Christa Sommerer, Laurent Mignonneau, Heads of Interface Cultures

University of Art and Industrial Design Linz
Physical Computing and Hybrid Interfaces
at Interface Cultures

As contributors to the Campus exhibitions staged in conjunction with the 2005 and 2006 Ars Electronica Festivals, candidates for masters and doctors degrees in the Interface Cultures program at the University of Art and Industrial Design Linz's Department of Media had the opportunity to present some of their interactive course-work projects, for which they received enthusiastic reviews from audiences made up of experts from around the world over the past two years. The thematic emphasis of the projects selected for 2007's Campus 2.0 is on physical computing and hybrid interfaces. For this exhibition, the interface concept developed in the Interface Cultures program has been expanded via linkup to other artistic and artisanal disciplines such as textile design, industrial design and interior design. These works embody original, innovative concepts for interaction involving intelligent furniture, clothing and environments, interactive toys, pervasive gaming, new analog and digital musical instruments as well as technical, artistic and applied interactive prototypes and hybrid systems.

Exhibition Coordination: M.A. Dorothée Gestrich Staff Scientist Interface Cultures
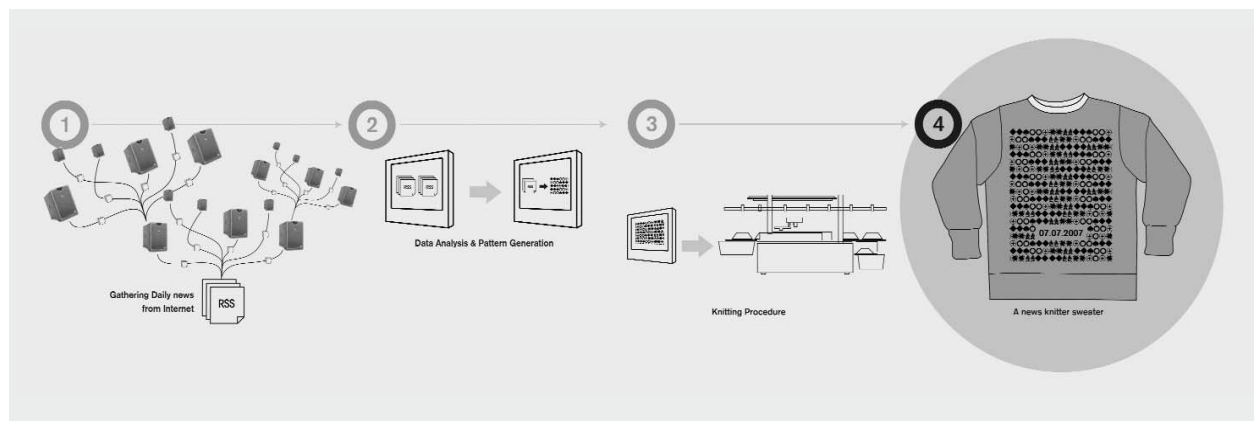
www.interface.ufg.ac.at

interfaceculture

Physical Computing

Ebru Kurbak, MSc (TR) (Space & Design Strategies)
Mahir M. Yavuz, MFA (TR) (Interface Cultures)
News Knitter

News Knitter is initiated as a quest for an alternative medium to visualize live data streams. The key motive is to translate digital information into the language of the physical world. News Knitter converts information that is gathered from the daily political news into clothing. Live news feed from the Internet that is broadcasted within 24 hours is analyzed, filtered and converted into a unique visual pattern for a knitted sweater. The system consists of software that receives the content from live feeds, another software that converts it into visual patterns and a fully computerized flat knitting machine that produces the final output. Each product/sweater of News Knitter will be evidence/the result of a specific day.

1. Gathering Daily news from Internet — RSS
2. Data Analysis & Pattern Generation
3. Knitting Procedure
4. A news knitter sweater — 07.07.2007

Hannah Perner-Wilson, Mika Satomi
Massage Me

Massage Me is a wearable gamepad for existing computer games. Using the *Massage Me* gamepad requires two people to play any game. The gamepad itself comfortably covers the back of one person while the other person takes the place of the masseur/game player. Sensors embedded in the material of the wearable gamepad are capable of interpreting massage movements as the controls to play the game. As a result, the game player has to massage his/her partner in order to play the game. *Massage Me* converts the game players' hectic finger movements into a relaxing massage.
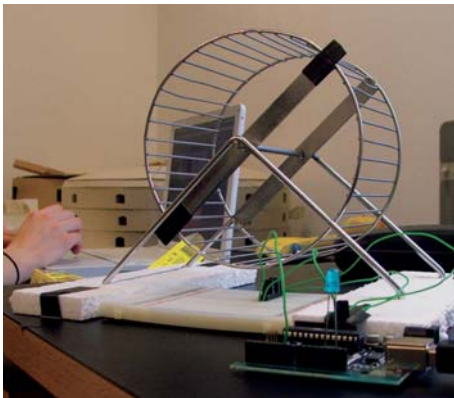
Stefan Kainbacher
Hometrainer

Interaction design for animals: a tiny rodent savoring the opportunity to get some exercise on its hamster wheel activates the installation's interactive component. The movement of the hamster wheel is linked to a video that shows footage from the hamster's perspective and thus enables the user to go for a virtual jog. Hometrainer is an ironic treatment of the modern-day reduction of sport to training far removed from nature in health clubs in which people run on treadmills while immersed in TV shows.
http://lab.neongolden.net/archives/130

Thorsten Kiesl, Harald Moser, Timm-Oliver Wilks
## Garden of Eden

Heads of lettuce are cultivated under eight airtight Plexiglas domes that allow for controlled circulation of the air within them. The domes are connected to the Internet, which provides access to real-time data on current air pollution levels in the capitals of the G7 countries and Austria. These data are used to concoct the same concentrations of pollutants in the atmospheres of the individual domes as are currently contaminating the air in the respective capital cities.

Intelligent Environments, Pervasive Gaming

Gabriela Carneiro
Affective Twins

Relations between objects and users inside domestic environments will be explored through the addition of interactivity to traditional furniture. *Affective Twins* consists of two mobile "puffs" that people use for multiple tasks at home. The position of the puffs, the act of touching, or being next to them stimulates a series of visual or sensitive pattern responses. The twins have either a relation to each other or establish one with their users.
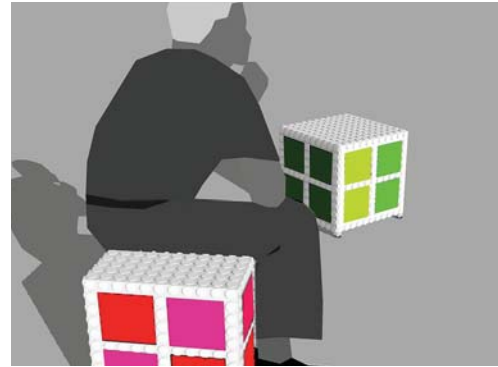

Christina Heidecker, Tiago Martins
Noon—A Secret Told by Objects

Noon is a game using objects and physical space to convey an interactive narrative. The player takes on the task of unveiling the origins of a tragic fire. She must don a special device, the Gauntlet, and use its powers to probe and navigate memories contained in salvaged objects.

The advent of personal computation and public networks made possible new forms of gaming. We envision gaming activities that take advantage of real spaces and objects as interfaces themselves.

Eva Artinger, Jannis Leidel
Neotetris—Multiplayer Tetris

Neotetris is just as simple as classic Tetris and even more fun to play. It combines all the best features of a video game with those of an analog board game. *Neotetris* makes it possible to haptically experience traditional Tetris. The tokens are real, and players can manipulate them by hand, which makes play simpler and more direct.
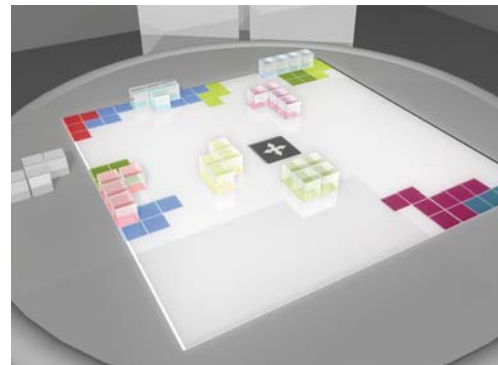
Nicole Weber
news machine—Infotainment at its best

"Culture is remix. Knowledge is remix. Politics is remix. Remix is how we as humans live." Lawrence Lessig
news machine is an interactive news mixer that enables users to personally generate news. To do so, users are provided with a wide variety of components (video samples) that can be variably combined and assembled in the spirit of "remix culture."

### Jona Hoier with Markus Muschitz and Ulrich Reiterer
chain reaction

A Jacob's ladder is a folk toy consisting of blocks of wood held together by strings or ribbons. The strings are affixed in such a way that a block can tip in only one direction. When the ladder is held at one end, blocks appear to cascade down the strings. However, this effect is a visual illusion that's the result of one block after another flipping over.
In *chain reaction,* eight Jacob's ladders are connected to one another. Each block has two colors (light in front, dark in back) and can thus indicate two states to the user. The toy thus becomes a dynamic display.

Dr. Irmgard Falkinger-Reiter
mousex.vip

When you pull on Maus1's tail, its body and eyes begin to glow. When you shove it into the mouth of the initially inactive snake, energy supplied via magnet contact makes the snake's body and eyes glow. Maus2 is awakened to virtual life when it makes physical contact with the other member of its species: nose-rubbing as a form of greeting brings together two magnets. The flow of electricity makes the second creature glow, and the ears of the two mice twitch gleefully.

Sound Interfaces
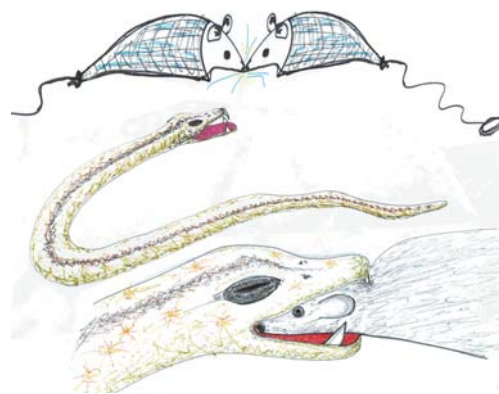
Ricardo Nascimento
Authority

Authority is an interactive video installation in which sound becomes the tool to arrange relationships defined by power. The visitor is facing a policeman who starts yelling at him. Depending on the visitor's reaction the situation can change. In *Authority* power relations are equalized by decibels.

Junichi Kanebako
Mountain Guitar

Mountain Guitar enables musical expression through custom-made sensor technology, which measures the height at which the instrument is held and transforms it to the musical output during the playing session. To perform difficult chord changes, simply change the position of *Mountain Guitar*. *Mountain Guitar* has no strings, and anyone can make real guitar sounds by simply pretending to play. One of the goals of *Mountain Guitar* is to let an untrained user easily and intuitively play guitar through his body movements.
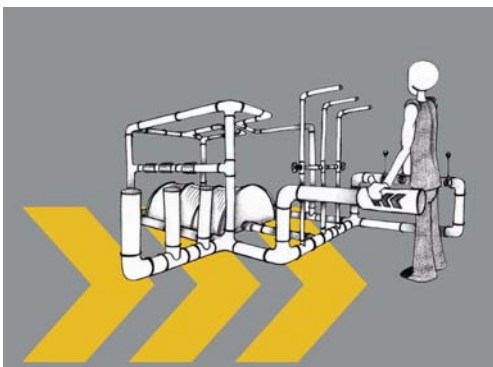
Thomas Wagner, Lukas Rettenbacher
PipeSound

PipeSound is an experimental musical instrument that can be played by multiple users simultaneously. Moving the tubes closer together or further apart changes the pitch and duration of the instrument's tones; adjusting screws function as a mixing console; levers produce sound filters. Each tube serves as a channel, and each respective combination of them results in a novel sound experience.

Andreas Zingerle
Solargrafica

Solargrafica records the paths of the sun using the oldest camera type: the pinhole camera. Pinhole photographs are taken with a lens-less pinhole camera with exposure times from 1 day till 6 months. By doing so the invisible movements of the sun can be transferred into visible landscapes. A soundscape of the recorded and granular synthesis processed samples is played on a five channel sound installation. The visitor can change the mix of the samples and vary the channel output by movements within the installation.


Neo-Analog Images

Stefan Kainbacher, Jeldrik Schmuch,
Jona Hoier
Touch me

Touch me is an interactive painting that alludes to pornography on the Internet and TV. Viewers see a pornographic image of a woman whose vagina is covered over by a pink star. The removal of this star—or, in other words, the breaking down of this barrier—is the theme of *Touch me*. The star is made up of heat-sensitive paint that becomes transparent when it's touched. What's actually revealed, though, is the user himself, since concealed behind the star is a monitor displaying a live image of the user.

Taife Smetschka, Margit Blauhut
Ascii Analog Voice

Users sees themselves as ASCII snapshots on a Plexiglas plate. As a demonstration of the transience of the digital ego, the portrait disintegrates symbol by symbol and trickles away. The last remaining ASCII symbol is saved to memory and transformed; as an analog likeness of the digital symbol, as a plastic ball, it tumbles into a picture frame. What gradually emerges is an analog image constructed of the remaining ASCII symbols of the users' snapshots.
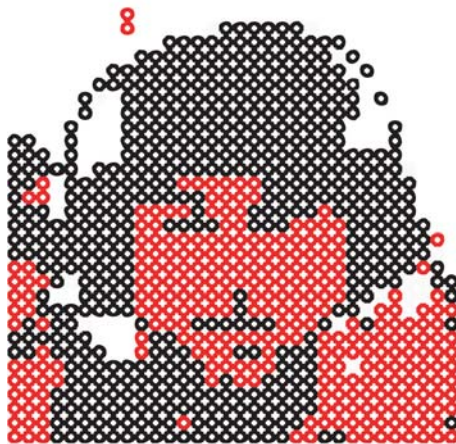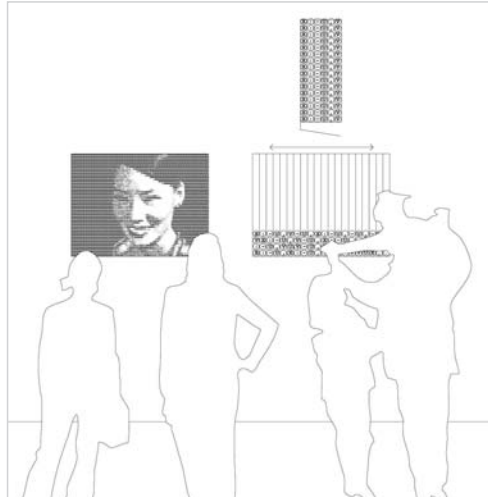
Bernhard Pusch
Plototyper

A web interface offers the possibility to upload and edit pictures from cellphones, USB sticks, hard discs … The pictures are delivered via web server to the Plototyper machine. Several plastic tubes are being cut at the machine's top and afterwards put onto a one-square-meter-sized grid. Each of the small tubes represents one pixel of the loaded picture. From thousands of small tubes the picture gets rebuilt on the machine's grid. After the tubes are placed, a hot roller fixes all tubes by melting the surface. Via Rapid Prototyping the machine manages to build layers of three-dimensional objects which are melted together.
www.indivigital.at