Tech*Kreativ*

Workshops

Technology · Creativity · Education

Please visit:

www.dimeb.de/workshops

for current events.

programm

TZi

Universität Bremen

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TechKreativ stands for workshops of an unique nature.

It also stands for new form of learning and discovery of new ways of design and creation. In the framework of our offer, people from various target groups, especially children and adolescents, can achieve this.

In this booklet we shall like to take the opportunity to present to you our current TechKreativ offerings. These TechKreativ offerings have been developed and distilled from the experiences gained through numerous workshops.

A motivated team of scientists from the research group, Digital media in education, affiliated to the Centre for computing technology, at the University of Bremen, are currently engaged in interdisciplinary work and research. We work, teach and research in the field of computer science on digital media and its applications in the context of education.

In the research group dimeb, we are aiming to make the current developments in digital media accessible to everybody. Self-constructed creation evokes an experience   of empowerment at a personal level. And promotes understanding of modern social developments.
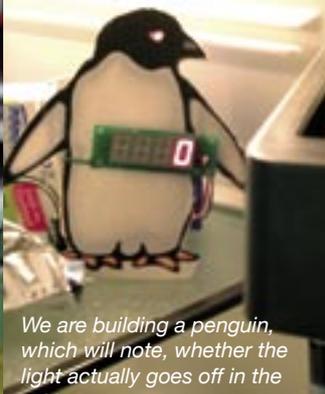
Prof. Dr. Heidi Schelhowe

empowerment, gender sensibility, participation   create technologies, creativity, abstraction

Robots can swim and retrieve concealed treasures from under-water premises.

We are building a penguin, which will note, whether the light actually goes off in the refrigerator or not.

We build, tinker, couple, use electricity, check, code a program, ask for help, aid one another, get amazed, modify our plans...

The fantasy of the participants is the pre-requisite for the development of this project.

What can I do with a light sensor? Engaging experiments with digital media harbours concrete conceptualizations.

Development and construction of concepts. Inventors devise and execute their own entire plans.

A public presentation in front of the press, parents, friends and others promotes a feeling of acceptance and approval among the participants and also thoroughly motivates them.

The first steps towards Innovation - The Concept

Our Tech-Kreativ team is specially skilled in order to incorporate the potential of every child within the collective or collaborative work. The participants of our workshops will be individually looked after and will work together in teams. Our Tech-Kreativ team will professionally guide a project from its early conception till its practical implementation.In an environment where constructive learning is encouraged, many technical wonders come to existence, wonders such as robots, intelligent clothes and various others.

We shall show, what we can achieve!

fantasy · digital media · construction · presentation   imagination · curiosity · team-work · reflection

Overview

There is an exciting topic for every target group

Robots, intelligent clothes, stories, Innovation Camp of Bremen, Smart-Dance, RoboCup Junior are just a cross-section of the fare on offer. Individual workshops can also be conceptualized as per request, such that its topics and structure are suitable for the participants from school-classes, for vocational trainees and for their co-workers. The necessary directives regarding organizing „ your personal workshop" may be found at the end of the booklet.

The diverse courses on offer can vary from taster courses comprising of workshops for 2-3 days, weeklong courses, holiday courses with provisions for overnight stay along with 24 hours support, advanced training courses or multiplier courses of different kinds. We conduct workshops on creativity with ample available seats at the Centre for Interaction with Digital Media (ZIM) in the University of Bremen as well as in other places. These offers for the children and the adolescents are also comprised of visits from the relevant and compatible cultural organizations and companies.

In thies coloured columns on each page you will find information about:

the target group · the duration · the applied technology   and the expected gain of competency

Wearables
Wearable intelligence - for clothes. sports and games
Along with the EduWear EU project, Smart Textiles has become an important component of the TechKreativ programme. A toolkit has been developed in the framework of this project, which makes access to Information and Communication Technology easier. Young people can actively co-create technologies with it and also have the chance to these technologies in an assured and competent manner.

EduWear – The Kit
The kit is comprised of Smart Textiles (for example conductivity capable yarn and garment), lamps, vibrating motors, summer, light sensors, heat sensors, movement sensors and a small hand-held micro-controller which can be used for the construction of intelligent clothes.

Previously there used to be the following offers in the field of „Wearables":
- Smart Fashion - Intelligent clothes for tomorrow from the outfits of yesterday
- Your wearable BodyLab! Intelligent accessories, senses and sensors, body and movement.
- SmartDance? - Girls, arts and technologies!
- Pimp your bag! Computer intelligence in a fashionable bag format.
- VIVATech! Control a computer through gestures!

We are open towards more propositions regarding topics for „your personal workshop" Please consult the last pages of this booklet for further direction.

workshop

9 - 15 years · 2 - 7 days · Arduino, LilyPad, SmartTextiles   tailor, design, bodily perception

Wearables

Interested in dance and technology?

smart dance is here!

The combination of dance and technology is at the core of this offer. A choreographer along with the TechKreativ team shall create with the children and adolescents a dance performance.

The children and the adolescents will be programming the sensors, so that the proportion of light on the stage can be variably changed in accordance with the choreography that will be performed on stage. Programmable LED lamps on the costumes of the dancers serve as medium of expression and communication.

The distinction of being one of the „365 places in the land of ideas" was conferred on the workshop SmartDance - Girls, Art and Technology, in January 2007.

The open presentation took place in the Theatre Hall of University of Bremen. Performances at traditional dance centres in Bremen or even at international conferences are possible.

Organisms suddenly appear in the dark and they disappear just as suddenly after glowing and glittering for a few moments. A sensor is pressed randomly and radiating bright lights flood the stage. The light sensors react to the choreography and the rhythms of the dancers seem to be transfused to all!

workshop

workshop

8 - 13 years · 5 - 10 days · Arduino, Cricket, LilyPad   tailor, move, perform, program

Robots bring dreams to life!

The phenomena of day-to-day life shall b e explored

VIVA Robot!
Robots, Dreams and Adventures

Technology makes it possible for us to explore worlds, which were till now not accessible to us humans. Robots can move, hold positions and collect data in these worlds. The big and small helpers are for example being adopted in the field of medicine and they glean over and scrutinize the body. They explore the submarine world, take care of heavy duty jobs as well as save people who are trapped in danger zones within buildings.

In our VIVARobot! Workshop , we let the interplay between form, function, material, design and algorithm become livelier.

In the framework of VIVARobots, there were already the following topics:

• Theatre and Technology
• Science fiction: Narrate adventures with robot technology
• Robots tell fairy tells
• Man and Machine

An individual workshop, for example for school standards and classes, can also be organized. Please see page 20 for details.

workshop

workshop

9 - 13 years · 2 - 7 days · Arduino, Cricket, Lego®   build, program, abstract

VIVA Robot!
Groups from ZIM
The research group dimeb is working with young people in a premise, that gives them enough room to try out their creativity - The Centre for Interaction with Digital Media. Abbreviated as ZIM.

RoboCupJunior
As always, RoboCup Junior is an exciting event every year. A group is preparing itself weekly for the qualification tournament here in Germany. The school pupils are constructing football-robots, robots capable of administering emergency services and performing search and rescue operations as well as dance robots. RoboCup Junior is the secondary competition from International RoboCup. In the forefront, lies the idea to connect fun with technology and to collectively develop robots in a team environment.

Expert group
Other than children, who are preparing for the RoboCup competition, there are also the „expert groups". The children and adolescents, who have participated in a TechKreativ workshop and have great interest to engage themselves further with these technologies, meet among themselves once a week. They have the possibility to test together with the scientists, new technologies and technical processes at the ZIM in the University of Bremen. They also have the possibility to follow up on their project ideas.

zim groups

9 - 19 years · weekly · Arduino, Cricket, Lego®   research, program, develop

ic:b
The Innovation Camp of Bremen

The Innovation Camp of Bremen is a collaborative project between University of Bremen, Jacobs University and the Handels-kammer Bremen. The first camp with the provision of overnight stay was conducted in spring 2007 at the Youth Hostel of Bremen.

Children and adolescents worked in team with scientists from both the universities for one entire week. There they encountered and got themselves busy with the newest of technologies. In the workshops of „Humanoid Robots" and „Interactive Fantasy", the boys and girls could make the robots dance and in a play they were able to bring together Smart Textiles and their fantasies on to the stage.

ic:b

The ɪc:b 2008

At the camp of 2008, the participants had a choice of three workshops. In the Youth Hostel of Bremen, technology and sport connected to each other. Autonomous and humanoid robots were also programmed by the participants. Even next year, the Innovation Camp of Bremen is expected to give the boys and girls the chance to develop new ideas and translate them to reality. The grand finale of the camp as always the Innovation Show.

www.innovationscamp.de

workshop

workshop

9 -17 years · 5 days · Lego®, Cricket, SmartTextiles   program, create, perception of the body

Fotos: David Wewetzer

TechKreativ professional
Vocational and further education for undertakings and companies

Exploration of new ideas is imperative, to fully utilize the creative potential of diverse people, who work in an organization and to exact and postulate the innovation and learning capability of the entire organization.

We offer the employees of companies to experiment with information and communication technologies. In our 2 to 3 day workshops, the transforming potential of IT and digital media can be experienced. Micro-controllers, actuators, sensors and a programming environment are made available so that one's own products and processes can be created.

Often in everyday work processes, concepts regarding optimization and quality improvement take form, which can be translated to prototypes here.

TechKreativ professional offers the possibility:

• to give expression to innovative and creative ideas

• to harbor technical, communicative and team work competencies

TechKreativ Professional is being offered by the Technology Centre for Computer Science, AG Digital Media in Education and the University of Bremen. TechKreativ professional is being assisted and supported by BIG Bremen, with the aim of giving shape to successful workshops on attractive customer service programmes in an university environment.

professional

2 - 3 days · ideas · models · abstraction · implementations   discover · understand · communicate

Fotos: David Wewetzer

professional

advanced training

your workshop

TechKreativ professional
Advanced Training

In TechKreativ Advanced Training we shall like to introduce robotic materials to children and adolescents and also concepts for its application in scholastic, curricular and extracurricular pursuits. Collaborative discussion during the review phase is also being planned. The advanced training programme is geared towards teachers and others, who will like to conduct robotic workshops with young people.

One's own experimentation and trials, along with the building and programming of robots, stay always in the forefront. Also intelligent pieces of clothes can be fashioned and finished with the help of Smart Textiles. The advanced training programme has been concep-tualized and implemented by the scientists of the TechKreativ team. No preliminary knowledge is required to attend courses of this kind. Generally these courses are recognized and accepted as advanced traing conferences for teachers and school principals

TechKreativ Lab
Your Personal Workshop

As per requests, we can develop individual concepts or put certain topics to the foreground or even integrate certain chosen technologies, so that all of it can be geared towards a specific target group. We have made positive experiences in inter-generational workshops, where adults and children have together designed and constructed Smart Textile products. Generally all the groups are heterogenous when it comes to age. Our didactical background, aims us towards inter-cultural and gender balanced work.
Individual workshop concepts for school:
• Biology (bats, bees, ants, etc.)
• Mathematics (Geometry, secret and encrypted languages etc.)
• German (Fairy tales, communication, theater, etc.)
• Sports (Measurement equipments, dance, movement, games)
• Computer Science (programming, mobile devices)
• Physics (collecting data oneself and also discussion)

playful engagement with technology   interdisciplinary · media cometencies · project work

TechKreativ Lab
The interactive installation - The Swarm

A shoal of illuminated points will be projected on top a limited surface area within a room. When a person steps on to this surface, he also enters into an interaction with these light points.

In this scenario, young and old people can, within the framework of arranged workshops, immerse themselves in the world of these interactive illuminated points and can experiment with accessibility and usability of the technical computer system.

The installation „ The Swarm" has taken its current shape from a Bachelor Project under the leadership of Prof. Dr. Schelhowe.

What are these points? Animals? Insects? Why are they running away from me?

Apparently, the swarm of these mysterious organisms can perceive and are also capable of answering the behavior of the person. A lot of questions from in the minds of children, which can be topically integrated into Biology, Physics or Mathematics lessons. Beyond that, „The Swarm" also initiates self-wareness, introspection and expressive mastery of one's own body. An open and long term installation of „ The Swarm" has been already set up in the ground floor of the Technical Academy of Bremen (At Fallturm 1, 28359, Bremen, entry point E)

Temporary installations have alrady been set up in the Nordwolle Museum in Delmenhorst, at the RoboCup 2006 in Bremen, at the event of Children-Uni Bremen, in Ortsamt Obvieland within the framework of the „year of mathematics" and also in the Art Hall of Bremen.

The idea, conception and the first realization of „The Swarm" have been especially achieved by Marten Schüler and Andreas Wiegand.

the swarm

question · research · experience · understand   art · installation · interaction · algorithms

technology

Super-Cricket

Bling-Cricket

Handy-Cricket

Lego®-NXT

Lego®-RCX

LilyPad Arduino

SmartTextiles

ROBOLOGO
Programming
Environment

materials

Arduino, LilyPad, SmartTextiles, Lego®, Cricket   micro-controller, actuators, sensors, connectors
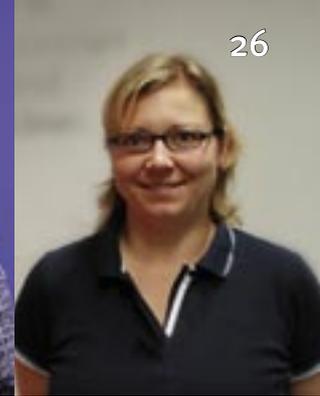
E.-S. Katterfeldt   K. Dittmannn   B. Lämmle   H. Brandt   N. Dittert

TechKreativ: The Team

Nadine Dittert, Dipl. Computer Science: Concept development and co-ordination, TechKreativ professional

Eva-Sophie Katterfeldt, M.Sc.: Smart Textiles- expert, EduWear developer, programming environments

Henning Brandt, Dipl. Computer Science: Innovation Camp co-ordinator, RoboCup Junior

Anja Kümmel, M.A.: Evaluation, Gender aspects

Anja Hashagen, Dipl. Computer Science: The Schwarm

Katharina Dittmann: Pedagogical conception

Birte Lämmle, M.Sc.: Expert group

André Griepenburg: Technology/ Archive

team   *imprint*

support · research · experiences · understand   team-work · cooperation · organisation · fun