalisation and promotion of Baden-Württemberg as a location for industry, research, scientific endeavour and the arts.

Sponsored by the state of Baden-Württemberg and diverse industrial organisations, Baden-Württemberg International is an agency for the promotion of science, education, industry and the economy of our state. The aim of Baden-Württemberg International is to present Baden-Württemberg as a leading location for industry, education and science. We support Baden-Württemberg companies in their endeavours to enter foreign markets, and help research institutions and universities to establish and maintain international relations.

The tasks of Baden-Württemberg International include

- Supporting medium-sized Baden-Württemberg companies wishing to participate in international markets
- Marketing Baden-Württemberg and encouraging companies to set up their business in the state
- Promoting Baden-Württemberg as a location for universities, colleges and research institutions
- Ensuring the qualification of managers from industry and administration in the framework of international projects

In the past ten years, Baden-Württemberg International has made a considerable contribution towards the internationalisation of Baden-Württemberg as a location for industry and science.

Market-exploitation activities in over 50 different countries with 2,500 Baden-Württemberg companies and more than 30,000 foreign firms

- 250 new companies that have set up business in the state
- 25,000 enquiries regarding cooperative ventures
- Establishment of international networks in the areas of education, science and industry.
- Management and organisation of the Baden-Württemberg scholarship for students
- International projects (with a volume of 80 million euros) in the areas of commercial promotion, professional training, advanced management training and technology transfer
- Committed to compliance with international standards, Baden-Württemberg
- International is characterised by outstanding professional and social competence,
- Coupled with expert knowledge of diverse branches of industry, countries and regions.

Participant

Katja Stempfle-Eberl

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