

## Abstract

My contribution to the 1<sup>st</sup> International Conference on Digital Live Arts would be a 15-minute paper presentation in the afternoon program. I will explore how responsive fabrics and jewellery worn in a club and/or festival environment can harness the power of smell to expand the VJing/DJing dimension. This project is not about hygiene or cosmetics or the latest designer perfume. As one of the last sensory frontiers to be explored in wearable technology, the garments offer novel olfactory experiences as part of a new sensory appeal in fashion clothing that helps the user 'feel' the sensory vibes of the music. **Scentsory Design®** is a multisensory project based at the Innovation Centre at Central Saint Martins that adds aroma to fashion design in a subtle way by creating radical, active, 'scentsory' properties. Fashion, amongst other qualities, is about displaying personal identity information. **Scentsory Design®** is about creating an intimate scent "bubble" around the wearer, enhancing the visual message of fashion with sensory psychological and medical 'wellbeing'. This paper will discuss the advantages of clothes as a communication tool, whereby messages are 'scent by a wireless web' from the 'PJ' (Perfume Jockey) to the user/dancer, who receives an atomised nano-mist of fragrances onto a localized area from an inbuilt 'scent palette', in club wear of a multi-sensory nature. The purpose is to complement current video graphics and multimedia entertainment solutions.

The project **Scentsory Wave™** chooses olfaction, vision and sound as the three sensory modalities to target in order to enhance the clubbing experience, by exploring clothing that goes beyond current microencapsulated (scratch and scent) techniques. The paper will also investigate the extent to which **Scentsory Wave™** attempts to create 'Emotional Fashion' garments integrated with wireless sensor networks that offer social and therapeutic value in a desirable fashion context, without annoying neighbouring users/dancers. The clothes are engineered for psychological end-benefits such as reducing fear and stress, whilst also accompanying other media to augment an experience i.e. trigger surprise, excitement, love (lust/sex), sadness, fear and other emotions.

The garments function by incorporating body sensors and microfluidics ('lab-on-a-chip') to initiate fragrance delivery. The sensors detect stress physiologically and sound environmentally and the microfluidics produce benefit chemicals in controlled ways responding to personal needs/desires. The fabrics imitate the human body as they have their own "nervous system", which allows the user to experience and control the different emotional states of a garment as an entertaining, holistic healing platform. Audio-visual sense technology has been widely available in clubs for a number of years. However, this project offers a new concept in perfumery by targeting nano-droplets of scent to the nose receptors in minute bursts, to give rapid cycling of odours. The scent is synchronised with sound and vision without causing 'odour fog' and the necessity to install enormous air vents in the allocated space. The technology therefore allows new developments whereby not only can the scents to be released on demand, but also retrieved in seconds.

The paper will describe recent research such as a collection of responsive jewellery called 'Scent Whisper' that dispenses fragrances, triggered by sensors that react to an individual's body state (e.g. humidity, temperature, heart rate) and the environment (e.g. sound, high decibels via microphones). The next stage of the project creates an "Emotional Fashion" collection, and various examples are given that could be used in clubs or festival settings.

## Background information

My PhD described a multi-sensorial approach to biomedical designs, recognising that all senses interact through a membrane of microtubes, microfluidics, electronics and yarns embedded in clothes, to create a scent delivery system that adds function to fashion. At the Royal College of Art, the research was demonstrated by an interactive installation that pulsed coloured fluid around a transparent sculpture to illustrate *colodours™*: colour therapeutic scent delivery for different emotions, moods and occasions. The spectrum of scents gave the impression the sculpture was creating an olfactory experience and was a direct reference to the aroma rainbow emitted from the 'Scent Organ', in the novel *Brave New World* (Huxley 1932): "The Scent Organ was playing a delightfully refreshing herbal capriccio—ripping arpeggios of thyme and lavender, rosemary, basil, myrtle, tarragon, a series of daring modulations through the spice keys into ambergris and a slow return through sandalwood, camphor, cedar, and new mown grass..."

In the context of the **Scentsory Wave™** project, the 'Scent Organ' paves the way to an expanded life in club culture, making the most of what the senses have to offer. Its purpose is to increase creativity, expression and vision, spark little reminders, expand colour, texture, sounds and taste, and push the boundaries of the senses that the users weren't aware they had. It transforms negative mood states into good sensations, encourages dance, and releases scents to help sleep, boost confidence, relax, energize, arouse, increase self-esteem, expand the imagination, bring people out of their shells, define self-image and open the users' sense of wonder.

## Scent Palette

Whilst vision is unquestionably our most important sense, when it comes to smell and gathering an emotional response, scent is a more powerful trigger since 75% of the emotions that we generate on a daily basis are affected by smell. The word perfume means to 'smoke through' in latin. It is the creative result of the perfumer, realised with an accord of 'olfactory notes'. It is like composing music with the top, middle and base notes.

A fragrance, as opposed to an odour, which can be agreeable or disagreeable, normally indicates an agreeable odour emanating from a perfumed product. It is a symphony written from the following eight groups of raw materials: Vanilla/powdery, Woody-mass, Spicy, Fruity, Green, Floral, Aromatic & Hesperidic .

Above all a fragrance is an essence, but beyond the subtle fragrance, an imaginary world of *wonder* emerges.



### 'Scentsory' properties in 'Emotional Fashion' clubwear

- **'Scentsory' rhythm**
  - Clothes that 'pulse' ambient aroma molecules as subtle, rhythmic base, top and middle perfumery 'notes', to the beat of audio/visual effects. The purpose is to excite the user by enhancing the musical, visual and emotional VJ/DJ experience in clubs, to create a personal, non-invasive, non-polluting wearable, 'aroma-dance' system that senses physiological and environmental patterns of the user in the immediate vicinity (via body and/or the 'PJ'). The key is the targeted control of multiple computerised scent-output that is not over-powering (if an aroma is constantly present in the air, the human nose can become desensitised to the point where the air no longer has an obvious odour)
- **'Scentsory' sensual**
  - Clothes that emit human pheromones are used to arouse and improve sexual experience, enhance the sensuality of dancing through sexual attractants (Thornhill and Gagestad 2002), which are subsequently synchronised to the sound effects and graphics of the multimedia entertainment
- **'Scentsory' screen**
  - Clothes that offer a protective 'screen' around the user who is dancing or relaxing in a malodorous space they would prefer to avoid i.e. cigarette smoke, poppers, vomit, dry ice, urine, toilets, sweat etc
  - Clothes that dispense insect repellent ingredients (Warren 1998) directly onto the skin of the user, via microfluidics and microphone technology that detects the exact sound frequency of (2500 different species of) mosquitoes and other biting insects at outdoor music events, festivals, raves etc.
- **'Scentsory' calm**
  - Holistic clothes that release fragrances for the 'chill-out' period to enhance a positive mood, promote relaxation or sleep, and comfort the user during bad experiences i.e. panic attacks or fearful thoughts.
- **'Scentsory' sweat**
  - Clothes that emit nano-bursts of a partners sweat to trigger memories and encourage dreams, or to relieve tension since sweat (male secretions in particular) can promote relaxation (Preti et al. 2003)

### Technical Requirments:

- Power point presentation with flash player and audio
- Presentation of the interactive 'Scent Whisper' project <http://www.transhumanism.org/gallery/jt.htm>

Preti, G. Charles, J. Wysocki, Kurt T. Barnhart, Steven J. Sondheimer and James J. Leyden (2003) *Male Axillary Extracts Contain Pheromones that Affect Pulsatile Secretion of Luteinizing Hormone and Mood in Women Recipients* Biology of Reproduction 2003 **68**, 2107–2113

Thornhill, R and Gagested, S.W. (2002) *'Human sex pheromones'* Aroma-Chology Review X (2)

Warren, C. (1998) *'Human and insect olfaction makes news at AchemS'* Aroma-Chology Review V11 (2)