Interface Cultures

The Interfaces Cultures program at the Linz University of Art's Department of Media was founded in 2004 by Christa Sommerer and Laurent Mignonneau. The program teaches students of human-machine interaction to develop innovative interfaces that harness new interface technologies at the confluence of art, research, application and design, and to investigate the cultural and social possibilities of implementing them.

The term "interface" is omnipresent nowadays. Basically, it describes an intersection or linkage between different computer systems that makes use of hardware components and software programs to enable the exchange and transmission of digital information via communications protocols.

However, an interface also describes the hook-up between human and machine, whereby the human qua user undertakes interaction as a means of operating and influencing the software and hardware components of a digital system. An interface thus enables human beings to communicate with digital technologies as well as to generate, receive and exchange data. Examples of interfaces in very widespread use are the mouse-keyboard interface and graphical user interfaces (i.e. desktop metaphors). In recent years, though, we have witnessed rapid developments in the direction of more intuitive and more seamless interface designs; the fields of research that have emerged include ubiquitous computing, intelligent environments, tangible user interfaces, auditory interfaces, VR-based and MR-based interaction, multi-modal interaction (camera-based interaction, voice-driven interaction, gesture-based interaction), robotic interfaces, natural interfaces and artistic and metaphoric interfaces.

Artists in the field of interactive art have been conducting research on human-machine interaction for a number of years now. By means of artistic, intuitive, conceptual, social and critical forms of interaction design, they have shown how digital processes can become essential elements of the artistic process. Ars Electronica-and in particular the Prix Ars Electronica's Interactive Art category launched in 1991-has had a powerful impact on this dialog and played an active role in promoting ongoing development in this field of research.

The Interface Cultures program is based upon this know-how. It is an artistic-scientific course of study to give budding media artists and media theoreticians solid training in creative and innovative interface design. Artistic design in these areas includes interactive art, netart, software art, robotic art, soundart, noiseart, games & storytelling and mobile art, as well as new hybrid fields like genetic art, bioart, spaceart and nanoart.

It is precisely this combination of technical know-how, interdisciplinary research and a creative artistic-scientific approach to a task that makes it possible to develop new, creative interfaces that engender progressive and innovative artistic-creative applications for media art, media design, media research and communication.

The Interface Cultures master's degree program lasts two years and concentrates on interactive digital media. The training is theory-based and project-oriented; it combines theory with practice, art with research, the development of projects and prototypes with scholarly publication.

This first exhibition of projects by Interface Cultures students showcases interface design work in the fields of interactive art, tangible interfaces, intuitive music and composition instruments, and acoustic & object-based interfaces as well as examples of interactive games. The student works on display here are for the most part second semester projects. This exhibition during the Ars Electronica Festival offers these students a unique opportunity to present themselves to a large audience including top-name international authorities in this field and to receive expert feedback and acquire valuable know-how in the process.

Der 2004 von Christa Sommerer & Laurent Mignonneau gegründete Studiengang „Interface Cultures“ am Institut für Medien an der Kunstuniversität Linz beschäftigt sich mit der Mensch-Maschine-Interaktion: Es werden innovative Schnittstellen erarbeitet, die an den Grenzen zwischen Kunst, Forschung, Anwendung und Design angesiedelt sind, und neue Interfacetechnologien entwickelt und deren kulturelle und soziale Anwendungsmöglichkeiten untersucht.

Der Begriff des Interface ist heutzutage allgegenwärtig. Er beschreibt im Grunde eine Schnittstelle oder Verbindung zwischen verschiedenen Computersystemen, die durch Hardwarekomponenten und Softwareprogramme den Austausch und die Übertragung von digitaler Information über Kommunikationsprotokolle ermöglichen.

Ein Interface beschreibt aber auch die Verbindung zwischen Mensch und Maschine, wobei der Mensch als „User“ durch seine Interaktion Soft- und Hardwarekomponenten eines digitalen Systems steuern und beeinflussen kann. Ein Interface ermöglicht Menschen also, mit digitalen Technologien zu kommunizieren, Daten zu generieren, diese zu empfangen und auszutauschen. Übliche, weit verbreitete Interfaces sind zum Beispiel das Mouse-Keybord-Interface und das Graphical User Interfaces (= Desktop-Metaphor); in den letzten Jahren gab es jedoch eine rasante Entwicklung hin zu mehr intuitiven und saumloseren Interfacegestaltungen, wobei sich Forschungsbereiche wie Ubiquitous Computing, Intelligent Environments, Tangible User Interfaces, Auditory Interfaces, VR and MR based Interaction, Multi-modal Interaction (Camera-based Interaction, Voice-Driven Interaction, Gesture-based Interaction), Robotic Interfaces, Natural Interfaces und Artistic and Metaphoric Interfaces herausgebildet haben.

Im Bereich der Interaktiven Kunst erforschen KünstlerInnen seit Jahren die Mensch-Maschine-Interaktion, indem sie durch künstlerische, intuitive, konzeptuelle, soziale und kritische Interaktionsgestaltungen digitale Prozesse zum wesentlichen Bestandteil des Kunstprozesses werden lassen. Gerade die Ars Electronica hat durch die von ihr 1991 innerhalb des Prix Ars Electronica geschaffene Kategorie „Interaktive Kunst“ den Dialog und die Weiterentwicklung dieses Forschungsgebietes aktiv mitgestaltet und gefördert.

Der Studiengang „Interface Cultures“ baut auf diesem Know-how auf und bildet in einem künstlerisch-wissenschaftlichen Studium angehende MedienkünstlerInnen und MedienforscherInnen im Bereich der kreativen und innovativen Interfacegestaltung aus. Künstlerische Gestaltungen in diesen Bereichen umfassen Interaktive Kunst, Netzkunst, SoftwareArt, RoboticArt, SoundArt, NoiseArt, Games & Storytelling, Mobile Art sowie neue hybride Bereiche wie Genetic Art, BioArt, SpaceArt und NanoArt.

Gerade die Verbindung von technischem Know-How, interdisziplinärer Forschung und kreativer künstlerisch-wissenschaftlicher Arbeitsweise ermöglicht die Entwicklung neuer kreativer Schnittstellen, die progressive und innovative künstlerisch-kreative Anwendungen für Medienkunst, Mediendesign, Mediengestaltung, Medienforschung und Kommunikation hervorbringt.

Das Magisterstudium „Interface Cultures“ ist ein zweijähriges Studium, das sich auf interaktive digitale Medien konzentriert. Die Ausbildung ist projekt- und theorieorientiert, sie kombiniert Praxis mit Theorie, Kunst mit Forschung, Projekt- und Prototypenentwicklung mit wissenschaftlicher Publikation.

In der ersten „Interface Cultures“-Studentenausstellung werden Interface-Gestaltungen aus den Bereichen Interaktive Kunst, Tangible Interfaces, intuitive Musik- und Kompositionsinstrumente, akustische und gegenständliche Schnittstellen sowie Beispiele von interaktiven Spielen vorgestellt.

A First Taste of Life in the New City

Interface Cultures students: Martin Pammer and Magnus Hofmüller

Discrete individual surveillance systems are increasingly growing together into a gigantic, all-encompassing apparatus, proliferating like the brachiating nodes of a network that remains unnoticed both physically and in the collective consciousness. Video surveillance of public places, wiretapping of telephone conversations and the filtering of e-mails are only the best-known instruments this system utilizes. Nevertheless, due, among other reasons, to process engineering shortcomings, acoustic control of the public sphere has been used far less intensively to date than the method of optical surveillance. With these considerations as a point of departure and with reference to the theories of English philosopher Jeremy Bentham, we developed a pan-acoustic surveillance machine. This makes it possible for visitors to this installation to slip into the role of surveillance crewmembers and thus to categorize individuals under surveillance in accordance with personal and subjective criteria and thereby to assign them to a strictly established digital profile.
http://www.quitch.net/newcity

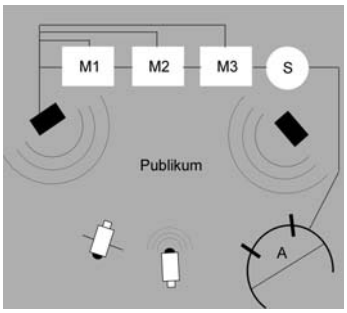
Active Antonia :: dirndlsong

Interface Cultures students: Timm Wilks, David Purviance, Thorsten Kiesl

Active Antonia :: dirndlsong is a video installation that takes viewers beyond the passive mode of reception normally associated with this medium. Those wishing to partake of a video are able to fulfill their desire only by dancing in front of the TV set. In going about it, the dancers can directly control a music video with their movements and create their own video combinations. The basic material is a 3D music video produced for the Linz singer Antonia; interactive manipulation (sabotage, if you will) makes it possible to enhance the video with Austrian pop sounds as well as music suggestive of the Orient.

Audio Audience Session

Interface Cultures students: Raimund Vogtenhuber, Stefan Kushima, Martin Lierschof, Julius Jell



This installation features a concert of improvised electronic music and audience involvement in the sound production process. A recording booth is stocked with objects that can be used to produce sounds. They are recorded directly, and then modified and fed into the concert in progress. A mobile camera captures the acoustic and visual atmosphere of the concert. Out of this great diversity of sounds and apparent chaos, an audible structure emerges that, in turn, dissipates on its own or can be fractured by the audience.
The musicians react to the audience's moods and tonal contributions, and thus also become listeners themselves. The atmosphere of the setting is manifested in auditory and visual imagery. Meanwhile, a VJ projects pictures of the concert mixed with his own graphic art.

blow!

A breath-controlled video installation

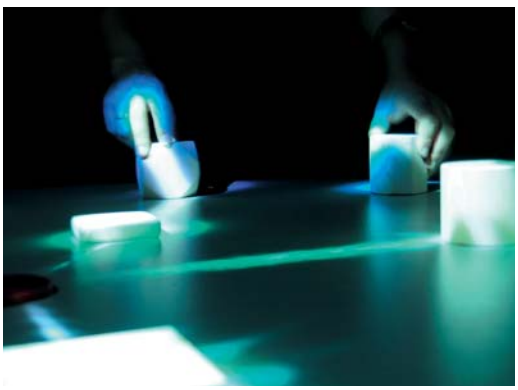
Interface Cultures student: Taife Smetschka

The installation consists of a video projection and a microphone featuring 1950s-style design. The projected imagery is one of the most famous scenes in the history of the cinema: a clip from Billy Wilder's film *The Seven Year Itch* in which Marilyn Monroe stands next to Tom Ewell on the notorious grate above the subway ventilation shaft. Initially she is stationary, smiling down at viewers from the screen. She doesn't begin moving until she feels a cool breeze from below. In the film, the breath of fresh air that billows Marilyn's skirt scandalously high above her knees emanates from the subway ventilation shaft, but in *blow!* it has to be supplied by the installation visitors themselves blowing as hard as they can into the microphone. Marilyn's skirt flutters in the breeze as long as the visitor blows into the microphone. A breathtakingly pleasurable experience!

reacTable*

Interface Cultures students: Music Technology Group, Universitat Pompeu Fabra, Barcelona

The *reacTable** is an electro-acoustic musical instrument that is currently being developed by the Music Technology Group in Barcelona. This is a tabletop instrument featuring a tangible user interface in which simple objects that represent the components of a classic modular synthesizer can be manipulated by the user by means of simple hand gestures. However, there are no automated procedures-the user must construct the instrument and play it at the same time, whereby the constructor/player has complete control over the instrument's musical development. The Phonos Foundation is working together with the Interface Cultures Program at the Linz University of Art and the AEC Futurelab to organize a network-linked, collaborative concert during the Ars Electronica Festival and the ICMC 2005. Several musicians will be playing on two *reacTables**, one in Barcelona and one in Linz. During this performance at spatially separated venues, the two *reacTables** will blend into a single virtual instrument. American composer Chris Brown has created the unique piece of music that will be played on this occasion.



Recollection in Every Sound – Audiovisual Interactive Improvisation

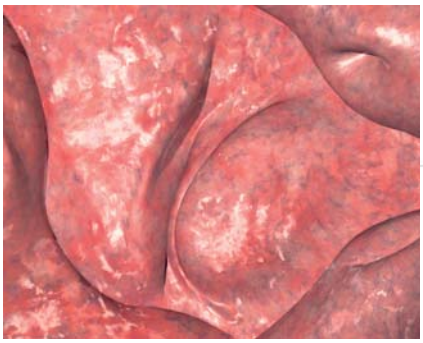
Interface Cultures instructors: Se-Lien Chuang and Andreas Weixler

Fragments of memories (produced both by human beings and by computer) generate a synthesis of sounds and visuals. The sounds of the yang-qin, a traditional Chinese hammered dulcimer with a near-squared soundboard, serve as interface in an audio-visually interactive concert that merges Chinese melodic characteristics and contemporary Western playing techniques. While visual images and processes are being generated during the concert, a multichannel granular synthesis fits together minute tonal particles that make up the instrumental sounds into a constantly changing acoustic stream made up of different pitches, durations and positions in the electro-acoustic space. The musical and visual components interact and reciprocally influence each other in order to blend into a unique, synaesthetic, improvisational work of art.
http://avant.mur.at

Gutsie

IAMAS & Interface Cultures student: Mika Satomi

Gutsie is an animation viewer and its shape constitutes a sculpture. It is a cyber android that is filled with "Gut". Looking into its inside through its eye-like hole, you can observe its intestines in motion. It will show you the places you want to see by tracking your gaze, but at the same time, your gaze may infect it. *Gutsie* will expose its intestines without hesitation in the way "Medical Venus" of "La Specola" does.
The inside of our body is something very private, often regarded as disgusting, and so it is not normally acceptable to see or to show it. In media, visual images of the insides of our body are often used to induce feelings of violence or disgust. Ironically, it is something that is part of everyone's body without exception. The sensation we feel when we explore the inside of *Gutsie* leads to the question *Gutsie* is asking. Is this sensation a natural instinct? Or something socially implanted in us?

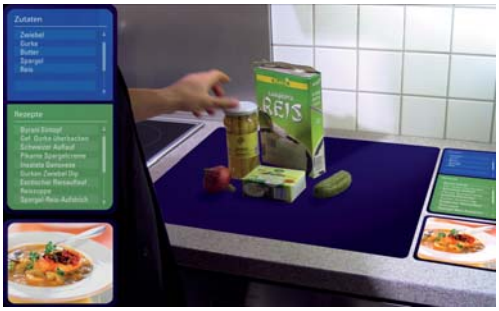


Recipe Table

Interactive Kitchen & Cooking Event

Interface Cultures students: Istvan Lörincz, Hannah Perner-Wilson, Thomas Wagner, Andreas Zingerle

The recipe table is an interactive workplace built into a kitchen countertop that enables a user—or several simultaneously—to intuitively and interactively search for recipes. The user places products upon the workplace surface, and these are then recognized by the system. The position and the quantity of the selected ingredients result in recipe suggestions, which the user can navigate through by rearranging the products on the workplace surface. These recipe suggestions are also depicted graphically as finished dishes on the interactive workplace. The interactive search for recipe suggestions is unique in that the search results involve using only those products that the user has selected.



sound.toy

Interface Cultures students: Heidecker, Harald Moser, Timm Wilks

Sound.toy is an interactive, three-dimensional environment in which the user functions as a racing car driver. During his ride through a virtual tonal space, a steering wheel interface enables the user to create and compose 3D sounds. To do so, the driver positions in space abstract visualized sound objects that are assigned to electronic beats. The speed and volume of the sound can be individually adjusted by the driver. He can launch as many sound objects as he wants, all of which then move about autonomously in the space. The composition is generated on one hand by the movement and position of the sound objects with respect to one another, and on the other hand by the route selected by the driver. Ultimately, the user becomes enwrapped by his own composition, and the result is a 3D audio-visual performance controlled in real time.

Mirror, Mirror

Interface Cultures student: Ingo Randolf (bildstrom)

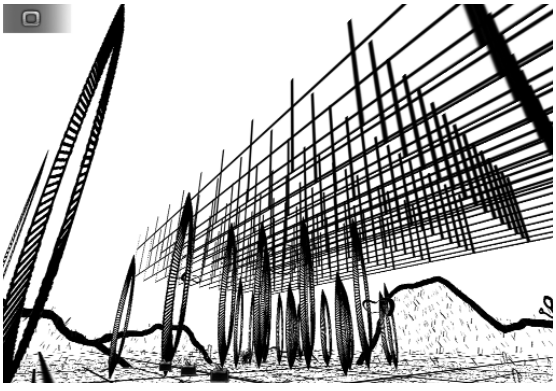
Tanja Tomic

The mirror is an extremely equivocal symbol. On one hand, it's regarded as a sign of vanity and lust; on the other hand, it also symbolizes self-knowledge, cleverness and truth.
The "manipulation mirror" is a reactive wall mirror that doesn't take the truth at what you might call face value. The visitor is at the mercy of the "mood" of the reflection and can communicate with the mirror by means of motions and sounds. A high-volume soundscape keeps things going; a lot of movement results in a variety of different visual interpretations. In an active state, faces are supplemented with additional elements or depicted in a way that is skewed in time. Another possibility is that someone's countenance is "stolen" and he is then depicted in the form of the visual echo of a previous visitor.

.wirebrain

Interface Cultures Students: Harald Moser, Timm Oliver Wilks
CAVE installation

.wirebrain is a dynamic virtual space generated by the basic personality traits of its users. Through the use of classification procedures developed in the field of depth psychology, a fundamental character profile of each person visiting the installation is worked out and then visualized in a three-dimensional space. Thus, the visitors don't just enter a prefabricated setting; they form their virtual world themselves. Their own personality is the decisive determinant of their virtual surroundings, the mood that pervades it and the mode of locomotion through it. The individual visitor's passage through the space thereby becomes a form of self-exploration and, at the same time, a suggested virtual biotope. In going about this, *.wirebrain* creates a novel approach to designing the virtual environment, one that comes close to the conventional conception of a virtual world and conforms to the basic principles of how human beings occupy the spaces in which their lives are played out.



Leave

Interface Cultures students: Angela Maria Holzer, Martin Erich Pammer

CAVE installation

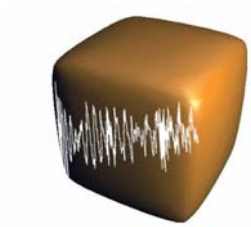
In *Leave,* the process of grieving is translated visually and auditorily into a virtual space. Mourning-not only after someone's death but also in the case of a failure, a break-up or some other misfortune-no longer has a place in our society. In accordance with the work of Verena Kast, the four stages of mourning are depicted in four linearly interconnected spaces.

The first stage, denial, is a place of confinement, which is communicated by means of fragmentary images. In the most intensive stage, that of "the outbreak of emotions," visitors to the installation find themselves in the midst of a visual oblivion in which sound assumes the role of narrator. The path of recollection then passes through an elliptical space: in the third stage, "searching—finding," photos and videos depicting everyday life are on display. In line with the metaphorical "light at the end of the tunnel," visitors pass through a tunnel to arrive at the fourth stage, "overcoming." In this space, they encounter a river; floating upon it are small paper boats holding lit candles. The visitor likewise has the opportunity to light a candle and to set it adrift downstream.

Feedbackpacker

Interface Cultures student: Bernhard Pusch

CAVE installation



The *Feedbackpacker* functions as a real-time system that allows for the creation of audio and 3D montages in real time. Its primary aim is to produce feedback from audio and 3D visualizations-a surreal world whose form, color and movement are defined by audio signals which themselves function as audio input-output. The visitor to the installation can spray virtual color into the world of the Cave, to which the 3D environment reacts not only optically but also auditorily. Objects in the 3D world produce a particular tone or a tonal sequence that, by means of a feedback loop and an auditory filter, are fed back into the 3D environment. The outcome of this procedure is a real-time change to the tone as well as to the virtual space. The resulting feedback is meant to produce a dynamic virtual soundscape that can be controlled only to a limited extent and whose sound and aesthetics are affected by the visitor/user. The installation is designed to enable users to learn regular, recurring system functions and thus, via "action—reaction", to experience amazing audiovisual impressions.

Pascal Maresch / Daniela Kuka

Hertzblut—Pixelspaces 2005

"Mere computation brings forth neither lust nor pain, neither poetry and beauty nor the magic of sounds and hopes, love and doubt."

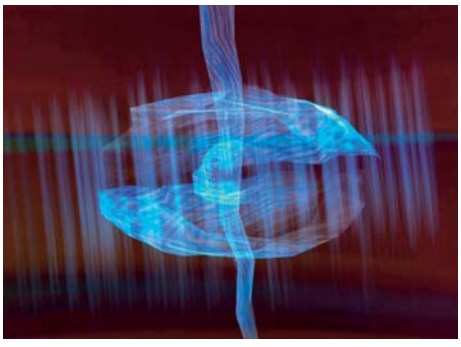
Roger Penrose, *The Emperor's New Mind, 1991*

As this year's installment of the annual Pixelspaces conference series, *Hertzblut* carries on the tradition of spotlighting motifs that presently occupy the focal point of attention in a number of disciplines across the technological spectrum. This approach is designed to enable participants to come to terms with issues of great current relevance through a discourse in which many different voices and a wide variety of perspectives are represented. *Hertzblut* is the title of Pixelspaces 2005. This symposium will scrutinize the compatibility of emotions and computer technology, and analyze the emotional rush that is the upshot of man-machine interaction.

The confrontation with this overall issue will take place via encounter with two focal-point topics: on one hand, to what extent are machines in a position to understand and depict emotions or to process forms of human emotion; on the other hand, to what extent can machines develop their own forms of emotional intelligence and involve the user in a digitally produced emotional process? This will entail addressing questions that arise in the zone of impact in which the possibilities of computer technology meet cultural and psychological patterns, and will be based on presentations of state-of-the-art approaches to research and current media art projects being pursued by staff members of leading R&D facilities and media labs around the world.

Previous symposia have thematicized the relations between computer technology and art, architecture and the human body. *Hertzblut* will expand the dimensions of this encounter once again and encompass areas of activity that, in a process of transdisciplinary exchange, can be activated as a source of impetus for new ways of going about practical work with digital media.

Here, the latest insights from the fields of neurobiology and research into human emotions will meet up with findings yielded by experience with project-based applications. By bringing together expert knowledge, practical skills and experimental results, *Pixelspaces 2005*



represents an endeavor to approach the essence of what the digital projection of emotions seeks to accomplish. Thus, in addition to going into established dramaturgical systems for communicating emotions in medial contexts, the symposium's proceedings will elaborate on new scientific approaches to portraying emotional perceptions and forms of behavior. Above all, the new dramaturgical structures of interactive systems and non-linear visualizations call for innovative methods of bringing across emotional content. How can emotional processes be consciously deployed and communicated to viewers? What artistic tools and instruments of media technology are available to stimulate emotional receptors? These tasks have to be mastered in a way that is compatible with the overall aim of activating the intended process of identification between the individual viewer and that which is produced by computer. Are there universally applicable methods or formulas to accomplish this? If so, could there possibly be new formats for the mise en scène of media art experiences that can be derived from them? Accordingly, could there be an additional orientation applicable to artistic work with media technology: emotional impact as criterion of quality? Aspects of techno-biological interface design are being subjected to a new way of looking at things, whereby investigating the qualities of human-computer interfaces and concepts of interaction among technical objects and organic bodies also means dealing with multimodal processes of exchange among medium, human body and environment. When the perception of body and environment increasingly crystallizes in mediatized domains and medial interfaces, then medial apparatuses can hardly be conceptualized any longer as objects in a purely technical context. When the approaches of media theory develop further in the direction of no longer considering medial objects as machinery of estrangement that establishes a competitive relationship between mankind and artificial intelligence, then a possible alternative would be to accept them as productive processes for the creation of novel worlds.

Hertzblut seeks the crux of this matter in the relation between rational processes and the persistent mystery of emotion.

After all, aren't emotions precisely what play an essential function in producing perceptions of the world? Consequently, feelings definitely have to be taken into account to produce an optimal fit of media's structure, design and content to make for a successful link up with real-world patterns of though and behavior.