

Cyber Fashion Show 2005

Producer

Isa Gordon

Participants

Laura Bardier (PAN)
Isabel Valverde (UC Irvine)
John Bell (Nyx)
Elise Co (mintymonkey)
Sara Diamond (Banff New Media Institute)
Tina Gonsalves and Tom Donaldson (CLUTCH)
Janet Hansen (Enlighted Designs)
Tomoko Ito (Wearable Computing Fashion Group)
Jacquelyn Morie (USC/ICT)
Gauri Nanda (MIT Media Lab)

Luisa Paraguai Donati (Institute of Arts, Unicamp, Brazil)
Francesca Rosella and Ryan Genz (CuteCircuit)
Thecla Schiphorst (Simon Fraser University)
Alexei Shulgin & Aristarkh Chernyshev (Electroboutique)
Atau Tanaka (Sony CSL Paris)
Jenny Tillotson (Central St. Martins College of Art & Design)
Akira Wakita (Keio University)
FOSSIL
eMagin Corporation

Overview

The fourth annual CyberFashion Show will again be hosted by Psymbiote, the technology-clad cyborg who educates, elucidates, and entertains as she parades models down the runway garbed in the latest functional tech gear and aesthetic cyber wear. The show features a variety of wearable computers, head-mounted displays, smart clothes, luminous clothing and accessories, futuristic club wear, and other technology-based bodywear. There will be exciting contributions from the Banff New Media Institute, the MIT Media Lab, WIN Wearable Fashion Group, ViewStation, <whisper research group>, the Wearable Fashion Group at Keio University, The Innovation Centre @ Central St. Martin's College of Art and Design, CuteCircuit, eMagin, Elise Co, Tina Gonsalves, Laura Bardier, and a number of other experimental artists, progressive designers, and hi-tech corporations. The wide-ranging selection of cutting edge products, innovative prototypes, and unique creative projects promise to propel us into future realms of body-technology assimilation.

Participants:

Laura Bardier (PAN)

ORNAMENTS AS SOCIAL SIGN

Through the time and the space, the ornament is omnipresent; no civilization exists where physical decoration is not employed. The ornament is a social sign, that supplies informations about the status and the entire life of who wears it. It offers indications, constitutes a visual language, emphasizes qualities ranging from physical beauty to political and economical power. With ornaments the body is transformed in a show, it becomes theatre, it goes on the scene, it represents itself.

SAGES AS A CYBERFASHION ORNAMENT

Cyberfashion is a contemporary language: Sages is a word. In the technological era, within the society of the masses and of the information overloads, Sages is a recognition element for those who belong to the cyber-communities. Sages recovers all of the ancient strength of the ornament, and fuses it with the electronics as

an omnipresent feature of contemporary life. Sages is a fluid, uncaught notion of beauty. Two elaboration processes for one material, from soft to structural, from opaque to translucent, from elegance to sincerity. A different glimpse of light.

TECHNICAL RESUME AND MOTIVATIONS

Sages is a leather necklace enriched with a point of light as a jewel. Sages has three component layers: the one that lies on the skin is made out of enzymatic leather, the middle one is an electronic circuit, the outer one is made out of translucent raw leather.

Pollutant waste liquids result from the elaboration of leather. Some experiences have been done, at the "Departamento de BioingenierNma, Instituto de IngenierNma QuNmmica de la Facultad de IngenierNma. Universidad de la Republica. Uruguay." where alternative processes have been proposed and implemented, which significantly reduce the content in slufur, proteins and fats in the suspensions, and the PH level. For the layer of Sages which is on the skin, the choice was made to use leather obtained by this process, both for the ecological considerations, and because this leather is especially soft and thin. This layer is a caress on the skin.

The electronic component of this ornament consists of a circuit with a low-voltage yellow LED and a flat 3V rechargeable battery. The extreme simplicity of the circuit makes it suitable for unobtrusive insertion in the central layer of the ornament. Sages has a metallic fastening, which is also the conductor that plays the role of a swieth. This intelligent and functional system makes the LED turn on when Sages is worn, and turn off otherwise. This fastening was chosen also for its geometry, contrasting with the smooth curves of the human body; it is shown but, yet without being the main character. The result points towards simplicity, economy of signs, purification of beauty. The light, as an essential element, enriches Sages with all the cultural and social values that it symbolizes: from the intellectually enlightened person to the one of pure feelings.

Raw leather is still in use in the region of "Cono-Sur" in Latin America. It was used and elaborated mainly in rural areas, by the "Gauchos." The difference from other types of leather is that this

is not, nor salted, and no chemical synthetical process is required to produce it. This makes it exceptionally resistant and long-lived. The raw leather is dried in a wood structure, in open air and natural light. This choice respects the natural processes of the leather.

Isabel Valverde (UC Irvine)

IN TOUCH - Interactive Performance Costuming

We propose to include in the 2005 show a novel pair of garments which are augmented with sensors and wireless transmitters that communicate with a remote computer to affect the audio and visual channels controlled by the machine. These wearables are used by performance artists to interactively affect the look and sound of the performance through their mutual contact. More specifically, by making and breaking contact via an improvisational performance, the artists wearing the outfits can change the outputs of the remote machine including music/sound effects as well as the projected video and lighting. By lighting the performers with the projected output, changing contact will dramatically alter the look of the performance AND which will create visual feedback to prompt the changing of the improvisation. Likewise the soundtrack of the performance will change as contact changes, yielding multiple levels of input which will affect the final output (i.e. the performance itself.)

IN TOUCH experiments with developing modes of physical-digital immersion expanding bodily and remote interactions through the cross-media potential made possible through digital technology. Capitalizing on the richness and challenge of bodily contact and digital systems, IN TOUCH plays with mediatized synesthesia via touch-based interfaces, inducing unstable states of awareness where it is possible to mix physicality and virtuality at the same time.

John Bell (Nyx)

Nyx was the fabled Greek goddess of the dark who brought the world light through the birth of her daughter. Los Angeles based Nyx Illuminated Clothing offer a new line of jackets that allow illuminated text to be scrolled across your chest, arms, and back.



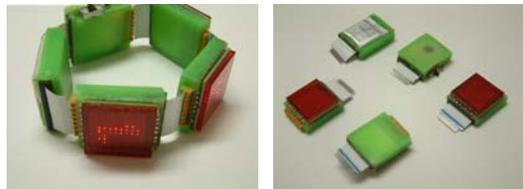
Text is entered using a Palm Pilot device and then beamed to the jacket display screen. With a cell phone enabled Palm Pilot, text messages, emails, and internet information can be downloaded right onto the jacket. The screens are very thin, flexible, and waterproof allowing the jackets to remain lightweight and water washable. The jackets are powered by a small battery pack using three rechargeable AA batteries stored in one of the pockets. Rechargeable batteries last up to eight hours.

A microphone embedded within the jacket also gives a sound responsive function to the light display. It allows the surrounding environmental sounds to trigger various dancing patterns on the screen and so in a nightclub the jacket will actually dance to the beat of the music! Jackets are expected to retail for a few hundred dollars sometime early next year.

Other applications for the new technology are anticipated in the safety lighting, advertising, and entertainment industries. Clothing related safety lighting for cyclists, joggers, fire, police, and ambulance services is likely to improve on the current reflective technologies in use. Flexible illuminated screens should also allow for lightweight advertising banners, illuminated carpets, and many more novel products. Personal advertising on clothing may come into vogue where individuals advertise such things as where their band is playing next, what poetry they like, or what restaurant they think the best (or worst). With mobile phone connection to the jacket, the emergency Amber Alert system could reach a much wider audience.

Elise Co (mintymonkey)

In collaboration with Nikita Pashenkov, I would like to propose a wearable project to be shown at SIGGRAPH 2005. The project has not been implemented yet, but is in the works. It would possibly integrate a new type of solar cell (in development phase), and possibly in collaboration with people from Nokia. Initial ideas are for an accessory rather than an article of clothing: perhaps a bracelet or backpack. Output would be LEDs or hand printed electroluminescence. The goal of the finished piece is to be almost a product prototype.



Sara Diamond (Banff New Media Institute)

am-i-able

Integrating state-of-the-art interactive wearable technologies into a fashion aesthetic inspired by historical tradition, the am-i-able project explores human emotion and communication as expressed through clothing.

am-i-able is a fashion line consisting of three stories, Emotional Ordinance Survey, Company Keeper, and Emotional Ties.

Utilizing accelerometer and touch sensors in combination with bluetooth mobile telephone communication, gesture recognition, electroluminescent displays and LEDs, am-i-able garments tap into the emotional state of wearers and facilitate their well-being by either consoling them with sound or facilitating a visual conversation with a friend.

In contrast to many cyberfashion experiments, am-i-able utilizes classic fabrics (tweed, silk, brocade, etc.) in cuts which are adapted from traditional styles to evoke a sense of familiarity in the wearer. The playful interactivity and visual dynamism of the garments introduce a tension between the comfort of the familiar

and the adventure of the unknown.

Emotional Ordinance Survey:

Emotional Ordinance Survey is an audiovisual dialogue between the wearers of two or more garments. Each garment is covered with twelve unique patterns, each representative of a particular emotional state or experience (lethargy, adventure, melancholy, joy, etc.) and located according to associated chakra energies. Using an interface embroidered into the garment's sleeve (which is an interactive map key which illustrates the twelve emotions and their associated patterns), users can select emotional displays to illuminate on their own or their partner's garment. Four distinct gestural inputs determine whether the patterns are turned on or off, and on one's self or on the other.

Company Keeper:

Company Keeper has an antidote for every social inadequacy you may encounter in daily life. Once installed, its occupant enjoys the perpetual company of a wise, humorous and absurd friend, always at the ready with a bespoke cranial concerto, capable of neutralizing the occupant's nervous disposition.

The wearer's mood is assessed by his/her body language (calculated with embedded touch sensors and an accelerometer in a hanging beaded tassel) and the level of sound in the environment (measured with a microphone). When moods such as wrath, awkwardness, and claustrophobia are detected, an antidotal soundscape is played through headphones in the hood.

Emotional Ties

The subtleties of the unsaid word are inspiration for Emotional Ties. Male and female body language (preening) is monitored through strategically placed touch sensors inserted into the garments. Once certain body postures are detected, an audiovisual display is triggered on the other's garment. For example, if the male adjusts his tie, an LED display is activated on the female's shoulder. As she smooths the fabric around her waist in response, a seductive melody plays from the man's hat.

We plan to test this use of fashion-based interactive communications experiences in fashion shows, clubs, performances and everyday collaborations. Our current fashion prototypes feature data visualization, personal and social communication and responsiveness to context. Our research considers forms of communication (indirect, subtle, direct), levels of interactivity, individual versus social expressions and aesthetics.

Tina Gonsalves and Tom Donaldson (CLUTCH)

Australian artist Tina Gonsalves and UK artist and engineer Tom Donaldson, founders of Clutch (www.thisisclutch.com) have created 'Medulla Intimata', video responsive jewellery. The project introduces a new form of non-verbal communication: a real-time generated video stream reflecting and commenting on your conversations. As your conversations become more intimate, the jewellery becomes less of a shield and more of a wound, exposing your inner body and emotions to the world.

Medulla Intimata extends traditions of video portraiture. While

wearing the jewellery, software monitors the tone and intonation in the wearer's voice. These measurements help the software select video sequences appropriate to the emotional state of the wearer. The source video is drawn from a database of self-portrait video clips of the wearer, with different imagery and visual styles reflecting different moods. Once selected, the appropriate piece of video is broadcast to the jewellery using wi-fi technology in real time. Real time effects, pacing and transitions are used to amplify or subvert the social moment. Medulla Intimata explores how video can be made more intimate by embedding it in objects that have rich symbolic and cultural associations.

At exhibition stage, Medulla Intimata is a subtle public intervention. Over various exhibitions (Banff New Media Institute, ISEA 2004, DEAF 2004, ICA London) Tom and Tina wore the jewellery within social spaces. The idea of the intervention was to dissolve the barriers between art, the social and the environmental; loosely informed by the Situationists, and Fluxus movements. Wearing "Medulla Intimata", exposed various feelings of vulnerability within social situations. Katherine Moriwaki adds "with "Medulla Intimata", repressed and hidden emotions can leak into the managed world of "polite" conversation, creating undercurrents of unspoken thoughts and accusations". Dr. Bill Seaman adds "It is potentially a highly charged sexual work in that it brings intimate linguistic/behavioral attributes into play and disrupts interpersonal social norms by questioning the ongoing historical spatial relations that have been previously socially constructed".

"Medulla Intimata" has been supported by The Australia Arts Council, Arts Queensland, IAMAS, Artsway and co-produced with the Banff New Media Institute.

Janet Hansen (Enlighted Designs)

"White corset dress" by Janet Hansen

This two-piece dress consists of a corset top and ruffled skirt, made of a sheer white fabric with a metallic holographic print. Internal multi-colored LED lighting illuminates the corset in a random twinkling pattern. (Eddie Tapp photo)



"Silver corset dress" by Janet Hansen

This dress consists of a silver corset top with diagonal quilting detail and a straight full length silver metallic skirt. A grid of red, blue, green, and gold LEDs is embedded in the corset, and designed to fade and flash in a variety of patterns to suit your mood. (Enlighted photo)



“Color changing bodysuit” by Janet Hansen
(Enlighted photo)



“Faux fur coat with fiber optic lighting” by Brett Spivey & Janet Hansen (Enlighted photo)



“Gloves with lighted finger extensions” by Brett Spivey & Janet Hansen (Derth Adams photo)



Tomoko Itao (Wearable Computing Fashion Group)

We propose our global concept of computer wearability called “Aware Wear” and its most immediate prototypes: “Report-the-world” (report-wear), “e-Coaching” (sports-wear), and “Dog@watch” (kids-wear). “Aware Wear” is based on a vision that a mobile computer should be an integral part of our every day outfit (hence wearable), always operational and equipped to assist us in dealing with a wide range of situations. Our prototype approach is not focused on the technical functionalities only, but beyond any technology, it meets user’s need first, underlines global product design, integrate human feeling and include symbolic values necessary for any final products to belong to the appropriate fashion system. In our prototypes, we used cutting-edge electric devices and materials currently available in market. Features of each prototype are described below.

1. *Report-the-world (report-wear)*

Report-wear concept is primary focused on wearable computer/camera for assisting professional reporters to sense the environment. It is conceived from the emerging Nomadic fashion trend and lifestyle. “Report-the-world” prototype features 360 degrees camera with interactive multi-vision information. 10 cameras are attached to a reporter’s trench coat to capture the surrounding environment. The reporter can select a camera and display its image in her HMD (Head Mounted Display) simply by rotating a dial or encoder, which is also attached to the coat.

2. *e-Coaching (sports-wear)*

Sports-wear concept is based on the body regulation and interactive coaching service. “E-coaching” prototype is designed for real-time health/exercise monitoring and coaching based on body and environmental conditions. The wearable PC, which is enclosed in the wear, collects and analyses readings from multiple sensors (heart rate, temperature, UV, and acceleration), which are also attached to the wear, to generate appropriate coach messages. As for fun part, users can select coach characters simply by rotating a dial or encoder which is attached to the wear.

3. *Dog@watch (kids-wear)*

Kids-wear concept is helping kids to express their needs and feelings to their parents allowing them to discover the world with safety. Using “Dog@watch”, a kid can interactively express and share his feeling with his parents such as “sad”, “happy”, “sleepy”, “hungry”, “sorry”, “have a question”, and “want to talk”. Combined with GPS data and video phone, such signals may be used to estimate and ensure the security of a kid.

Jacquelyn Morie (USC/ICT)

A. Skydeaminds, in conjunction with SmartLab, London, will showcase a line of children’s clothes using technology to enhance safety and comfort. Inspired by Victorian pinafores and petticoats, these clothes reduces excess to essence, and include a high tech core. Technology for location and bio monitoring in designed as part of the garments, providing connections to vital bases of safety.

The use of the Body Media’s Sensewear Patch (not finalized but in discussion) will accompany RFID technology to help keep kids of the future safe and cozy in areas of the modern world fraught with potential dangers and extremes.

B. Do-It-Yourself Wearables Workshop. Katherine Moriwaki and Jonah Brucker-Cohen will conduct an afternoon “DIY Wearables Workshop” in the Studio, hosted by the Ludica game group as part of their week-long game atelier space in the Studio. This workshop will build upon an approach and methodology developed in the Scrapyard spectrum of workshops Katherine and Jonah have held since 2003. (see: <<http://www.kakirine.com/scrapyard>>www.kakirine.com/scrapyard) This version of the DIY Wearables Workshop will focus on the creative challenge of not only developing a wearable garment or accessory within a tightly focused material and time constraint but also strive for aesthetic and conceptual elegance which pushes the limits of the do-it-yourself sensibility.

The best of the workshop would be shown in the Cyberfashion Show, with final products to be juried by Isa Gordon, Katherine Moriwaki, Jonah Brucker-Cohen and the Ludica team.

As Katherine is part of the Cyberfashion show Special Session for this year’s SIGGRAPH Conference, this workshop would serve as a bridge event between the Studio/Special Sessions/ and Cyber-fashion Show.

Gauri Nanda (MIT Media Lab)

What is a conversation like between a handbag and a scarf? How do you make a handbag talk to a scarf? When is your skirt allowed to get in on the discussion?

This project explores how new materials and technology can be integrated into garments and accessories to assume novel, customizable functions. Essentially, we've made a set of computationally-enhanced fabric building blocks from which to construct smart, networked fabric objects. The blocks can be used to build a handbag that will turn on when picked up, will ensure that the user does not forget her wallet when leaving the house for the day, and will aid the user by lighting up when it's too dark to see inside or if there is an incoming call to a cell phone. The handbag can be ripped apart and reconfigured into other objects, at which point different behaviors emerge depending on what the new object is. A scarf, for example, can communicate via Bluetooth with its fellow handbag to make sure it is not left behind on the subway.

Picture Legos. Now picture them as soft fluffy blocks of fabric impregnated with small waterproof circuits and sensors and outfitted with Velcro that has been re-interpreted to conduct power and electricity. Connect the hooks and loops together and a smart textile system emerges that looks and feels as fabric worn close to the body should. The radio piece, for example, works in conjunction with frequency 'tagged' objects (wallets or cellphones) to ensure belongings are not left behind. When items are not where they should be, this information is communicated to the user via light and speech. When blocks connect together, identification information is sent to a master block to keep track of what the object is, thus informing it of how it should behave.

The blocks were designed to afford anyone the ability to build, rip apart and reconfigure objects so that digital behaviors always meet an individual's technological and style needs. The decentralized sensing of the system allows components to be added or removed at will, and ensures that if any small part of the system breaks down, the object will remain functional. In this model, hundreds of sensors and processing elements can be added, each with limited processing power, storage, power consumption, and low manufacturing cost that add up into very powerful configurations.

The applications chosen illustrate how technology can seamlessly integrate into our lives without dominating and overwhelming them. In this model, the space of handbags, clothing, and accessories transition into a context-aware personal body network to liberate the user from common stresses that occur in mobile lifestyles. A handbag's role is to create a safe place to hold and carry personal belongings so technical enhancements to it should concern those belongings. Our handbag specializes in aiding content visibility, in informing the user of what it is missing, and in suggesting objects it may be useful to carry (e.g. an umbrella if it's about to rain). By focusing on its niche, a handbag does its intended job better.

The implications of this project suggest one, how wearable forms can be made customizable in aesthetics and functionality and therefore more closely mimic our current relationship with fashion, two, how wearable forms can be updated with new technology so that entire systems do not simply become obsolete and contribute to waste and three, how users can enjoy new sensory

experiences without having to learn anything about the underlying technology.

Luisa Paragui Donati (Institute of Arts, Unicamp, Brazil)

The project "vestis: affective bodies" has been developed and pointed out the use of the wearable device as a potential interface of reconfiguring the corporeal schema and lived experiences of bodily spatiality. By appropriating this technology the artist intends to formalize the individual's personal boundaries aesthetically as the result of a fluid process of the body spaces' contractions and expansions. Then, the "embodied space" can be formalized by an interactive process among the wearer and participants around him/her.

This project is concerned with the comprehension of human beings personal spaces, and in particular their perception and use of them. The first prototype of "vestis" has a structure with four nylon tubes that can expand and shrink independently. These telescoping tube movements are responsible for the different shapes and contours at each moment of the dialogue among participants and the wearer. A micro controller defines and controls all these movements after getting inputs from embedded sensors that "monitor" participants' presence and wearer's responses.

People need to wear "vestis" and experience their own body and space; then, getting involved in the work process they will perceive the changes that the dialogue/interaction among them can evoke. Some shapes of "vestis" could restrict wearer's displacements and legs and arms movements, then formalizing sensorially the fact that we "have bodies" and "are bodies". "Vestis" tries to play a poetic way with visual and tactile channels for experiencing "embodied spaces", evoking participants' engagement as an effective and affective negotiation of the use of body spaces.

This research has been supported by FAPESP (Fundação de Amparo à Pesquisa do Estado de São Paulo) and CNPQ (Conselho Nacional de Desenvolvimento Científico e Tecnológico).

Francesca Rosella and Ryan Genz (CuteCircuit)

CuteCircuit presents the collection Transfor-Me, a series of garments that react to the wearer's emotion and interaction with others. The first Transfor-Me garment is the KineticDress. Sensors and a special algorithm understand the user pace of walk and human interaction and accordingly change the pattern of the skirt section of this Victorian inspired evening gown. When moving, it slowly lights up with a blue-circle embroidery that creates a magic halo around the wearer (see picture). The second garment is the Skirteleon. The chameleon skirt is made of a special laminated fabric developed at CuteCircuit that changes pattern "on-demand". During the morning the skirt is blue, in the afternoon when going out for a party cute animal characters will appear, while in the evening an elegant kimono print pattern is revealed. The third garment is F+R Hugs, the Hugging Shirt. F+R Hugs is the first wearable haptic interface for personal communication that allows to exchange the physical sensation of a hug over distance. Embedded in the shirt are sensors that feel the strength of the touch, the skin warmth and the heartbeat rate of the sender and actuators that recreate the sensation of touch, warmth and emotion of the hug to the shirt of the distant loved one.

At CuteCircuit we believe that fashion, science, art and technology together will change the future of personal communication, in this future humans will have an intelligent surface around their bodies that will allow for connecting to people and places in a more intuitive and emotional way.

Thecla Schiphorst (Simon Fraser University)

exhale

Our contribution to the Cyber Fashion show is entitled <exhale: breath between bodies>, a new collection of wearable body technologies designed by the <whisper research group> who find their home in the Interactivity Lab at the School for Interactive Arts and Technology at Simon Fraser University.

“Clothing is peculiar in the sense that it conceals in its very conspicuousness and reveals what it appears to hide.” [1]

This year the <whisper research group> brings our newest line of body area networked garments to the SIGGRAPH 2005 Cyber Fashion Show. Building upon last year’s collection of responsive skirts with muscle sensors embedded within garter belts, this year we feature a group of 8 sumptuous and sensuous networked skirts, textural sleeves linked with the elastic embrace of breast-bands wrapping and listening to the breath. <exhale> creates a shared public space that breathes from its inner concealed world, revealing sensation, sound and light collectively on the garments: the skirts, sleeves and breast-bands of the wearers. As breath is a kind of attention to life, the response to the wearer’s breath, and to the collective breath of the ecosystem of skirts, enables our shared communication and experience with others to come to life and to light on our clothing, and on our selves.

“Eroticism, Roland Barthes said, is located between the sleeve and the glove, but the chosen interval is of little importance”[2] In our latest collection of garments embedded with wearable technologies we explore the notion of intimacy accessed and revealed through our own physiological data: the sharing of breath, and through the act of caress as interface to our own skin. Our garments are created as sensuous textured skirts, breast-bands and sleeves made of silks, and organza, natural fibers in earthy and vibrant tones. These parts of our clothing speak to each other, so that we can speak to ourselves. “Clothing is like a language’s lining [and] language and clothing as intimate technologies indeed.” [3]

Our new work: <exhale> is also being featured in this years Siggraph 2005 Emerging Technologies: In this installation we utilize the collective breath of participants to actuate small fans and vibrators embedded with the linings of beautiful, evocative and sensual skirts. The breath of the participants tickles, caresses and shimmers the linings of the skirts creating an embodied and sensual response to breath. This playful and affective network enables exploration of embodied interface through physicalized channels. As the group negotiates with one another through the direction of their attention, they are able to create a shared group breath: this interaction will cause the skirts to glow with light that palpates in rhythm with the shared breath state.

We are interested in creating clothing that models intimacy, social

navigation and playful exchange. We use performance techniques from Theater[5], Dance[6], and the field of Somatics[7] to create interaction for gesture[4], touch and body state. Our research contributes to interface design for ubiquitous, wearable and affective computing. We explore embodied cognition and interaction as a reflective process that is simultaneously inter-body and intra-body. This research provides a model for designing embodied interaction, and tests this model through active, inter-active and sensual connected clothing that we love to wear.

- 1 Guedon, J. C., Nothing to Wear, Horizon Zero, Banff Media Arts Institute, www.horizonzero.ca
- 2 Ibid
- 3 Ibid
- 4 McNeill, D., Hand and Mind: What Gestures Reveal About Thought, University of Chicago Press, 1992
- 5 Boal, A., Games For Actors and Non-Actors, Routledge, London, 1992.
- 6 Blom. L.A., Chaplin, L.T., The Intimate Act of Choreography, University of Pittsburgh Press, 1982.
- 7 Hanna, T., Somatics, Addison-Wesley Publishing, 1988

Alexei Shulgin and Aristarkh Chernyshev (Electroboutique)

Super-i Real Virtuality System

<http://super-i.com>

Super-i® is made for those who want to see the world differently, - virtually painting it in fresh new colors. With Super-i® you’ll be fascinated by what you see: the world as you know it will be looking absolutely different. Our goggles are equipped with the brand-new system of Real Virtuality™, which changes the “real” world around us into a virtual one, and does it without a computer and in real time! And, most importantly: with Super-i® you will finally reach an unimaginable level of freedom - freedom to physically move around in the space in any direction, indoors or outdoors! How does it work? The heart of Super-i® is a microchip developed by our company on the basis of the newest technologies. It allows real-time processing of a video signal and applying different effects on it. Other system components are: a video camera with a “human” angle of view, and a pair of excellent image quality micro-displays. The whole system is assembled inside a pair of lightweight goggles that comfortably fits any head. The goggles are absolutely autonomous and are powered by standard AA batteries, which can run it for few hours. Effective algorithms, similar to those used in the professional systems of image processing (such as Adobe Photoshop™) are embedded into Super-i®. The quality of the camera and the micro-displays is so great, that not only will you’ll be able to explore the wonderfully altered reality, but also allows you to get around easily. Connected to any video source Super-i® creates an illusion of a giant screen appearing in front of a viewer. Use it with your DVD-player, VHS-player, camcorder, game console or computer for a crystal-clear, vibrating image. Number of effects: 6 Effects: Invert color, Matrix, Psychedelic colors, Emboss, Inverted emboss, Line-through (more in development).

Atau Tanaka (Sony CSL Paris)

Malleable Mobile Music is a gesture and community driven mobile music device system. The system is an on-body family of

devices making a personal-area-network for gesture recognition and ad-hoc shared music listening. The system consists of several components: two WPM (physiological monitors by colleagues at Biocontrol), Malleable Music terminal with touchscreen, and sensor subsystem. The Malleable Music Terminal is a handheld device with 1GHz processor and touchscreen - this is the Walkman of the future. The screen displays avatars of friends from the user's buddylist within ad-hoc wireless range. These are the SWARM avatars that allow sharing and lying. The Sensor subsystem places Force Sensing Resistor (FSR pressure sensors), Accelerometers, and Gyroscopes all miniaturized on the Malleable terminal. They pick up subconscious gestures as the user/listener/wearer swings the device and taps along to the music. On it is deployed Social Music Software, allowing friends to log into the system to listen and sculpt a common stream of music together, creating a shared musical experience. The result is a Social Remix of familiar songs and new modular musical content formats.

Jenny Tillotson (Central St. Martins College of Art & Design)

'Scent Whisper' is a wireless jewellery set inspired by the comic hero Spiderman. It can be worn by two people and works by the first user whispering a secret into the spider's abdomen which has a temperature sensor embedded in a brooch. A message is 'sent by a wireless web' to a the second user who is wearing a wireless bombardier beetle brooch. The beetle brooch retaliates by spraying a scent (or poison) to a lover (or enemy) dependent upon the response from the temperature sensor embedded in the spider. This jewellery device is able to dispense airborne nano-litre sized droplets of fragrance at about 20,000 droplets per second using lab-on-a-chip technology that allows efficient scent delivery (see attached image).



Fontanay Aux Roses 1

A wearable scent delivery system worn as a shoulder bag. The user dispenses measured doses of three types of scent from micro-fluidic pumps mounted in the strap of the device. These are primed and powered from a control mechanism housed in the bag. The bag is constructed using lenticular images of a rose that changes colour. The shoulder strap consists of coloured tubes demonstrating the possibility that more than three scents can be dispensed by the user if required.

Fontenay Aux Roses 2

A wearable device for delivering measured bursts of scent throughout the day. The user presses a button on the device to pump tiny amounts of perfume onto the wearer. The device has several different snap-on covers that could be purchased individually to match garments or a specific occasion (e.g a logo of a fa-

vorite fragrance such as Chanel, a picture of a rose and decorative badges to match clothing)

The SmartSecondSkin Dress is a conceptual garment that concentrates on a more active approach to fashion offering direct life-enhancing and analgesic assistance through different mechanisms' whilst soothing, stimulating, motivating or invigorating the wearer.

The dress demonstrates a new way to deliver fragrances for health, wellbeing and stress-reduction. It mimics the human body, in particular the circulation and nervous system, senses and scent glands. The dress interacts with human emotions whereby the aroma dimension is an integral part of the wearer's sensory experience. It is made from two layers of white organza silk with medical tubes in-between, containing coloured liquid that demonstrate a selection of different fragrances embedded within the garment. The fragrances are diffused depending on the different moods and emotions of the user. The tubes represent an "aroma rainbow", so that the fabric gives the impression it is creating an olfactory experience.

The fundamental advantage is the use of body sensors to determine 'colour therapeutic' scent release when a person is stressed, with the ability to shield a 'Sentient Being' (the user) from a negative mood they should be protected from. The benefits are for everyone, as recent research shows that fragrance has a positive effect on brain activity to improve mental and physical health. The dress therefore enhances mental and physical well-being, whilst acting as a medium for communicating thoughts or emotions through smell, our most ancient and primitive sense.

It is 'wearable' because it is an active garment that demonstrates computerised scent-output and body sensors worn on the body for health and wellbeing applications, as opposed to current passive technologies such as micro encapsulation ('scratch and sniff') which cannot detect stress.

This prototype does not include microelectronics (unlike the items above which are working prototypes) Once sufficient funds are secured to continue the research, the dress will utilise 'lab-on-a-chip' technology using nanotechnology techniques to 'pulse' fragrances around smart fabrics to specific points on the body.

Please see www.smartsecondskin.com for more info.

Akira Wakita (Keio University)

Wearable Synthesis

1. Clothes as modules

In recent cyber fashion, each clothing is made individually for individual use. The framework for total coordination, which is the essence of fashion, has not been approached. We propose a practical framework "wearable synthesis" to enable the coordination in cyber fashion.

Wearable synthesis basic idea is from the perception of clothing as a module. This clothing has both input and output. Clothing consists of sensors, actuators and processors.

For example, the sensor senses the body temperature of the user as an input and illuminates the color of the clothing as an output according to the input. We have prototyped a clothing that senses the body temperature which causes the light embedded in the slit at the back to respond. The light is controlled to respond to the change of body temperature so that the internal information of the user can be visualized.

The concept of wearable synthesis is an extended coordination between two clothing. By wearing the clothing as stated before, it will sense the color of the clothing worn inside and changes the color on the outside in a coordinative way.

A change of factor from body temperature to color to the light pulse will occur when 2 clothing is worn one on top of the other. This enables the coordination of the inner clothing and the outer clothing. This feature is important as fashion is based on coordination.

The flow of the module can be described as a scheme diagram. Each clothing has an input, the processing system and an output as a unit. These combinations make the factor change or respond. Therefore, wearable synthesis represents the framework that applies to fashion by equipping each module with an input and an output like an analog music synthesizer.

2. Interaction between people

The wearable synthesis can be brought into the communication between people. In the case of the attached image, an infrared radiation sensor is embedded in each clothing. When passing by another person, it senses the existence and responds by the light on the textile at the front. If the partner is wearing similar clothing with an infrared sensor, the partner's clothing also actuates a reaction, enabling an ambient communication through fashion.

3. The versatility of input and output

We have shown a simple wearable synthesis with a single input and output for each clothing. A richer and a variety of expressions can be achieved by augmenting the number of inputs and outputs.

We have prototyped a skirt supporting two inputs, the body temperature and sound. This skirt senses the body temperature that changes the color of the pleats. Also, it senses the sound through the heels when walking that makes the pleats light to the walking rhythm.

4. A shape alteration actuation

As an alternative to the light emitting actuation, we are conceptualizing a skirt that changes its length by sensing the luminance. This works by changing the length of the skirt using a servomotor, which responds to the input value of the luminance sensor.

Another work in progress fashion focuses on the action of pulling the sleeves on long sleeved clothing. This action enables to see a part of the arm that could not be seen before.

5. Collaboration of design and action

The wearer's natural action, such as waving hands and unbuttoning the shirt, is used as an input. Our prototype jacket gushes light outwards when the user opens the zipper at the front. The light changes dynamically to the users' body temperature and emphasizes the exposure of oneself.

This project is granted by CREST, JST.

Oakley Thump

Mutech Corp.

The Teen Raver Barbie clones are America's greatest weapon in the WAR against ravers from Mutech's new T&A division. Equipped with genetically altered firefly and chameleon DNA and the very latest Mutel Obtanium processors, biomech graphical user interface, UV latex, glowing LEDs and Black Rock Edition Anti Spectator Tactical Shields.

We can build you better than you were before. We have the tools. We have the technology.

FOSSIL



Fossil, Inc. a leading innovator of watch design, development and fashion accessories launched the world's first Palm Powered™ watch with a capability of 8 MB of memory. The Wrist PDA® with Palm OS® provides consumers with a portable and stylish way to organize their personal information. Customizable watch faces allow consumers to change their watch face to suit their own personal style, while the 8 MB of memory gives storage for addresses, appointments, memos, third-party Palm OS® applications and more.

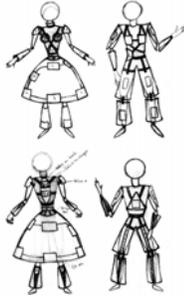
Additional features of the Wrist PDA® with Palm OS® include a high density 160 x 160 pixel grayscale LCD with touch screen and backlight, a stylus cleverly integrated into the watch buckle for easy access and a comfortable fit, one-handed navigation using the 3-way Rocker switch and Back button, the ability to beam data to another Palm Powered™ device via the Infrared Port, USB HotSync® support for Mac OS and Windows, and a lithium-ion rechargeable battery that lasts approximately 3-4 days based on conditions of use. The battery can be recharged with the included AC adapter.

The Wrist PDA® with Palm OS® from Fossil showcases the power and flexibility of the Palm OS platform and provides consumers with a great way to stay connected while on the move.

eMagin Corporation

Into the Fire ...

Compact, power-efficient, and low weight, the Total Fire Warrior Micro Thermal Camera employs a state-of-art bolometer to register and report critical information and an eMagin organic light-emitting display (OLED) module to keep that information easily and clearly in view.



The camera enables firefighters to see through smoke and darkness to locate hot spots, perform search and rescue, to do their jobs and find their way to safety. The 3x3x3 inch camera runs up to four hours on four AA batteries. Weighing about one pound, it attaches conveniently to the Fire Warrior helmet to allow for complete hands-free use.

In addition, the camera's organic light-emitting diode (OLED) display starts delivering data almost instantly (three seconds or less) even at temperatures as low as -40°C. And it can take the heat, too. The camera and display continue to function and deliver vital visual information at temperatures up to 85°C – that's 185°F.

Going Inside

The perfect accessory for mobile gaming and entertainment, eMagin's Z800 3D Visor delivers on the promise of an immersive 3D computing experience. You can surround yourself with the visual data you need – without the limits of traditional displays and all in complete privacy. Gamers can play "inside" their games, personally immersed in the action. PC users will be able to work with their data in a borderless environment.

Two high-contrast eMagin SVGA 3D OLED microdisplays deliver fluid full-motion video in more than 16.7 million colors. Driving the user's experience is the highly responsive head-tracking system that provides a full 360-degree angle of view. eMagin's specially developed optics deliver a bright, crisp image.

Weighing less than 8 oz, the eMagin Z800 3D Visor is compact and comfortable. While the eMagin OLED displays are only 0.59 inch diagonal, the picture is big – the equivalent of a 105-inch movie screen viewed at 12 feet.

Seeing Through the Data

Match the map to the road, the landmark's photo to the landmark itself. Overlay the drawing on the actual hardware.

The new Liteye 500 is a high-performance, rugged package based on patented optics and an eMagin SVGA+ display. With

user selectable, see-through capability, the LE-500 can be used as a standard HMD or for augmented reality applications. To create this superb display, Liteye engineered and patented optics specifically to optimize the excellent contrast and clarity of the OLED display.

Since maintaining the clarity of data was paramount, optimizing the optic's performance with the OLED display proved critical. The resulting system takes advantage of the OLED's excellent contrast and color and wide angle light to create a system with flat field corrected for color, one that is nearly diffraction limited. The optical system design focused on achieving minimum distortion, a high MTF, and virtually no distortion.

Keeping an Eye on Things

Mobile computing has often implied reduced features, limited operability, and limited display capabilities – in terms of both color and resolution.

How times have changed! Thanks to breakthroughs in processor and storage technologies, ultra-small mobile can PCs run full-featured Windows XP operating systems and office applications.

And, thanks to organic light-emitting diode (OLED) microdisplays from eMagin, mobile computing can include a full-color, high-contrast SVGA display so that you can work "on the go." Because the OLED is emissive light, it accommodates a greater range of pupil movement. So you can view your data longer. Your batteries will last a long time, too, as the eMagin eGlass monitor draws all its power through the USB port.

Best of all eMagin's eGlass near-eye display systems enable you to work on even sensitive data in complete privacy. And when you're finished, you can watch any DVD or play any game on your PC in complete privacy.

Anissè (Anissè Designs)
Jo Bangphraxay (See Throo)
Craig McCullough (Strange Attractors)
Jim Bunkelman (Galatea Productions)
Lizbeth Goodman (The SMARTlab Centre, Central St. Martins College of Art & Design)
Simona Brusa Pasque' (Interaction Design Ivrea)
Rebecca Strzelec (Penn State University)
Jennifer Sholtis (Stephen F. Austin State University)
Chris Golas (Tyler School of Art)
Alex Lightman (Charmed Technology)
Bethany Shorb (Cyberoptix)
Jesse Jarrell, DEvan Brown, and Isa Gordon (SyntheteX/ Psymbiote)
MuTech Corp
Oakley
Adidas