

## **JANIS JEFFERIES & BARBARA LAYNE**

Janis Jefferies is Professor of Visual Arts in the Department of Computing, Goldsmiths College, University of London and the Artistic Director of Goldsmiths Digital Studios leading a team of researchers. Barbara Layne is Director of the Studio SubTela team, a research laboratory at the Hexagram Institute for Research and Creativity at Concordia University, Montreal. Their work “Wearable Absence” was launched in 2010 and is realised as prototype dynamic garments that incorporate wireless and bio-sensing technologies. The result fuses the visual with the audio in a rich database and demonstrates cross-Atlantic collaboration between two highly regarded institutions. They have created several prototypes that connect the body and its clothing utilising the very latest digital and interactive technologies.

The concept of the clothing being embedded with the memories of an absent person is conveyed where multi-media devices are incorporated within the fabric of the garment. The garment is then the vehicle to convey the memories of the absentee. Firstly, the memories and experiences are uploaded to an online database that the garments are wirelessly connected to - the cloth has soft cabling systems for a fully flexible surface. Information is retrieved and delivered from this database that also holds specifics on the person concerned. Furthermore, biometric information is linked to media files based on pre-determined criteria. Various aspects of the person’s physiologies, memories, responses to stimuli are uploaded to create an augmented reality.

A mobile device is planted within the jacket that responds to sensor data and then downloads the memory files to play them – visually or audibly. Still/moving images and sound files that are then downloaded into the display and speaker systems embedded within the garment. These ‘memories’ are coupled with bio-sensing devices that trigger a particular memory that measures and describes the person’s emotional state as revealed by close monitoring of the heart/pulse/breathing rates, body temperature and galvanic skin response (the measurement of moisture on the skin).

There are two jackets shown in “Wearable Absence” – one intended for a female and the other for a male – in each there is an outer jacket, an inner garment and a glove. They are made from a black cotton/rayon blend with a chateuse coloured lining that is picked up in the colour of the button, the topstitching on the gloves and the colour of the light-emitting diodes (LEDs) on the left sleeve. Body temperature and respiration sensors are attached to a camisole worn under the female jacket. The heart rate and galvanic skin response sensors are located in the fingers of the glove. The female jacket has various handmade features and in contrast the male garment has a commercially available text display that is incorporated into a long-sleeved shirt worn underneath. The advantages and disadvantages of one-off or mass-produced approaches can therefore be considered.

Intelligent cloth structures are used where the 64 LEDs are embedded into a handwoven cloth for the sleeve for the text displays. Once the trigger is activated

messages are relayed - when the arm is held down at the side the text scrolls horizontally and when the arm is raised the text changes direction to be viewed easily by the wearer. In addition, high quality speakers are embedded into the hood of the female jacket and attached to the shoulders of the outer vest of the male jacket for listening to audio or video clips or for sound files. The still images and videos are displayed on the personal digital assistant (PDA) – a palmtop computer and mobile device kept in a jacket pocket that is the main controller linking to the Internet and presenting still and moving imagery. The resulting playback gives the receiver visual, tactile and audio sensations. This artwork has wide potential applications including the performance sports sector, the world of fashion and the area of therapy, health and well-being.

The work “Corrente Calamo” by Barbara Layne consists of three white garments – a sleeveless vest, a cap-sleeved dress and a jacket with inbuilt displays. This collection utilises similar technologies to “Wearable Absence” and offers a visual contrast.