Interface Cultures

Master Study Program
University of Art and Design, Linz, Austria
Institute of Media Studies
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The Interface Cultures master study program at the University of Art and Design in Linz was founded in 2004. The program’s name was taken from Steven Johnson’s book „Interface Culture“. In 1997 he predicted that new interfaces would shape important cultural and technological developments of the upcoming 21st Century. Johnson also stated that „the history of the modern interface includes a number of instances in which mass audiences and creative innovation have managed to exist side-by-side“. One focus of our Interface Culture master study program is to enable exactly such artistic and creative innovations in interface technologies and interactive art.

To spawn creativity among our students, we offer courses on participatory art, interactive art, interaction design, game design, ludic interfaces, tangible interfaces, auditory interfaces, fashionable technologies, sensor technologies, mobile interactions, telecommunications, augmented social environments, media facades and interface communities. Situating our department at the confluence of art, research, application and design, we look for experimental forms of human-machine, human-human and machine-machine interactions. Besides teaching technical skills, the cultural discourse and its connections to art history and media art are important factors to help create interactive projects and prototypes that can be technically innovative as well as conceptually reflective. Between 2005 and 2013 around 100 interactive projects have been developed by the Interface Cultures students and many of them have been presented at the Ars Electronica Campus exhibitions, as well as in international presentations.

www.interface.ufg.ac.at
The University of Art and Design in Linz offers a very attractive choice of studies: fine arts and cultural science, art education, space and design strategies, textile art design, industrial design, architecture and, as our main focus, different kinds and combinations of media studies. Linz with the Ars Electronic Festival as well as a variegated scene of media art and many media-oriented industries can truly be considered the “city of media”.

Interface Cultures invites you to an exciting journey through the virtual and real world of all forms of interactions between human beings and machines, between arts and applied research. It’s state of the art worldwide – try it!

Univ. Prof. Dr. Reinhard Kannonier
Rector of the University of Art and Design, Linz, Austria
www.ufg.ac.at

The two-years graduate study program Interface Cultures can be considered as a most innovative model for media art education as well as for the exploration of new forms of human computer interaction. The combination of art, design and technology and the focus on application-oriented ideas is both inspiring and productive.

In its time of existence the program has proven its capability and has taken a vital role in the cultural activities of the city.

Gerfried Stocker
Managing Director of the Ars Electronica, Linz, Austria
www.aec.at
Christa Sommerer is professor and head of the department for Interface Cultures at the Institute for Media Studies at the University of Art and Design in Linz. Since 20 years she is active as media artist, she has received numerous awards such as the Golden Nica Prix Ars Electronica. Her interactive works have been shown in around 200 international exhibitions, she held many lectures and taught at several international universities in Asia and Europe.

Dr. Laurent Mignonneau is an Interface Cultures professor at the Institute for Media Studies at the University of Art and Design in Linz. Internationally renowned artist, he started experimenting with electronic circuits and computer programming in the late 70’s. In the last 20 years he produced numerous artworks that are shown in museums worldwide. He has been previously working in Europe, the USA and in Japan as artist, researcher and professor. Together with Christa Sommerer he has published four books:

- Christa Sommerer, Laurent Mignonneau, Dorothée King (Eds.) *Interface Cultures Artistic Aspects of Interaction August*, 2008, Transcript Verlag
Univ.-Prof. Dipl.-Ing. (FH)
Martin Kaltenbrunner
Martin Kaltenbrunner is Professor at the Interface Culture Lab, where he concentrates on the artistic research in Human Computer Interaction, in particular through the development of Tangible Musical Interfaces. Before his return to Austria he worked as researcher and lecturer at the Pompeu Fabra University in Barcelona, at the MIT Medialab Europe in Dublin, and further European universities. As co-founder of Reactable Systems he had been mainly responsible for the interaction design concepts behind the Reactable, a tangible modular synthesizer. The instrument has been shown at several international media art and music festivals, and was awarded with the Golden Nica for Digital Music. His influential research on tangible interface tools has been employed for the realization of numerous artistic and scientific projects in that area. At the Interface Culture department he is teaching Multimodal Interfaces and Tangible Interfaces, and he also supports the academic publishing practice within the Journal Club.

Univ.-Ass. Mag.art.
Marlene Brandstätter
Marlene Brandstätter studied Sculpture and Computer Science in Linz. Her interests range from programming for real-time environments with focus on graphics to social and political artistic intervention. As software developer she participated in the “long night of science” projects. Currently she works as technical assistant for the Interface Cultures department.

Univ-Ass.Mag.Art. Michaela Ortner
Since 2008 Michaela Ortner is part of the Interface Cultures team. In the years 1998 and 1999 she worked for the Future Lab of the Ars Electronica Center and created especially applications for the CAVE™. For “Die Fabrikanten”, a collective for communication culture and the Cultural Department of the City of Linz she organized several events and art projects. Since 2009 Michaela Ortner is a lecturer for communication and photography at the University of Art and Design in Linz and at the University of Applied Sciences in Hagenberg. As an artist Michaela Ortner is working in the field of photography. She studied Visual Media Design with the focus on photography at the University of Art and Design in Linz and Fine Arts at the Facultad de Bellas Artes in Bilbao.

“CODED CULTURES - Creative Practice out of Diversity” (Springer, 2011) and “Vom Subjekt zum Smartject” (Turia-Kant, 2007).

Dr. Georg Russegger
Georg Russegger is Lecturer at the Interface Cultures department. Georg Russegger received a Ph.D. in media- and communication-theory and did a Post Doc at the Graduate School for Film and New Media (Tokyo National University of the Arts). As a researcher, curator and artist he is active since 1999 in the field of new artistic research practices, media-integrated knowledge cultures and its greater impact on project design and individual self empowerment. As an editor and writer he published lately two books:
Hon.-Prof. Dr. Christine Schöpf
Since 1979 Christine Schöpf was significantly involved in the development of Ars Electronica. From 1987 until 2003 she masterminded the conception and organization of the Ars Electronica Prix competition and since 1996 she is – together with Gerfried Stocker – artistic director of the Ars Electronica festival. Christine Schöpf studied German and French Literature (PhD) at the University of Vienna and afterwards worked as a journalist for radio and television. From 1981 until 2008 she was head of department of art and science at the Austrian Broadcasting Corporation (ORF), Regional Studios of Upper Austria. Since 2009 Christine Schöpf is a honorary professor of the University of Art and Design in Linz.

Hon.-Prof. Dr. Hannes Leopoldseder
Hannes Leopoldseder is a co-founder of Ars Electronica and the Linzer Klangwolke (Cloud of Sound). He initiated the Prix Ars Electronica in 1987, and in 1991 came up with the idea that led to the first Ars Electronica Center. As vicechairman of the Board of Directors, Hannes Leopoldseder still contributes to Ars Electronica carrying out its mission. He also has numerous publications about Ars Electronica, the Prix Ars Electronica and the Linzer Klangwolke to his credit. Hannes Leopoldseder was an editor at a publishing house before going to work as a TV journalist for the ORF – Austrian Broadcasting Company’s Vienna Studio in 1967. From 1974 to 1998, he was director of the ORF’s Upper Austria Regional Studio. Beginning in 1975, he also taught Audiovisual Media at the University of Vienna. In 1998, Hannes Leopoldseder was appointed TV news director at ORF Vienna. In this capacity, he was responsible for nationwide reporting on culture, science, sport and religion. In 2009, Hannes Leopoldseder was named honorary professor by the University of Art and Design in Linz, where he has taught a course about Ars Electronica since 2008. Leopoldseder has been the recipient of many honors including the Honorary Ring of the City of Linz, the Austrian Cross of Honor for Science and Art, and the professional title of Professor.

Gertrude Hörlesberger
Gertrude Hörlesberger is the office manager of the department for Interface Cultures at the Institute for Media Studies at the University of Art and Design in Linz. She is employed at this university since 2002 and joined the Interface Culture department team after having run the office of the Ludwig Boltzmann Institut Media.Art.Research during the whole project-period of 5 years. Before she organized events and exhibitions together with the responsible vice-deans of the University. Additional she currently does the administration and is an activist of the “Arbeitskreis für Gleichbehandlungsfragen”, an University Law of 2002 based gender politic commission.
Johannes Grenzfurthner

Johannes Grenzfurthner is an artist, writer, curator, and director. He is the founder and artistic director of monochrom, an internationally acting art and theory group. He holds a professorship for art theory and art practice at the University of Applied Sciences in Graz, Austria. He is head of the “Arse Elektronika” festival in San Francisco, host of “Roboexotica” (Festival for Cocktail-Robotics, Vienna and San Francisco), and co-curates the Paraflows Symposium in Vienna. He gave talks at SXSWi, O’Reilly ETech, FooCamp, Maker Faire, HOPE, Chaos Communication Congress, Google (Tech Talks), ROFLCon, Ars Electronica, Transmediale, Influencers, Mozilla Drumbeat Barcelona or the Neoteny Camp Singapore. He and his projects have been featured in New York Times, Liberation, Spiegel, San Francisco Chronicle, CNN, Reuters, Slashdot, Boing Boing, New Scientist, The Edge, LA Times, NPR, ZDF, Gizmodo, Wired, Süddeutsche Zeitung, CNet or the Toronto Star.

Daniel Hug

Daniel Hug has a background in music, sound design, interaction design and project management in applied research. Since 1999 he investigates sound and interaction design related questions through installations, design works and theoretical publications. Since 2005, he is teaching sound studies and sound design for interactive media and games at the Interaction and Game Design departments of the Zurich University of the Arts, Switzerland. In addition, Hug works as freelance sound designer, pursues a PhD on sound design for interactive commodities at the University of the Art
and Design in Linz, Austria, and is management committee member of the European COST-initiative “Sonic Interaction Design” and of “Audiomostly – Conference on Interaction with Sound”.

Christopher Lindinger
Christopher Lindinger studied Computer Science at the University of Linz and Cultural Management in Salzburg. He worked as scientist in the field of Virtual Reality research and supercomputing visualization in Chicago and as developer for the game industry. Since 1997, based on his activities in the field of digital art, he is affiliated with the Ars Electronica and currently holds the position of the director of research and innovation in the Ars Electronica Futurelab. Beside this activity he works as consultant for companies and governmental organizations, teaches at several universities in Germany and UK and is Guest Professor at the University of Art and Design, Linz.

Enrique Tomás
Enrique Tomás (Madrid, 1981) is a sound artist and researcher who dedicates his time to finding new ways of expression and play with sound, art and technology. His work explores the intersection between sound art, computer music, locative media and human-machine interaction. As an individual artist, Tomás’ activity is centred around “ultranoises” and focuses on performances and installations with extreme and immersive sounds and environments. He has exhibited in spaces of Ars Electronica, Sonar, IEM, KUMU, SMAK, NOVARS, Laboral, STEIM, Steirischer Herbst, Alte Schmiede, etc., and in galleries and institutions throughout Europe, Brazil and Mexico. Also an educator, since 2005 he is a frequent lecturer on the use of technologies for creative expression in sound and music.

Tiago Martins
Tiago Martins graduated in Computer Science at the Universidade Nova de Lisboa and is currently a PhD candidate at the Interface Cultures department of the University of Art and Design in Linz, where he also takes on the roles of lecturer in programming, physical computing and game design. He also finds the time to co-author interactive installations and media art projects, which employ common physical objects re-imagined as digital interfaces to reveal and explore bonds and tensions between the physical, digital and social.

Chicks on Speed
Chicks on Speed are multidisciplinary cultural producers, working at the crossroads between Pop Music, Performance Art, Fashion and New Media. Over the past 15 years, Chicks on Speed’s founding members Melissa Logan (USA) and Alex Murray-Leslie (Australia) have worked between the worlds of Music, Art & Fashion, creating their own brand of GESAMTKUNSTWERK. Formed at the Munich Art Academy in 1997, they propelled themselves into the world of music, as a commercially functioning pop act, with a special mix of irony and electronic beats. They’ve collaborated widely in the world of Music and Art, with
names such as Yoko Ono, Peaches, Red Hot Chilli Peppers and Peter Weibel. In recent years the groups activities culminated in a series of large scale Live-Art performance extravaganzas, staged at key global museums and art events, including this years 55th Venice Biennale, Centre Pompidiou, MoMA and Museum of Contemporary Art, Sydney.

**Gebhard Sengmüller**
Gebhard Sengmüller is an artist working in the field of media technology, currently based in Vienna, Austria. Since 1992, he has been developing projects and installations focusing on the history of electronic media; creating alternative ordering systems for media content; and constructing autogenerative networks. His work has been shown extensively in Europe, the US and Asia, among others in venues such as Ars Electronica Linz, the Venice Biennale, the Institute of Contemporary Arts London, Postmasters Gallery NYC, the Museum of Contemporary Photography Chicago, Microwave Festival Hong Kong, or the ICC Inter Communication Center Tokyo.

**Sabine Seymour**
Dr. Sabine Seymour focuses on fashionable technology and the intertwining of aesthetics and function in design and technology. She is described as being an innovator, visionary, and trend spotter. Dr. Seymour is the Chief Creative Officer of her company Moondial, which develops fashionable wearables and consults on fashionable technology to companies worldwide. Moondial’s work is based on the convergence of fashion, design, science and wearable & wireless technologies. Dr. Seymour is the director of Fashionable Technology Lab and Ass. Professor of Fashionable Technology at Parsons The New School for Design in New York and lectures worldwide at numerous institutions. She serves as a jury member for many internationally renowned institutions and conferences. Dr. Seymour is widely published. Her books ‘Fashionable Technology – The Intersection of Design, Fashion, Science, and Technology’ and ‘Functional Aesthetics - Visions in Fashionable Technology’ received excellent reviews.

**Hideaki Ogawa**
Hideaki Ogawa is an artist born in 1977 in Tokyo. He directs an artist group called “h.o” and provides new media experiences through his world-wide projects. His art project focuses on “Information Technologies” and creates artwork of perspectives on possibilities and problems concerning Information Technologies. Hideaki’s work is known as a simple and consecutive interaction design combining digital technologies and analog technologies. His project has been exhibited in various museums and galleries. He has collaborated with many companies and research institutes to realize the new vision of the future among art, technology and society. Hideaki received a master’s degree and PhD at Keio University Graduated School of Media and Governance. At the same time, he worked as a researcher of Keio University and lecturer of media designing classes in Keio University and Meijigakuin University. In 2007, he moved to Linz for Ars Electronica as an artist in residence. At the same time, he teaches his course in Interface Cultures department at the Universi-
Klaus Obermaier

Since more than two decades media-artist, director/choreographer and composer Klaus Obermaier creates innovative works in the area of performing arts, music, theatre and new media, highly acclaimed by critics and audience. His inter-media performances and artworks are shown at festivals and theaters throughout Europe, Asia, North and South America and Australia. He worked with dancers of the Nederlands Dans Theater, Chris Harring, Robert Tannion (DV8), Desireé Kongerød (S.O.A.P. Dance Theatre Frankfurt). He composed for ensembles like Kronos Quartet, German Chamber Philharmonics, Art Ensemble of Chicago, Balanescu Quartet, among others. Since 2006 he is visiting professor at the University IUAV of Venice teaching directing and new media. Also since 2006 he is jury member of the international choreography competition ‘no ballet’ in Ludwigshafen/Rhein, Germany. In 2005 and 2008 he taught as an adjunct professor for composition at the Webster University Vienna. In 2010 and 2011 he held courses for choreography and new media at the Accademia Nazionale di Danza di Roma.

Alexander Wilhelm

Alexander Wilhelm studied Industrial Design with special focus on interaction design in Linz and at the ZHDK in Zürich. For his own company “thevisioneers” he develops design concepts for several customers including BMW. He teaches at the University of Art and Design in Linz and at the University of Applied Sciences in Hagenberg.

Andreas Weixler

Born 1963 in Graz, Austria, is a composer and media artist for audiovisual interactivity. His concepts led to performances and lectures in Europe, Asia, North and South America and got recently selected for ICMC 2010 New York, ICMC 2008 Belfast, NIME 2007 New York and ISEA 2008 - Singapore. Andreas Weixler is lecturing since 1997 at Bruckner-University Linz, Austria, since 2004 at Interface Culture of the University of Arts in Linz and is also giving numerous international lectures in Austria, Germany, England, Northern-Ireland, USA, Japan, Taiwan, South-Corea a.o. He founded intermedia concert series as electronic access (Graz, Linz, Vienna and London), Sonic Intermedia (Ars Electronica center Linz) and together with Se-Lien Chuang is running Atelier Avant Austria.

Time’s Up

Time’s Up work across machines and media, systems and structures, investigating and composing experimental situations. Merging machinic mayhem and the elements of strange yet suspiciously missing characters in their recent work, they also grapple with social structures, living and lived in systems and many issues in unlikely ways.
Mahir M. Yavuz
Mahir M. Yavuz is a designer and researcher who lives and works in New York City. He worked as a senior researcher of information design at the Ars Electronica Futurelab between 2006-2011. He has been giving lectures on interaction design, information design, typography and animation in Istanbul (Istanbul Bilgi University) and Linz (University of Art and Design) respectively since 2003. He is also engaged in doctoral studies in Interface Cultures department at the University of Art and Design in Linz. He is the co-founder of Newgray, a design and research company.

Stefano Vannotti
Stefano Vannotti is an Interaction Designer, lecturer, and researcher based at the Institute for Design Research at the Zurich University of the Arts. In his research, he explores different aspects of participatory design in the development of large-scale information systems. He is teaching design methodology, Interaction and Service Design at different universities. In addition, Stefano Vannotti is a PhD student at University of Art and Design in Linz and works as a user experience strategist for his own company where he guides organizations throughout all phases of the collaborative design process.
Academic Publication Practice
This course provides basic skills for academic research in the arts. Students acquire writing skills for the production of academic papers. At the same time latest research topics in the fields of interaction design and interactive art are discussed.

Ars Electronica Project
This course transports the knowledge of creating, organizing, developing and planning exhibitions in general, combined with the practical issue of the Interface Cultures exhibition at Ars Electronica. Students should be enabled to write project plans, budget time sheets, production plans, exhibitions maps and experience this outcomes on a practical level.

Audio-Visual Interaction
In this lecture we explore the possibilities of interaction of midi, audio and video data and the use of algorithms within the graphical programming environment Max Msp Jitter. Max Msp Jitter is a programming language, specially designed for media artist and musicians. By connecting objects, which are representing programming routines, students design the flow of data and its processing.

Auditory Interfaces /
Sound Design for Interactive Commodities
Increasingly, physical artifacts of everyday use are endowed with information and communication technologies. These “interactive commodities” provide exciting new possibilities for sonic interaction design: The visual modality is often restricted by size or the peripheral use of such artifacts, and most importantly, they are physical objects with a complex, narrative and performative identity which suggests the use of sound beyond simple beeps.
This workshop explores the interaction with artifacts, their sounds and the possible relationships between them. Students investigate narrative sound design strategies inspired from highly evolved fields like film and game sound, learning to use sound to provide interpretative clues and to leverage the expressive potential of sound. These strategies can be applied for developing contextualized scenarios and improvisational prototypes of sounding interactive commodities.

Communication Guerilla
The Communication Guerilla uses the established language, aesthetics and habitus of mainstream media, advertisement and politics and subversively transforms the actual content with artistic or political means. This practice often increases the potential audience, since it can reach the inexperienced consumer, who would usually not respond to alternative social, political or economic approaches. The class discusses the history and current movements of the Communication Guerilla and practically explores the topic by examples.

Fashionable Technologies
Fashionable Technology investigates the relationship between technology, fashion, craftsmanship, and design. Contextual analysis, developed in group projects, reveals and defines the aspects of communication, aesthetics and functionality with specific focus on the idea of the garment as interface. The first part of the class involves a theoretical discourse on the next generation of wearables, its history, its evolution, and its present state. The second part of the class focuses on developing a project focusing on textiles, wearables & technology. Students will participate in the entire design process from concept to completion. Through this process, students will gain understanding of the challenges and possibilities of designing technologies for the body.

Games Workshop I
The course discusses basic game design. Students learn to iterate through a number of given design ideas and investigate how narrative principles can be applied to basic game design in all areas, including computer-based games and social media. Groups develop own ideas and prototype them as board-, card-, social- or environmental-game.

Games Workshop II
This course aims at the experimental development of games. Participants will be introduced to the development of video games using engines like Unity, to Locative Gaming using noTours and to Relational Art and video games (The Video-Game-Next-Door Principle). Working alone or in a group, students are required to develop and test a concept for an activity - pervasive game, public performance, gamification - paying close attention to the ways in which the activity expands in spatial, temporal and social dimensions.

Interactive Art I + II
In this course students get an overview of prevalent examples of interactive computer art, the various artists, designers and developers who shape this field. Works and examples analyses will include interactive installations, net art, software art, robotic art, interactive environments as well as new and experimental forms of Interactive art. Besides getting to know these practical examples, a special focus of the course will also be a theoretical reflection on the development of interactivity and participation through analyzing the writings and theories in this field.

Interface and Interaction Design
The aim of this course is to make students comfortable with the key design elements of content publishing on screen-based interaction
environments such as web sites, multimedia applications, interactive DVDs, etc. Students will study the role of the interface, principles as well as process of interface design. Since effective interface designs are good combinations information science, visual language and human-computer interaction, the course aims to present the principles of non-linear navigation concepts, organizing content for digital publishing and interface metaphors by displaying various examples from different platforms.

**Interface Technologies**
This lecture tries to connect interactive art with the principles of interaction design. We will focus on understanding the technological principles that conform the basis of many interfaces and devices. It will probably lead us to an uncontrollable intention of finding artistic interventions, interventions, conceptual hacks or creative reimplementations of interfaces that were supposed to be industrial standards.

**Journal Club**
The Journal Club is organized as a reading and discussion circle covering the relevant journals and conference proceedings in the area of Human Computer Interaction and Digital Art. The course is synchronized with the Academic Publishing course, which will cover the according writing task for the potential scientific publication of selected student projects. After an initial introduction to the relevant journals and conferences in the field, the students will have to read, summarize and present an individual selection of articles within a monthly session. Participants are also encouraged to propose and discuss additional conferences in related research areas of their interest.

**Labor-Interface Cultures I + II**
These lectures combine programming practice with various computational art topics. In the first part basic coding techniques are exercised. The second part concentrates on using tools and libraries for interactive projects like real-time image processing, computer vision or physics simulations.

**Media Archeology**
Unlike conventional media history, this class is intended to reveal a hidden history of media. This “secret” or “forgotten” media history deals with parallel, presumably lost, little regarded, perhaps even merely fictive strands in the development of today’s media apparatuses. In an age of the rapid development of constantly new technologies, which become more and more quickly obsolete, it is interesting to create archeologies of individual media. For example, this could be an archeology of mobile media (as suggested by Erkki Huhtamo), an archeology of operating systems (Neal Stephenson), or even an archeology of dead media, as Bruce Sterling calls for in his “Dead Media Manifesto”. This course shows how artists are interested in media archeology (these include, for instance, Paul DeMarinis, Perry Hobermann, Vuk Cosic). They use artefacts from media machines and media technologies “the wrong way” in their practice, developing them into previously unplanned hybrids, opening unknown back doors and thus often turning what were originally defects into strengths.

**Media Art History**
Reflecting more than 30 years of Ars Electronica these lectures offer an insight overview of media art development at-a-glance. Key projects, singular events and performances, cultural and political strategies behind scenes offer a personal perspective over 3 decades of media history at the example of Ars Electronica reported by founders of Ars Electronica.
Mobile Interaction
In this course students learn how to design interactive mobile applications through rapid prototyping. In the first half they get an introduction to the rich variety of modern smartphone features and how to program these. Features included are motion sensor, GPS, touch input, Bluetooth, Wi-Fi communication, camera, video recording, sound recording, midi playback, messaging, graphics, screen UI design etc. Combining such features into a single application enables to create new types of mobile interfaces and applications for Human Computer Interaction, but also to innovative novel mobile interactive services. In the second half of the course students build mobile applications based on their own ideas by participating in the entire design process from concept to completion.

Multimodal Interfaces
Multimodal User Interfaces emphasize the role of the various modalities such as the visual, auditory, haptic and olfactory channels in Human Computer Interaction. While visual interfaces represent a well explored territory, the work with alternative modalities can still be highly experimental and therefore of increased interest within an artistic context. After introducing the properties and application areas for specific alternative modalities, the course deals with experimental interaction design topics such as Auditory Interfaces, Haptic Feedback, Gestural Interaction and also more exotic approaches such as Edible User Interfaces. These for example do not only involve olfactory feedback and edible interaction, but also play with the visual, acoustic and haptic properties of food and possible interaction paradigms related to the process of eating.

Playful Interfaces I + II
The aim of this course is to present, develop and discuss contemporary forms of playful interfaces. The notion of the ability for playful behavior is a way to overcome limitations and is therefore different to entertainment. The vectors of the course should give a perspective on different cultural forms and social programs within the definition of artistic practices, dealing with playful interfaces. The theoretical background provides historical contexts and contemporary movements on the intersection of art, science, technology and design.

Programming I + II
This course offers an introduction to programming using the Processing language and environment. The course objective is to provide a basic but solid understanding of programming, starting from the basics (variables, operators, functions, control loops) and later moving on to intermediate topics (objects, algorithms, graphics and sound). The course is destined for students with none or little experience in programming and will focus primarily on the paradigms of imperative and object-oriented programming, practised through and illustrated by audiovisual applications.

Robotics Workshop
The robotics workshop aims to introduce students to the history, width and breadth of machine-based arts, to invite them to see that working with physical devices is both easier and more complex than they have imagined, to be involved in a development process and to get their fingernails broken in a confrontation with hardware. The workshop starts with a few small meetings before moving into a 3-4 day workshop at the Time’s Up workshops in the Industrial harbor which completes with a small presentation of the work and, most importantly, the process of developing the work.
Scientific Research Methods
This course is based on the intermediation of different research methods, methodics and models. The participants should get a good overview on standards in writing papers for conferences, applications for research projects, presentation techniques a.s.o. Different perspectives and theoretical dimensions of artistic and scientific research are presented and discussed. Within this framework the support for actual artworks, research projects and theoretical considerations are made, with a strong focus on international connectivity and language skills.

Sensor and Microcontrollers and Advanced Microcontrollers
The Sensor and Microcontrollers course offers an introduction to sensor technology for the development of electronic circuits connecting sensors and actuators to current computer technology. During the course light cells, temperature, motion, pressure, acceleration or acoustic sensors will be provided for experimentations to understand how electronic sensors perceive their environment and how to measure and interpret their data. Microcontrollers will also be programmed in order to control the actuators and to communicate with the computer. The Advanced Microcontrollers course provides knowhow for building several electronic interfaces, read schematics and elaborate more complex programs to be used in personal interactive artistic projects that will be presented at the end of the semester.

Social Interfaces (AEC)
In this course types of social interfaces will be discussed. Now the interface is getting invisible and the interface is in a story of our daily lives. Also in media art, the exploration for the interface is happening in social context. Social media, advanced technologies in society such as synthetic biology and robotics. We artists are trying to create catalysts for people and society through art work and artistic activities.

Staged Based Interaction
The goal of this workshop is to introduce production methods for creating interactive stage-based scenarios that use various tracking technologies in combination with performance and dance. The digital system is used as a performance partner; different media such as sound, image, real-time generated content as well as human movement are combined. Issues of camera view, choreographer’s/director’s view, audience view, levels of interaction, triggering, controlling and communication are discussed and applied.

Student Project Support
The course is meant for students’ personal coaching and guiding for applying for the festivals, exhibitions, art residencies, etc. If there is a wish for the support in terms of the documentation and presentation of an artwork, it will be provided as well in the frames of this course.

Tangible Interfaces
Tangible User Interfaces allow the seamless integration of the digital world within our physical environment. This lecture provides an overview on tangible interaction concepts in general, not only covering human computer interfaces focusing on touch input but most importantly the interaction with physical objects. The practical workshop introduces the various technologies and hardware design issues that are relevant for the implementation of this type of interfaces. Using flexible development frameworks for tangible interactive surfaces, students can for example develop concepts for table-based tangible user interfaces such as musical instruments, educational toys or other interactive table installations. The course will also concentrate on the actual design of physical objects, employing the available rapid prototyping tools and the related methods.
Plants look still, but they move, even if we don’t notice it. They do it slowly, when they grow and follow the sun. Usually they keep their feet on the ground, but they do have an affinity with air and flight. Some plants have no roots and get their nutrients from the air, others use the wind to let their seeds move quicker. Every plant reacts to the environment in a different way.

Maybe sometimes a plant dreams of flying.

In the artwork *The dream of flying*, a plant “controls” a body extension: a small flying device. The electrical activity of the plant is measured and the gathered data are used to control the flight.
headbang hero is a videogame for testing your headbanging prowess with heroic disregard for your own health. Wearing a special motion-sensing wig, you are awarded points for vigor and timing while you headbang to the powerful chords of heavier-than-metal music. When the game is over, a personal report is printed out for you, including data about your performance, the amount of real damage you sustained during play and some dubious but friendly advice.

Have you ever asked yourself what happens after death? The project Unsterblich (Immortal) refers to thoughts about the invisible, things we do not understand or are abstract. Unsterblich is a large green tree that illustrates the immortality, ephemerality and tranquility. It responds to the inevitable questions about death and the cycle of nature. Lying on the floor it represents a dead soul of another tree that grows from it. It is made from green neon acrylic glass which shows its splendor in the sunlight and disappears when the sun goes down.

Headbang Hero is a videogame for testing your headbanging prowess with heroic disregard for your own health. Wearing a special motion-sensing wig, you are awarded points for vigor and timing while you headbang to the powerful chords of heavier-than-metal music. When the game is over, a personal report is printed out for you, including data about your performance, the amount of real damage you sustained during play and some dubious but friendly advice.
Rambler is a critical take on near-obsessive microblogging habits and elicits reflection on the personal nature, amount and usefulness of information shared everyday through blogging and social platforms such as Twitter. This project presents a pair of trendy sneakers that take microblogging one step further, by literally posting the wearer’s every steps on a Twitter account. Messages are comprised of repetitions of the word “tap” and the period punctuation mark, symbolizing the wearer’s steps and time in between these, respectively.

The Acidable is an interactive turntable and orange squeezer at the same time. Based on the familiar movement of manually squeezing a citrus fruit, the interaction with the Acidable is brought to a new level of playful experience. Depending on the PH value of the freshly pressed citrus juice the machine creates a rhythm, as a result of turning the oranges the sound will be modified.
The project was inspired by so-called Shoe Tossing or Shoefiti, the practice of hanging shoes which have been tied together on overhead cables such as power or telephone lines. *Sound Tossing* operates in a similar way to the visual codes used in Shoe Tossing: speakers are connected via cables to audio components which function in this form of urban communication as “throwing tools”.

Memories are an important part of what makes our personality unique. The work is an attempt to perpetuate the memories of my grandmother in her own stones in order to document her stories for posterity. The work consists of a round coffee table with stones on it and an old radio. After placing one of the stones in the middle of the table, the radio starts playing the voice of my granny as she tells a tale from her past.
Starting at sunrise, the pages of an empty book are turned by an airflow. At midday, the amount of the pages that have been turned roughly equals the ones that are still left. At sunset, the end of the book is reached. An unexpected usage of a book takes place in this installation. It is blank, but can still be read. In an intuitive way, without the torturous precision of the signs and by the invisible power of the wind. It reveals the time passed since the morning and the time left till dusk. It is reminiscent of a bygone era in which the active life was restricted to the daytime hours.

Shopping in 1 minute is an artgame that is playfully criticizing the increasing desire of society for consumption. Our inspiration for creating the artgame came from the craziness of people during the sales period: long lines in front of supermarkets, stone-age-style behavior, lots of useless products, etc. The players are encouraged to scan the maximum unique products in 60 seconds and compete to be the best shopper.
Windows operating system error messages are part of today’s most familiar computer interface and appear when there is a loss of communication between the program and the user, or when there is confusion. With modern communication technologies we are more than ever bound to the screen as a window to and through the world. Unfortunately, this technology is rather harming our connectedness to friends and family and we often fail to communicate with each other. By using the almost forgotten and old-fashioned craft of embroidery, the error messages appear in cross stitch and are given a new context.

“If you can answer me who I am, then at least I will have an identity. I will know what or who to be.”

Huis Clos, a wooden house without doors and windows, that gives an answering knock when knocking on it. An answer is received with a slight delay and causes a moment of unpredictability and excitement at the same time. The installation is dealing with the creation of a dialog with the artificial intelligence inside of the house.
Mohr SMS is an interactive installation, in which the screen of a mobile phone is used as a canvas in order to produce generative art, allowing people to add graphical elements in real-time by sending text messages. The resulting images are based on the computer art pioneer Manfred Mohr’s early works (generative algorithm images), especially the program P18 (1969/1973).

A wearable massage interface that turns a video game player’s excess energy into a back massage for an innocent bystander. Playing Massage Me requires two people, one who wears the jacket to receive the massage and one who massages the person wearing the jacket. Soft flexible buttons are embedded in the back of the jacket so that wearing it turns your back into a gamepad. All you need to do is to sit or lay down in front of a video game player and you will be able to enjoy a back massage while the game lasts.
The Mexican Standoff removes the link between the person's thoughts and actions; people are directly thinking about what they are doing – creating a hyperreality.

Two people use their minds via EEG headsets to fire their guns in a Mexican Standoff realised in an ultra-violent first person shooter (FPS). Developed at MediaLab Prado.

Dear Ladies, Thank You is a feminist digital performance that deals with the issue of invisibility of women artists in the art world. During the performance Ana Čigon wrote on the floor the names of 126 women artists she has previously learned by heart. The performance involved a head-mounted wireless camera that constantly filmed the performer’s face, projection, a glove or marker with an incorporated accelerometer and an xBee transmitter and dynamic lightning of the space which reacted to the speed and quantity of writing. The technology was used to problematize the issue of forgetfulness of art history and art theory.
Thoughts and feeling like happiness, grief, security and loneliness influence and change our breathing. In these hectic times in which people are under incessant pressure to perform, checked by constraints and harried by fears, most of us don’t even notice what a state of distress our breathing is in. The purpose of this installation is to make visitors conscious of unconscious breathing and especially of breathing with the diaphragm. AtemRaum is designed to let people experience breath and foster an approach to it characterized by self-awareness. We want to achieve this through the use of sound, color and the haptic experience of the movements of the exhibit’s walls.

A common idiosyncratic habit in all birds is their inevitable punk nature to shit over our most precious belongings. The author/captor’s research on induced behaviors over a group of zebra finches, in a hybrid, artistic and scientific framework, provides the keys for the transformation of this countercultural attitude into a marketable artsy product. The result of it is the Poo Printer, an analog generative typography printer using the bird-poo as the particle substance in order to slowly generate the Latin alphabet characters over a large paper roll.
TypeIs is as an application that lets artists sketch with words, using a pen-based interface, typesetting becomes as easy as drawing. This project exemplifies the possibilities for non-linear typesetting through original software as well as exhibited artworks that challenge fundamental concepts in the field of typography.

A windscreen wiper is installed onto a wall and starts moving, leaving marks, when rain is falling outside. Sight Clearing plays with ideas of inside and outside. It reverses mechanisms and challenges our perception of how things are. Sight Clearing is a humorous and minimalist parable towards the everyday.
GearBox is a new kind of musical loop sequencer adapting the metaphor of interconnected mechanical gears. It enables the composition of complex beat and sound sequences with only a few interactions on a touch screen. The combination of a playful conception and a minimalistic interface encourages both novices and electronic music experts to play and perform. The use of a multi-touch screen offers the opportunity for multiple persons to play, jam and compose at the same time and together.

Cerebra Electronica affords each participant an immersive experience by taking a sneak peek inside their brain through a building that is itself infused with the city’s environmental, cultural and social perspectives. This time, tiny electrical impulses generated by neurons will be amplified to interface the human brain to 5100 square meter interactive facade of the AEC.

Cerebra Electronica
Onur Sönmez

GearBox
Ulrich Brandstätter, Oliver Buchtala
The 4th Skin is a comment on the subjects of ephemerality, transience and impermanence, presented as audio-visual interactive performance. It explores the identity and memory of one’s body and its presence in a given context. The interactions between performers and space, result in the form of multimedia “skin” or garment. They create video content, real-time, according to their movements and explorations using small wireless filming devices. The captured video footage is projected back on the performer’s body using custom developed platform for dynamic video mapping on moving bodies.

Street-Scape is a contextual visualisation of an urban environment. The walking direction of people in the street is plotted in one direction on a 5 minute timeline to make their relative distances between each other more apparent. The visualisations are rendered in a way that produces people walking 5km/h (average walking speed) with original proportions, everyone moving faster becomes thinner and everyone slower is mapped respectively wider. Street-Scape renders the captured people anonymous while revealing their demographic qualities such as their approximate age and gender.
Interface Cultures at Ars Electronica Festival

2005

2006
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