

SOCIAL FABRICS: LEONARDO Educational Forum Exhibition College Art Association 2008, Dallas

Curators' notes

Social Fabrics: Wearable + Media + Interconnectivity is a time-based exhibition designed as a modified runway show of art works utilizing wearable media and technology. It is sponsored by the Leonardo Education Forum and hosted by the 2008 Annual Meeting of the College Art Association in Dallas, Texas, February 22, 2008.

Works in this exhibition are wearable. But more than this they enable their wearers to communicate with other individuals, forming social groups; or, they communicate with others by visualizing an indexing process (they index wearer's bodily functions or environmental factors and make these visible to others); or they communicate through age-old practices of critique, or formal inventiveness. Social identity is always solidified through garments and fashion. Social Fabrics focuses on the social and interconnective dimensions of new media-based, wearable art and design.

Artists in this exhibition enlarge the conceptual and aesthetic potential of wearable media in specific ways. The exhibition is intended to demonstrate convergences between individual expression and statement making, on the one hand, and the phenomenology of "network society" on the other. Technological garments or accessories with social capabilities are presented alongside works that, while not employing technology outright, comment or critique the implications of our digital media-infused and fashion-driven lifestyles. Participating works are objects (garments, handbags) or systems (hardware, software) or both. Some are mini performances or events and interact in various ways with the event context. Social Fabrics is honored to present pieces by established figures and emerging artists working in this arena.

We want to thank the College of Art + Design and the Laboratory for Creative Arts and Technologies at Louisiana State University, and members of the Leonardo Education Forum for their support. Special thanks to Edward Shanken.

Susan Ryan + Patrick Lichty

Teresa Almeida

Lags



2007, batik textiles, intercontinental flight free accessories, miscellaneous electronics, LEDs, conductive thread, Velcro, batteries, micro fan, touch switch.

Lags are a series of patches for coping with social jet lag. According to European researchers, social jet lag puts us at risk of chronic fatigue and manifests itself when our body's circadian rhythm is out of sync with the demands of our environment. Our behavioral patterns may alter, and despite all the modern technologies available we still fall out of logic. *Lags* are the result of living in a mirror-world and are out of tune with the environment. They are the outcome of my current stay in Southeast Asia. Having moved there for work, I have felt again the urgent need to adapt. This constant need to cope with new surroundings is indeed a source of stress and exhaustion. The space/time dislocation and the mismatch of our bodies no longer fitting their surroundings are the motifs for *Lags*, which are part of my ongoing research on wearable coping mechanisms for urban spaces. *Lags* are designed for an office site: *EyeLag* consists of a pair of goggles equipped with a warm yellow light on the inside, reassuring sunlight; *HeadLag* is a bracelet and soft pillow, for when one needs to nap.

Teresa Almeida

Modes for Urban Moods: Space Dress



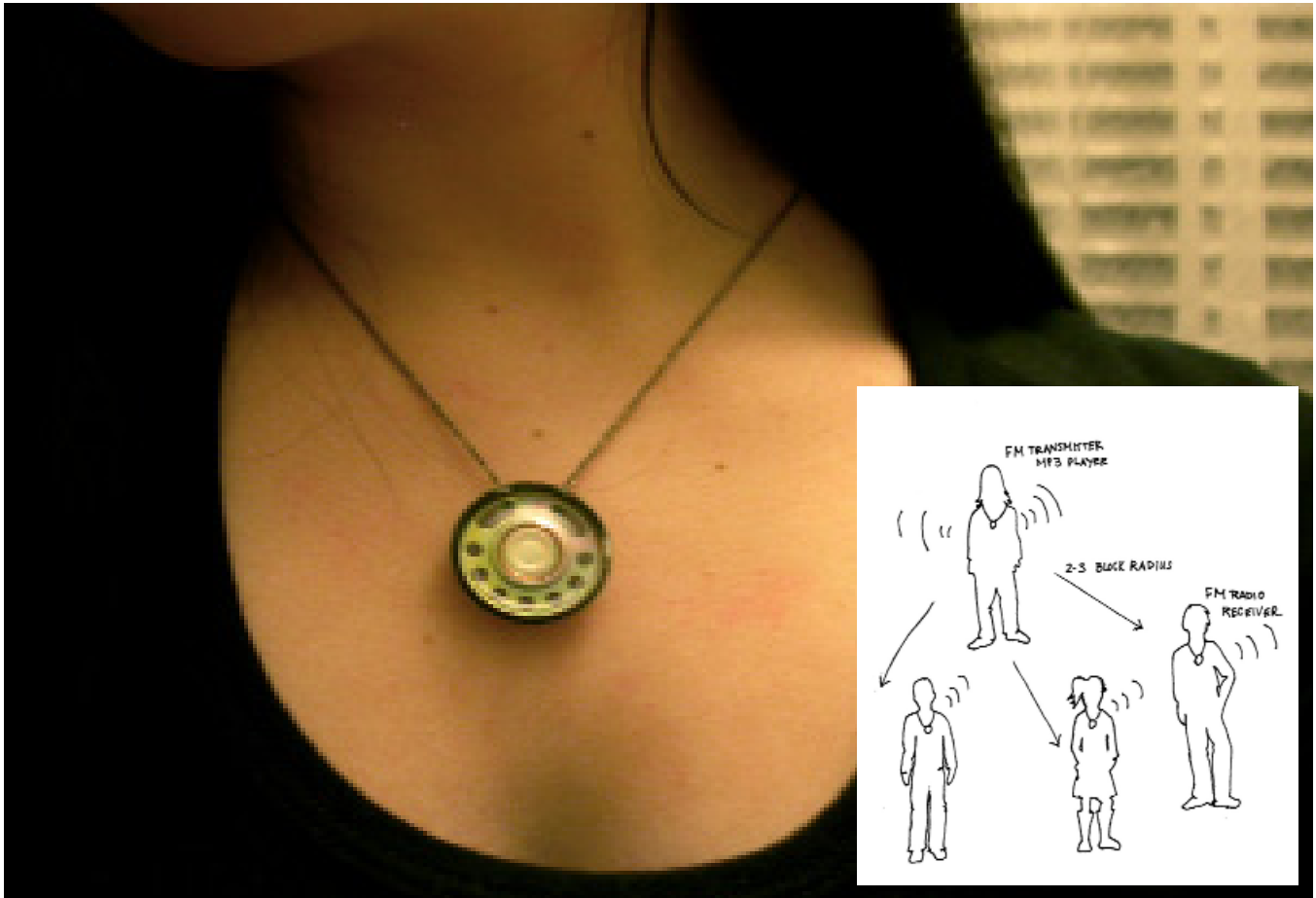
2005, ripstop nylon, micro fans, switch, circuit board.

Modes for Urban Moods are a suite of wearable coping mechanisms which explore relationships in public spaces and materialize invisible social networks. They are tactile, spatial, sculptural expressions fashioned to the body. *Space Dress* inflates according to its user's will and specific situation. It is designed to cope with stress, anxiety, and claustrophobic situations--or simply provides comfort. It was originally designed for rush hour in the NYC subway system. Other works in the Modes series (not displayed) are: *Wings*, a mechanism to help managing stress by controlling breath and forcing rhythm; *Loud Bubble*, ear muffs mechanism to help restricting (visualizing) noise pollution, connected to a microphone that picks up sound and transforms it into soap bubbles (it can also be used as a prop at urban events and parties); and *Emergency Ring*, jewelry with an inflatable mechanism ready to pop up in case the wearer decides it is necessary due to emergency or loneliness.

Theresa Almeida is a Portuguese artist and currently Lecturer in Design Research at Limkokwing University of Creative Technology, Faculty of Design Innovation, in Cyberjaya, Malaysia.

Rachelle Beaudoin, Jeanne Jo, and Islay Taylor

BFFM



2007, necklaces with FM radio transmitter, FM receivers, speakers, conductive thread

BFFM allows wearers to send and receive audio files from their peers without any legal repercussions. A necklace acts as an FM radio transmitter, transmitting sound for the radius of a few city blocks. Four other necklaces are radio receivers, complete with built-in speakers. A message from the transmitting necklace is broadcast to the receiving friends and those around them, creating a system of temporal file-sharing. Like the boom boxes of the 1980s, the necklace is an attention-getting device and can play audio in public places. Similar to a friendship bracelet, the necklace is a wearable visual indication of intimacy. However, it is also provides an audio connection from friend to friend.

Rachelle Beaudoin, Jeanne Jo, and Islay Taylor

Ear Buddies



2007, modified headphones

Ear Buddies reverses the private space implied by the presence of personal audio headphones. Wearing headphones in transit or on a daily commute can be a signal to others that the wearer wants to be left alone. Headphones limit our ability to interact with others and can render questions, conversations, and even cries for help inaudible. The ubiquity of headphones in our digitally mediated society reduces our sense of interpersonal connection. Ear Buddies allow wearers to share audio with others through a modified group headphone set. The headphones create closeness and physically link the listeners to each other. Traveling en masse, the group must navigate together and act as a single unit rather than a collection of individuals.

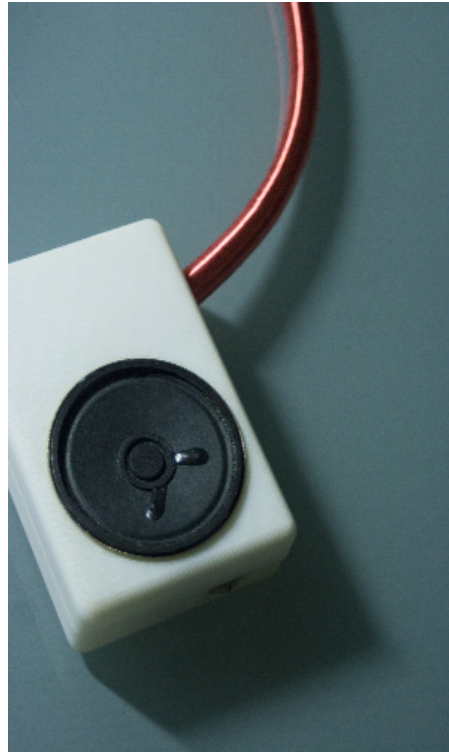
Rachelle Beaudoin is a new media artist working in performance, wearables, and installation. She is currently living in New Hampshire and teaches at Keene State College and Chester College of New England.

Jeanne Jo is from Massachusetts and Nevada and studies Digital+Media at the Rhode Island School of Design.

Islay Taylor holds a MFA in Jewelry and Metalsmithing from the Rhode Island School of Design

Protect/Detect: Cloak + Microphone V. 1

Margarita Benitez



2007, cloak made of EMF shielding fabrics, wearable inductive microphone and speaker

With the simple act of walking in public we are constantly bombarded with EMF waves (Electromagnetic Fields) as they radiate from the growing number of portable electronic devices. Protect/Detect is a series of wearables that address the theme of technological infiltration in public space.

Protect/Detect: Cloak + Microphone V.1 comments on the technologization of the public arena and tries to alert individuals to the invisible presence of technology. The cloak is made of conductive fabric. Both the shiny copper exterior and the gridlined cotton interior are EMF shielding fabrics. This gives the wearer double the protection from EMF waves that they may encounter in their environment.

The inductive microphone necklace is designed from rapid-prototyped material and houses an amplifier, battery, and speaker. It audifies the EMF waves through its built-in speaker for those in the wearer's proximity to hear. This hidden soundscape of the public environment comes alive with drones, tones, and beeps in a real-time audification of otherwise silent signals, while the viewer remains protected in the safety of the shielding cloak.

Margarita Benitez is a Miami- and Chicago-based artist.

Skorpions

Joanna Berzowska and Di Mainstone XS Labs, Montreal
With Marguerite Bromley, Marcelo Coelho, David Gauthier, Francis Raymond, and Valerie Boxer.

Supported by the Canada Council for the Arts



Enleon, 2007, felt, leather, lamé, chain mail, SMA, custom electronics

Skwrath, 2007, leather, silk, SMA, custom electronics

Skorpions are a set of kinetic electronic garments that move and change on the body in slow, organic motions. They breathe and pulse, controlled by their own internal programming. They are not “interactive” artifacts insofar as their programming does not respond to sensor data. Rather, they are living behavioral kinetic sculptures that exploit characteristics such as control, anticipation, and unpredictability. They have their own personalities--their own fears and desires. *Skorpions* integrate electronic fabrics, the shape-memory alloy Nitinol, mechanical actuators such as magnets, soft electronic circuits, and traditional textile construction techniques such as sculptural folds and drapes of fabric across the body. The cut of the pattern, the seams, and other construction details become important components of engineering design.

Skorpions shift and modulate personal and social space by imposing physical constraints on the body. They alter behavior by hiding or revealing hidden layers, inviting others inside the protective shells of fabric, erecting breathable walls, or tearing themselves open to divulge hidden secrets. *Skorpions* reference the history of garments as instruments of pain and desire. They emphasize our lack of control over our garments and our digital technologies. Our clothes shift and change in ways that we do not anticipate. Our electronics malfunction and become obsolete. There are five *Skorpions* at present: *Enleon*, *Luttergill*, *Slofa*, *Skwrath* and *Glutus*.



Two *Skorpions* are represented in Social Fabrics:

Enleon is constructed out of heavy hand-made felt, creamy leather, and reflective lamé lining. It is shaped like a large bilateral symmetric pod that encloses the body from front and back. The materials are perforated with small decorative holes that allow some airflow around the body. Each side features six scattered scales that rise and lower in order to reveal a mirrored lining. The movement is activated by beaded shape memory alloy (SMA) coils, controlled through custom electronics. A sculpted felt mask obscures the face with reflective chain mail.

Enleon mirrors your every fear and desire. Its soft pod shell encases the host like a clam. Its seductive flaps move up and down to reveal reflective scales that mirror your own insecurities. *Enleon* is everything to everyone, but its multifaceted personality also makes it inscrutable and enigmatic. Some say that its reflective exterior disguises a malignant envy, rotting inside. *Skwrath* is a quilted leather bodice constructed out of stony leather lined with blood red silk. It integrates a sculptural wing-like collar around the head that can be used to conceal the face of the host and can be torn open to reveal the scarlet lining. The abdomen is made up of three interlocking leather segments or plates, embroidered with threads of SMA, which are activated through a custom electronic board to contract and curl back to reveal deep slashes of red silk.

Skwrath is a lone warrior acting on instinct. Its leather carapace snarls and retreats over its bloody red interior. Its face shield hides and disguises the host's intentions and emotions. Only one eye is revealed. Its skirt contracts to warn people to keep their distance, to stand back. When they get too close, its plates crawl back and retract. Blood gushes forth. The interlocking plates of the *Skwrath* armor twist around the body like a spiraling abdomen.

Joanna Berzowska is Associate Professor of Design and Computation Arts at Concordia University and the founder and research director of XS Labs.

Di Mainstone is a British fashion designer specializing in interactive couture.

XS Labs is a design research studio focusing electronic textiles and wearable computing, located in Montréal, Canada.

Digital Mallarmé: Virtual Techno-Poetry in Motion

Kathy Bruce, James Cook, and Alastair Noble



2008 , screen mesh, fabric, bamboo frame,
Japanese rice paper, LCD displays, video monitors, CD player, power packs

It is our intention to move the exploration of poetic text into a virtual social experiment by developing moving digital interpretations of poetry in the form of contemporary techno-fashion statements. This garment, Digital Mallarmé, displays text with interpretive digital video images extracted from the poem, *Un coup de dés jamais n'abolira le hasard* (A throw of the dice will never abolish chance; 1897), written by Stéphane Mallarmé, an influential French symbolist poet (1842 -1898). His work was revolutionary and subsequently influenced artists, poets, and musicians throughout this past century. His innovative approach is particularly evident in this poem in which the text changes in size and font styles as it crosses the open pages of the book. The content addresses the mysteries of time, space, and destiny. In Mallarmé's planned edition there are twenty pages, eleven openings, and eight different type sizes or styles mixed throughout with some italicization and some text left blank.

Our presentation of this text using digital media emphasizes the distinctive structure of the text and its unique typographical layout. The presence of the digitalized text coupled with the spare page-like field of the garment emphasizes Mallarmé's own obsession with the blankness of the page. In this piece the monitor screens are initially hidden from view until the wire mesh waistcoat is opened like the pages of a book to reveal digital images. The garment is transformed into a power book or a communicating vessel of poetic verse and imagery. Our objective is to create live wearable poetry in motion using a virtual representation of sound bytes and "moving pages" that interactively expresses some of the essential qualities of Mallarmé's poem.



Kathy Bruce is an artist who concentrates on individual and collaborative interpretation of poetic texts as collages and sculptural costumes.

James Cook is Chair of the 3D Division in the University of Arizona Tucson School of Art. He has exhibited his work internationally.

Alastair Noble is Assistant Professor of Art at Lafayette College in Easton, Pennsylvania, and has exhibited internationally as a sculptor and installation artist. His work represents poetic and literary texts within illuminated environments.

Geraldine Juárez

Postal Gown by Freewear



2007, USPS envelopes, freecycled notions, machine sewn seaming.

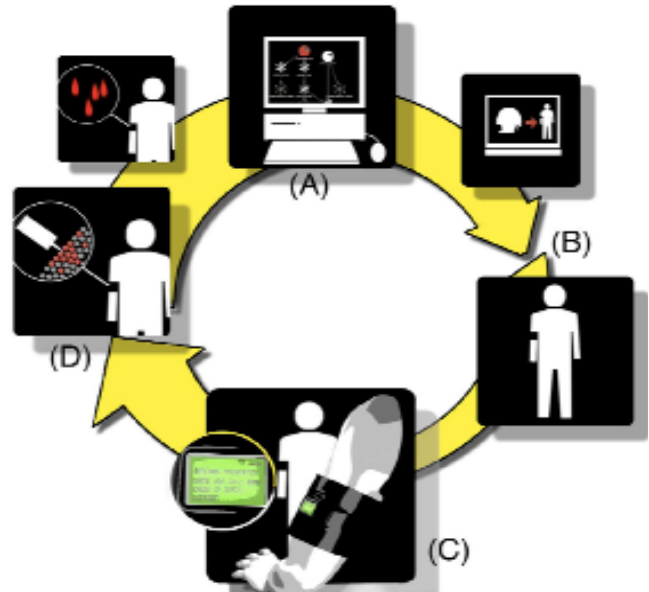
Freewear is an ongoing project that explores the possibilities of creating garments out of free materials provided by the city. The *Postal Gown* is the first product of *Freewear* which was made using Postal Tyvek envelopes that can be found in any post office or ordered from the United States Postal Service website. All the notions needed to sew the dress in its totality were freecycled--part of a network of gift-economy named Freecycle. The *Postal Gown* is a revival of the Paper Dress of the 60s, which was extremely popular because it only cost one dollar and was disposable. The *Postal Gown* does not have to be thrown away after use and is completely free, encouraging users to refuse to pay for materials and to reuse stuff that otherwise will turn into waste.

Along with the exchange of goods, *Freecycle* also entails an exchange of stories: you are open to encounters with strangers and with the city itself that may have been otherwise foreclosed by dominant modes of exchange and consumption. Hacking the Post Office to get the main resource enables users to detour the purpose of the infrastructure to their own benefit.

Geraldine Juárez is a designer from Mexico City based in Brooklyn, where she is Senior Fellow at Eyebeam and forays around the city for low-tech crafts and artifacts that enable moneyless interaction and deal with consumption issues.

Matthew Kenyon

Improvised Empathic Device



I.E.D Armband process diagram:

(A) Information on new U.S. casualties is data mined. (B) Data of recent casualties is sent wirelessly to the I.E.D armband. (C) Data is displayed on the LCD monitor. (D) A solenoid armed with a needle stabs the wearer—once for each new casualty.

2005-present, custom software and hardware.

The premise of the *I.E.D.* (Improvised Empathic Device) project is to give real and physical presence to the death and violence occurring in the Middle East, by creating direct physical pain from the event of each soldier's death, rather than allowing their death to be relegated to small or no print. *I.E.D.* is a wearable computing device that is connected wirelessly to a server running custom data-mining software. Within a black armband, various hardware is installed to control its operation. This hardware consists of a custom circuit board modeled after a map of Iraq that is powered by a nickel cadmium battery, a modified alphanumeric text pager, and a solenoid linear actuator.

In *I.E.D.* a custom software application continuously monitors the web for accumulation and personal details of slain U.S. soldiers in real time. When new deaths are detected the data is extracted and sent wirelessly to custom hardware installed on the *I.E.D.* armband. The LCD readout displays each soldier's name, rank, cause of death, and location and then triggers an electric solenoid to drive a needle into the wearer's arm, drawing blood and immediate attention to the reality that someone has just died in the Iraq war that is raging far away.

Matthew Kenyon is an Assistant Professor of New Media at Pennsylvania State University, where he teaches physical computing, game art, and 3D animation. He is interested in the convergence of art and emerging technologies.

Speckled Jewelry

Sarah Kettley and Frank Greig
Speckled Computing Consortium, Scotland



2005-06, Perspex, Formica, silver, polymer clays and custom electronics
(ProSpeckz II prototypical wireless transceiver nodes, LEDs)

Speckled Jewelry comprises five wirelessly networked neckpieces for a friendship group. Built at the workbench and deliberately merging traditional craft techniques with emerging technology, these pieces represent a new form of creative practice and offer new forms of experience to the wearer.

Each piece incorporates a prototype wireless sensor node or "Speck," which acts to locate and identify other specks within a range of approximately 20m radius. This information is then visualized through five dedicated LEDs, which flash at different rates to reflect three social distances. These are distances at which ways of greeting have been observed to change: intimate (under 30cm), social (30cm to 1m), and distant (over 1m and up to the range of the wireless connection, i.e., approx. 20m). These distances accord with Edward T. Hall's observations and identification of Proxemics (*The Hidden Dimension*, 1966). When wearers of *Speckled Jewelry* observe the flashing, they can choose to act on this augmented social proximity information or not. The jewelry is the first successful application for *Speckled Computing*, an emergent technology being developed by a research consortium of five universities in Scotland, and related to the Smart Dust project (<http://www.specknet.org>). The vision of this research program is the development of a 1mm cubed programmable sensor node, deployed in large numbers and capable of self-organization. This project was a part of Kettley's doctoral research, and she continues to work with the consortium on wearable concepts (<http://www.dcs.napier.ac.uk/~cs179/ensemble/ensemble>).

Sarah Kettley is an independent artist researcher. Frank Greig is a lecturer in embedded systems at Napier University, Edinburgh. Both are members of the Speckled Consortium, Edinburgh.

Stir It On!

Younghui Kim



Stir-It-On Illustration by Younghui Kim, 2007

2007-08, QProx 113 Touch Sensor, conductive thread and fabric, LEDs, Arduino board

My focus is to integrate technology seamlessly into everyday life design such as fashion. Through fashion and technology I intend to express my everyday observations and my projects are my personal remarks on today's society.

Stir It On! is an interactive skirt that reacts to any close encounter on its surface, such as bumping or touching. The *Stir It On!* skirt has design patterns on the surface emit subtle lights when they are stirred by objects or persons passing by. The piece was inspired by bioluminescent bay organisms called Dinoflagellates that react with luminescent glow when they are agitated. In everyday lives, especially in crowded urban cities, many people pass you near or even touch or bump into you. This is especially true in Seoul, Korea. Depending on the wearer's perspective, this interactive reaction of the *Stir It On!* skirt can express either an alarm that says "stay away" or a playful request to come closer. Multiple Stir It On! skirts will behave more like Dinoflagellates when they activate each other.

Younghui Kim is a New York City-based designer. For the last 14 years, she has worked in various media, including environmental graphics, print, motion graphics and interactive media, and has been recognized with several interactive design awards and presenting at conferences such as Siggraph, HCI Design and Ubicomp.

Negotiations

Daniela Kostova & Olivia Robinson (w/ Galina Kumanova & Kelly Bogan)



2006-07, custom software, wireless monitor and transmitters, wireless surveillance camera, video camera, webcam, laptop computer, chroma key fabric, fabric, and foam.

Negotiations is a project that explores cross-cultural communication and interpretation. Over a period of two years Daniela Kostova and Olivia Robinson developed an interactive system that utilizes blue screen video techniques as a tool for manipulating human bodies moving through unknown environments. The system has been performed in three distinct public environments: Sardinia, Italy; New York City, USA; and Sofia, Bulgaria. As both a conspicuous costume and virtual assimilation act, each performance has fostered the development of a site-specific story. Recurring themes that emerged from the performances include: estrangement and integration; cultural economics of "authority"; placidity of legality, territory and ownership; and mediation of experience. The handheld monitor which displays the "negotiated" video in real-time becomes the focal point, allowing relationships to form during performances and highlighting the double-consciousness^[1] of cross-cultural communication.

The *Negotiations* system uses readily available computer and surveillance technology to create the real-time video. Two characters embody the system, an Alien (in blue) and an Authority (in black). Each has a video camera which is linked to a computer embedded in the Authority's costume. Custom software composites the two video streams to create a negotiated final video. The resulting imagery is solely from the Authority's point of view wherein the Alien has been replaced with her or his own point of view. The Alien carries a small monitor where s/he and passers-by can view the final video as it is being created. The Authority rarely takes her camera off of the Alien, the surveilled subject.

Daniela Kostova is a Bulgarian artist, curator, and former director of the Irida Art Gallery in Sofia. She currently lives in the U.S. and teaches at Rensselaer Polytechnic Institute and curates the BioArt program there.

Olivia Robinson lives in upstate New York and teaches at Syracuse University where she is the coordinator of the Fiber/Material Studies program.

¹ Double-consciousness, in its contemporary sense, is a term coined by W. E. B. Du Bois. The term is used to describe an individual whose identity is divided into several facets. "It is a peculiar sensation, this double-consciousness, this sense of always looking at one's self through the eyes of others, of measuring one's soul by the tape of a world that looks on in amused contempt and pity..."

Monitor I Audio-Activated Bra

Heidi Kumao



Audio-Activated Bra, 2001, bra, custom electronics, 180 LEDs, 2 9-volt batteries

I work at the intersection of sculpture, theater, and engineering to create "performative technologies." These are devices developed specifically to re-enact an event, perform a task for the viewer, or mediate social interactions and my roles as woman, teacher, wife, and daughter. Each work generates artistic spectacle using forgotten technologies from previous centuries and powerful tools from the digital age. These have included electronic wearables, kinetic sculptures and "cinema machines."

I view performance as an integral part of everyday life: as a means to define our identity and sexuality, as an examination of roles we play as employees or family members, and as a tool for selfexpression. Without a proper stage, we perform every day, unconsciously or consciously. As an artist, I present carefully sculpted moments from these "everyday performances." My work relies on time-based media: art forms that unfold over time, ideas that become clearer with repetition and looping, installations that reveal the synergy between image, object and movement. By synthesizing an experience, I am acting as a theater director--animating objects, restaging memories, and ultimately exposing the theatricality underlying so many aspects of our lives. "Wired Wear: Mediating Everyday Performances" is the title of a two-part project consisting of women's clothing embedded with custom circuitry and humorous, instructive videos in which I demonstrate their use. Each garment is fitted to my body's measurements and is designed to fill a specific personal or psychological need. By wearing them in ordinary social situations and public

Monitor II: Audio-Activated Dress

Heidi Kumao



Audio-Activated Dress, 2005, 500 LEDs, microphones, custom electronics, purse, batteries

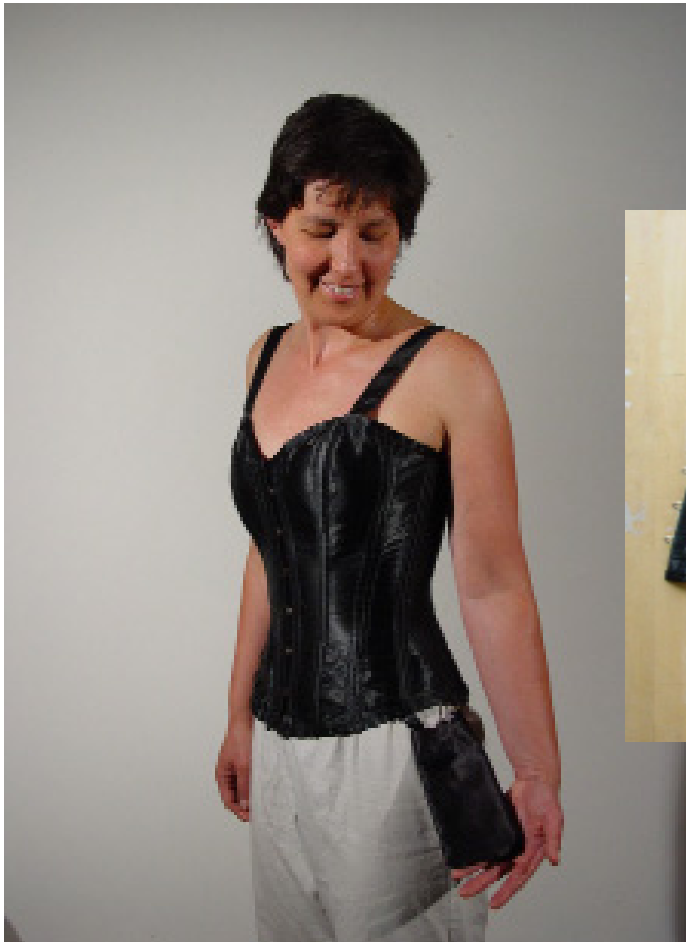
places, I use technology to mediate my everyday “performances” as a woman, teacher, and citizen, expanding performance beyond the athletic, economic, or theater contexts.

The *Audio-Activated Bra* uses a circuit designed after a stereo monitor. Ambient sounds trigger concentric rows of LEDs incrementally, and the sensitivity dial ensures that the extra bright central lights are only triggered by the loudest sounds.

The *Audio-Activated Dress* is embedded with 500 LEDs (light emitting diodes) and custom electronics that make it sensitive to sound. The LEDs are arranged in columns which light up from the bottom; softer sounds light up the lower parts of the dress while louder sounds cause entire columns to be illuminated. The handbag contains the custom-made rechargeable battery pack and the bulk of the circuitry. The circuits sewn into the dress are connected to the electronics in the handbag with a quick connector. The knobs on the purse adjust the sensitivity of the microphones sewn into the chest so that the loudest sounds will cause the columns to reach their peaks. Pounding music causes my dress to pulse with light as I actively monitor the sound intensity of the surrounding environment.

Posture Generator

Heidi Kumao



Posture Generator, 2005, custom corset, speakers, custom electronics, 9-volt battery.

The Posture Generator consists of a custom-made corset fitted with bendable resistors in place of the corset stays for measuring posture degeneration. The controlling circuit is stored in the handy side pocket (left). When my posture degrades, speakers embedded in the bra release an irritating squeal, reminding me to stand straight.

Heidi Kumao is an Assistant Professor at the University of Michigan School of Art and Design at Ann Arbor, Michigan.

Taiknam Hat

Ebru Kurbak, Ricardo Nascimento, Fabiana Shizue



2007, feathers, fabric, detecting/motion-driving system, radio frequency detector, microcontroller, motor.

Taiknam Hat is a kinetic headwear that reacts to the changes in surrounding radio frequencies. The project is to materialize the invisible and contributes to the awareness of increasing ambient electromagnetic radiation. All electromagnetic waves that radiate from physical devices creates an invisible landscape that interacts with physical space and its inhabitants. This landscape is creating a new form of pollution, electrosmog, which has biological effects on all living beings. *Taiknam Hat* is an attempt to materialize the electrosmog, especially that created by ubiquitous cellphones by emulating horripilation, an automatic reaction of living creatures to sources of irritation and stress. Horripilation, which can be defined as the erection of hairs or feathers in various species under certain emotional conditions, is a temporary and local change in the skin. It is referred to as part of the "fight-or-flight" response. Animals respond to threats with a reflex that results in either the animal fighting (anger emotion) or fleeing (fear emotion), and horripilation can be clearly observed in both reactions. In some animals, especially in birds, horripilation is also attached to another instinct, that of "selfdisplay/signaling." *Taiknam Hat* utilizes horripilation in birds as a metaphor to express our bodies' irritation towards electromagnetic radiation, and as a signage of their existence. The headwear employs movable feathers that activate and move according to the existence and amount of radio frequencies at a certain location while the person who wears the hat strolls through space.

Ebru Kurbak is a PhD Candidate in the Department of Space and Design Strategies, Kunstuniversität Linz, Austria.

Ricardo Nascimento is a graduate student in the Interface Culture Department, Department for Media Studies, University for Art and Industrial Design, Linz.

Fabiana Shizue is an independent designer, artist, and illustrator from São Paulo, Brazil, living between Turin and Linz.

Wearable Patterns

Anke Loh w/Alan Sahakian, Jonathan Bender, Linda Buzzi



2007-08, luminex fabric, LEDs, sensors, circuits

As a wearable language, patterns play a concrete and objective role in determining the extent to which we come to life in any given place. --IT + Textiles[1] Two optical-fiber dresses made from Luminex fabric are illuminated by LEDs and display moving color patterns. As the models approach one another, patterns on their dresses interact and co-adjust to complement each another. The experiment explores revealing interactive and evolving patterns, manifested as wearable sketches reflecting personal expression, environmental change, and social constructs. Ultimately, this pursuit examines how non-verbal communication can hide or reveal aspects of one's self.

Anke Loh is Assistant Professor in the Department of Fashion of the School of the Art Institute of Chicago. She concentrates on textile innovations and has worked with experimental light-and temperature-sensitive materials

Alan Sahakian is Professor of Electrical Engineering and Computer Science and Biomedical Engineering at Northwestern University's McCormick School of Engineering and Applied Science in Evanston Illinois at Northwestern University's McCormick School of Engineering and Applied Science in Evanston Illinois.

Jonathan Bender and Linda Buzzi are Electrical Engineering seniors in Northwestern University's McCormick School of Engineering and Applied Science in Evanston Illinois.

[1]IT + Textiles, Maria Redström, Johan Redström, and Ramia Mazé, eds. (IT Press: Helsinki,2005).

Logoknit Facemask

Cat Mazza



Logoknit Face Mask, 2008, yarn and knitPro freeware

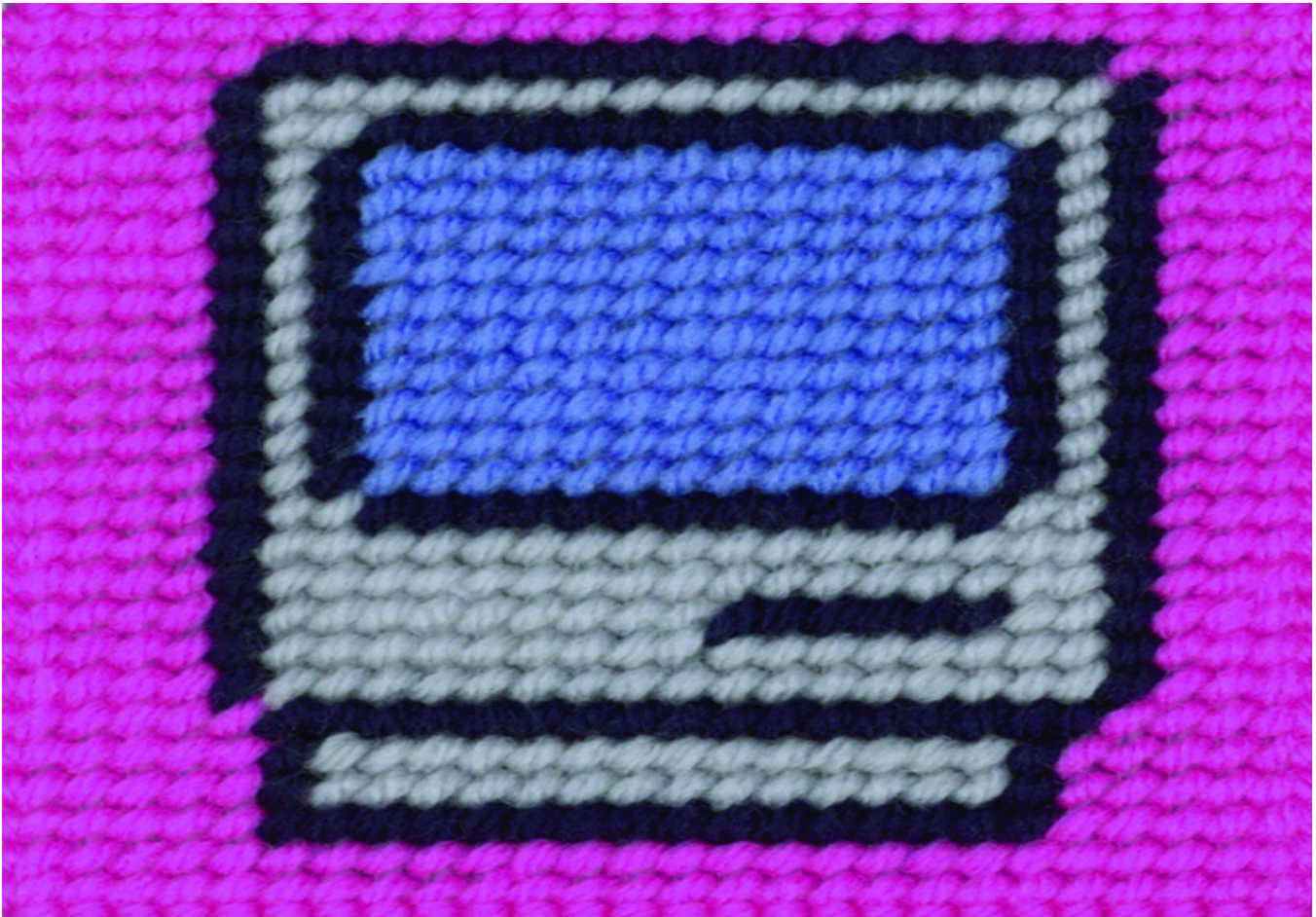
Pre-industrial textiles often include patterns that represent stories of cultural heritage using various lettering, geometries, and pictograms that illustrate landscapes, native animals, and notions of everyday life. Aesthetic styles and techniques vary between culture and region, however, as patterns were often inscribed on a two-color grid chart that could be appropriated, modified, exchanged, and passed down to succeeding generations. The free web application

knitPro was developed to mimic this tradition through digital distribution, and by easily allowing worldwide craft hobbyists to translate digital images into needlecraft grid patterns. KnitPro users upload thousands of patterns per week that feature everything from graphics of lo-tech video games to candid snapshots, pop celebrities and symbols of political uprising. KnitPro takes an uploaded digital image, lowers the resolution and charts a grid over the pattern to read and stitch from.

(continued)

Logoknit Facemask

Cat Mazza



The purpose of *knitPro* is to use digital media toward advancing the vitality of contemporary craft, but also to promote handcrafting as a compelling micro-economy produced outside of the labor exploitation of the global garment industry. Knitted examples on the *microRevolt* website are mostly logoknits--knitted garments stitched with logos of corporate sweatshop offenders. These garments are part of a larger artistic practice and web based project (www.microrevolt.org) developed to create dialog about authorship, production, and labor injustice in global apparel.

Cat Mazza is an artist whose work combines knitting, digital media, and labor activism.

Secret (Clothes Make the Man)

Ryan McCabe



2008, performer, coat

Secret (Clothes Make the Man) is a performance for solo performer utilizing an interactive "sensor coat" to trigger and manipulate audio events. The majority of the audio content is appropriated from a 1950s inspirational/self-help album entitled *Earl Nightingale Gives You . . . The Strangest Secret* in which the listener is told "how to attain the rich full measure of success and happiness that can surely be yours."

The performance takes the form of a social critique, a negotiation between Fashion and the Ego, between well-worn cultural platitudes and self-mediation. The technology in this work acts as a mediator, a bridge between the performer and the social "skin" of the garment. The technology is hidden from the viewer, discretely sewn into the lining of the coat, but is certainly not mute; instead, the various sensors map the often pedestrian movements of the performer (buttoning the coat, fixing the lapel, brushing lint from the arm) and transform these movements into an aural critique of self-image and public facade. Technology thus exposes passive social expectations (based on projected "image" and social actions) and critically engages the role of the individual in a "mediated" sphere of social interaction.

Ryan McCabe is Director of Academic Technology at the Maryland Institute College of Art.

Conversation Loom

Kristen Nyce



2007, balsa wood

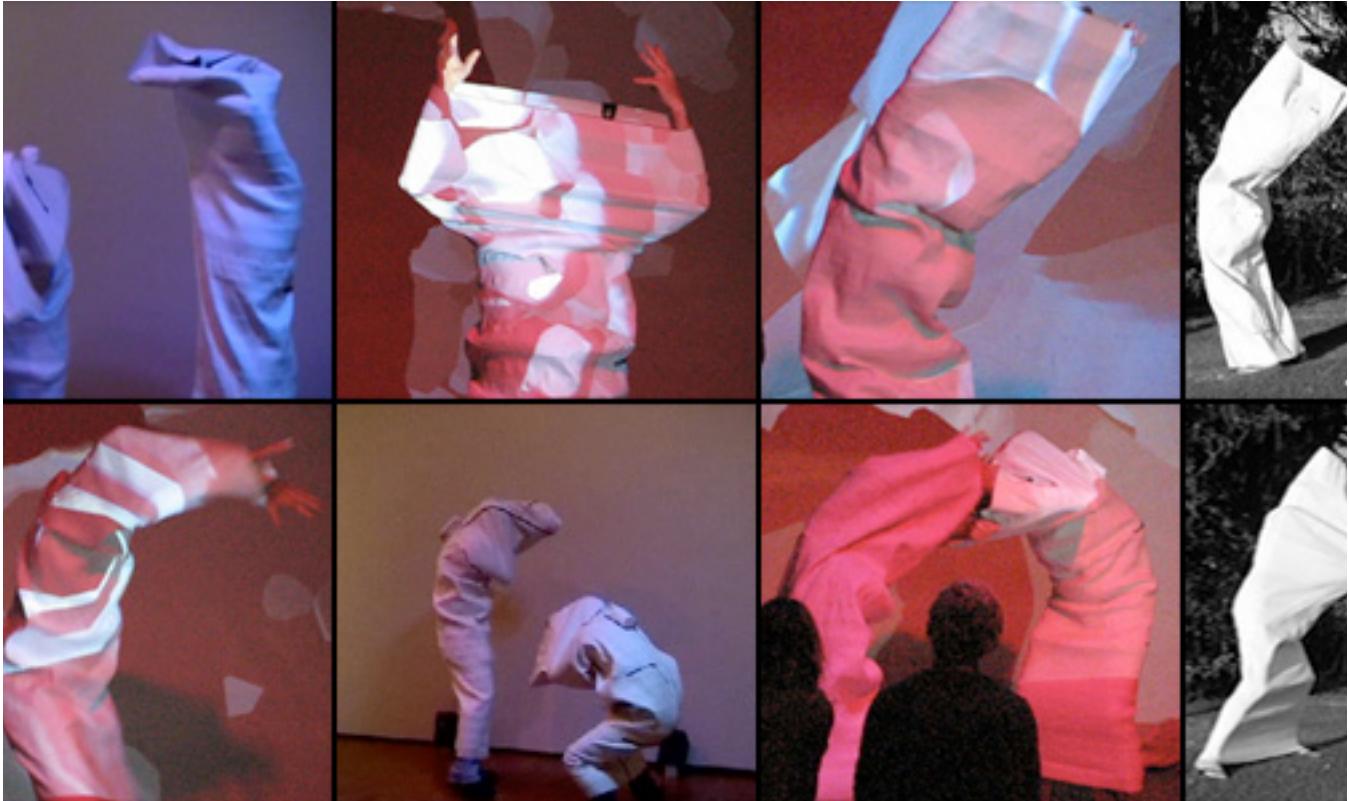
Weaving traditions throughout the world are rich with texture and symbolism. Knots and patterns in textiles come together to communicate profound statements of belief, tradition, and history. In many instances the process of creating the textile is equally symbolic and important. The creation of cloth often follows strict rituals and is seen as a spiritual journey.

After learning how to weave, I became interested in the process and creation of tactile modes of communication. As a result, I investigated ways in which the symbols and textures of a textile can manifest meaning, as well as the ways in which techniques and tools create that meaning. *Conversation Loom* and *Mouth Loom* are the first products of these investigations. *Conversation Loom* is a continuation of *Mouth Loom*, a loom created to weave small strips of fabric using the movements of the mouth. As a loom, it uses the mouth (to move warp threads) and hand gestures (to move weft threads) combined to create a tactile record of speech. Similarly, *Conversation Loom* serves as an instrument to create a tactile record of a conversation between two or more people. Resting on the shoulders of each weaver, and connected by warp threads, it will function with two heddles operated by the up and down movements of the chin while talking.

Kristen Nyce is a sculptor and performance artist with a background as a violinist, currently living in Washington D.C. area. 2007, white elastic stretch band pipes with zippers, 2 Bluetooth Create USB interfaces, 2 accelerometers, and 10 linear

Vacuole Robes

Anne-Marie Skriver Hansen



spring-loaded potentiometers

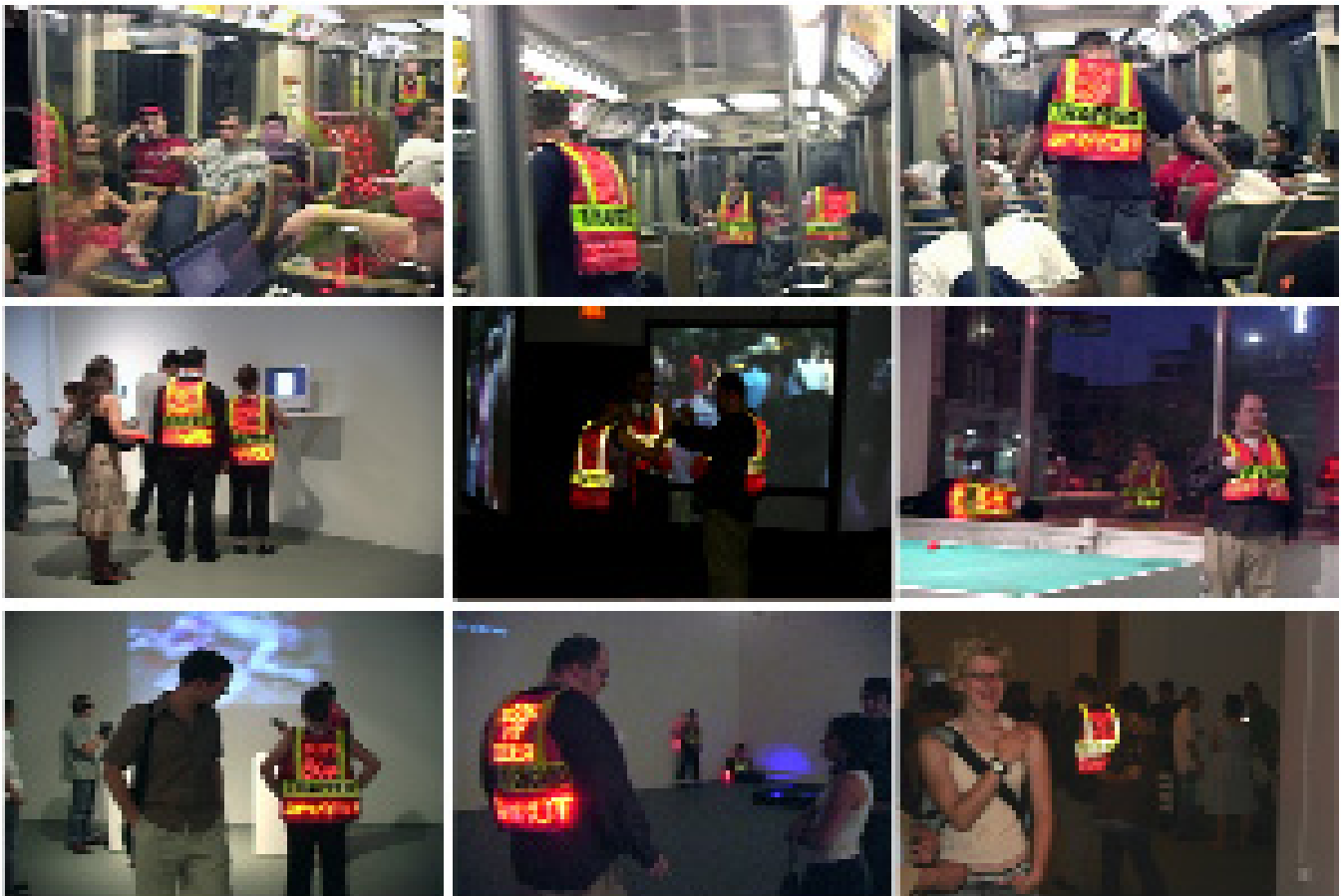
With physical interface experiments I investigate the area between people's physical and social needs and boundaries. Through the means of physical interaction I change the viewer's role, so that the viewer is an enactive interpreter of my work. The intent is to give the viewer as a participator a physio-aesthetic experience that may change his/her kinesthetic perception and physical interaction with other people. The *Vacuole Robe* interface is an attempt to provide a feeling of oneness between two people. When two people interact with each other through the sound medium of the *Vacuole Robes*, they create a soundscape that they both can contribute to on a continuous basis. This oneness is at one level further emphasized in the interface, because each participator cannot see, but only hear, the combined result of their common movements. At another level, each participator is separated from the other by being surrounded by the cocoon-like robe that exhibits their bodily shape and movements as an anonymous living sculptural shape. By separating each participator from the awareness of each other's looks while they interact with the work, I try to create an ambivalent feeling of being exhibited--and at the same time safely enclosed and hidden--in the piece itself. *Vacuole Robes* draws upon the idea of design noir, a term coined by Dunne and Raby.[1] Just as the term film noir references films that emphasize moral ambiguity and sexual desires, the term design noir covers objects that encourage hidden desires to unfold through interaction. The *Vacuole Robes* do not necessarily support sexual desires, but they challenge forms of communication that have become superfluous in a time when the spoken and written word dominates.

Anne-Marie Skriver Hansen holds a Masters in Interaction Design from Designskolen Kolding, Denmark, and Master of Fine Art, University of California, Santa Barbara.

[1] Anthony Dunne and Fiona Raby, *Design Noir: The Secret Life of Electronic Objects* (Birkhäuser: Basel, 2001).

unspoken_dallas_caa

Hoyun Son



2005-present, site-responsive public performance with 3 LED vests (municipal safety vest, LED, stenciling)

In the *unspoken_series*, which is a site-responsive public performance, I use text spelled out with LEDs on the backs of orange safety vests worn by performers as a means of communication. The performances are not staged and occur in public spaces like the subways, and social gatherings like gallery openings, where public etiquette filters out individual feelings and interaction. The inspiration for the *unspoken_series* came from Chicago's decision in late 2005 to change the crosswalk signals on Michigan Avenue from blinking red hands to counting down. In the *unspoken* series I am questioning how this change can be a quick reference to pedestrians but also a means for an authority system to control the public's brain, mind, and body. I used texts that subtly provoke the private space between individuals who are otherwise adhering to social etiquette. For example, the text "I want to fart, make me happy!" brings individuals, even strangers, together from sharing giggles to conversations. In choosing the text, I explore issues specific to the particular city, the main target audience, and generally suppressed emotions in public spaces. In order to attract the public's attention, the municipal safety vests used were similar to those worn by Chicago traffic officials and security personnel. However, to trigger suppressed emotions, "City of Chicago" was replaced with "Mind of Chicago," "Traffic" was replaced with "Trapped," and "Security" was replaced with "Secrecy." I used materials and tactics commonly used by authorities to suppress the individual mind and the unspoken voice in public situations to actually trigger the opening of them.

unspoken_dallas_caa is a unique version of the piece designed for the audience at the 2008 College Art Association Annual Meeting.

Hoyun Son was born in South Korea and lives and works in Chicago.

Barking Mad

Suzi Webster and Jordan Benwick



2006-07, coat, proximity sensors, galvanic skin response (GSR) sensor, flat panel speakers, crowds

Technology enables us to listen in on the mysterious and invisible signals that emanate from our bodies. Mostly this data is used for medical purposes, but as artists we transform this private bio information into a metaphoric wearable display of color, light, sound, or vibration. We are interested in what is lost, found, or suggested by this transformation, and how it explores the ways in which technologies impact and shape our experiences of being human. We are inspired by technology that is networked, mobile, soft, and responsive to the body, rather than rigid and boxy, tethered to the desktop, confined to the tyranny of the screen. Our wearables are hybrid works that are responsive and dynamic; that explore intersections between sculpture and performance, fashion and computing, the body and its context, and public and private, all in a critical way.

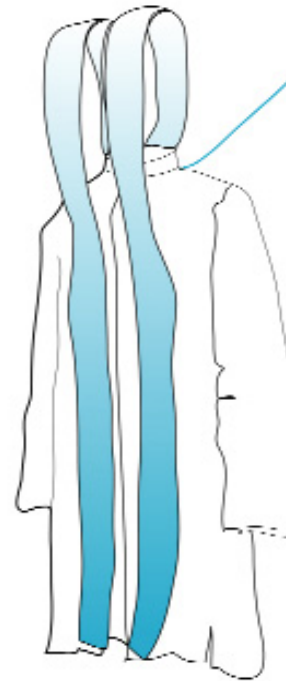
Barking Mad was designed to help shy, stressed people deal with situations of urban overcrowding. Proximity sensors respond to infringements on personal space by emitting the sound of a barking dog through flat panel micro speakers in the ultimate urban survival coat. Depending on the level of personal space required, the sound ranges in strength from a poodle's yap to the bark of a rottweiler.

Electric Skin

Suzi Webster and Jordan Benwick



electric skin



2006, Elumin8 printed LEDs, silk, sensors, breath, electricity

Electric Skin is a bio-responsive garment that turns the intimate breath of the wearer into pulses of electric aqua light. The inhalation and exhalation of the wearer activates a breath sensor that dims and brightens the printed LED of the garment. The wearer is connected to the national power grid by an umbilical cord/power cable, and while this creates a seductive light, it also creates a frisson of danger and unease.

Suzi Webster is a Canadian multimedia artist and part of the digital visual arts faculty at Emily Carr Institute of Art, Design, and Media in Vancouver.

Jordan Benwick is an artist/programmer who creates real-time generative audio/video and timebased artworks that frequently work involve music, networks and remote control.

Looking Ahead/Seeing Inside

Chris Wille



2004, machined and powder-coated aluminum and brass, wireless camera, LCD screen, camera aperture

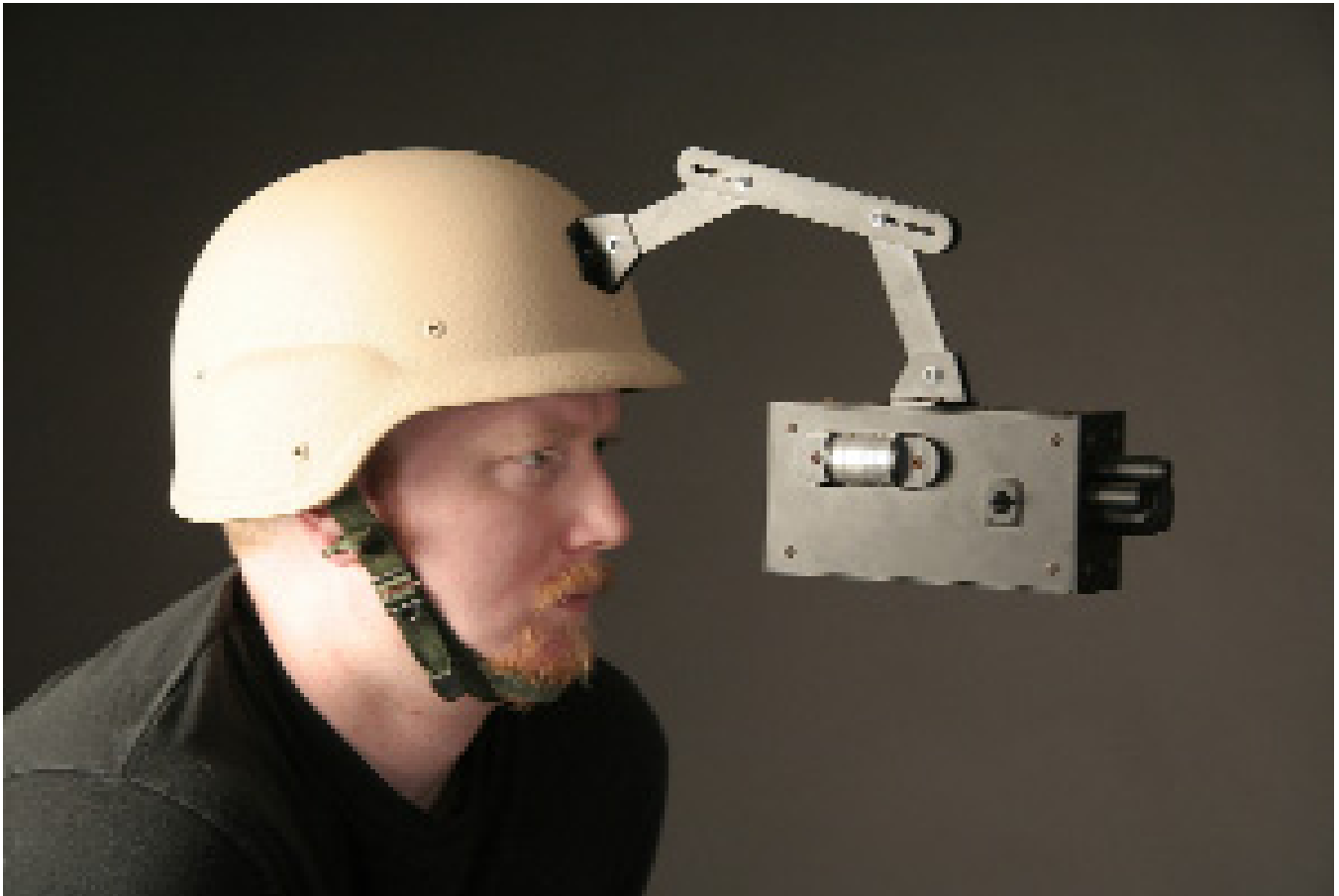
I situate my work within the history of wearability in jewelry, updated with modern technology. I am a metalsmith interested in extending the tradition of jewelry and body adornment by incorporating wearable technologies that either affect the viewer or allow the viewer to affect their environment. These wearable machines reinterpret our everyday interactions and address ideas of control and vulnerability. I build retro-futuristic adornments informed by ancient armor reinterpreted through cyborgian themes.

I use an intermedia approach. I merge existing and emerging media and materials including metals, plastics, silicones, ferrofluid, fabric, found objects, wireless cameras, closed circuit television, and programmable chips, as well as "hacked" circuits from many components gathered from the everyday. I incorporate electronic and mechanical devices to achieve a broad range of functions and motion. Additionally, there is a performative aspect to my work that, in combination with the above, allows me to explore a range of contemporary social themes. My curiosity about these themes has grown from my experience of the times I live in.

(Continued)

With God on Our Side

Chris Wille



2005, powder-coated aluminum, colored Plexiglas, electronic components, military issue Kevlar helmet

Technology is developing exponentially and becoming smaller and more ubiquitous. The military, research institutions, and corporations all push us forward into what was once the realm of science fiction. As reality now mirrors yesterday's fiction, I look to today's science fiction in order to dream up new incarnations of potential devices from the future. Though I do not know exactly what this future will look like, I imagine it being rather grim. This explains why my work is heavily weighted with by dystopian themes where issues of control and vulnerability play themselves out.

Chris Wille received his MFA in Jewelry/Metals from Illinois State University and currently teaches part time at art centers in Illinois.