UNIVR + UNIUD
recent developments

NIW project meeting

Udine
February 23-24, 2011

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Experiment 1: virtual skate

- **Procedure**:
  - Subjects stand in a skater-like position on two active tiles (with audio-tactile exciters).
  - 15 trials x 2 “journeys” simulating a trolley traveling on different slopes (ac-/de-celeration, uniform motion) and a jump.
  - Control condition: noise through headphones to mask the auditory feedback.
  - Force plate under each tile (e.g. track the COP), EMG on legs.
- **Motivation**: investigation of cross-modal effects.

Experiment 2: virtual bump/holes

- ...currently, not exactly foot-related!
- Inspired by the work of *van Mensvoort et al.* and *Lécuyer et al.* on virtual bumps/holes for the mouse cursor → Visual only or visual-haptic feedback.
- **Procedure**:
  - Subjects are provided with audio-visual stimuli: a ball rolling over bumps/holes or flat ground.
  - 7 x 7 audio-visual combinations → 49 trials.
  - To be developed.
- **Motivation**: investigation of cross-modal effects.

Rythm'n'Shoes

- Paper submitted to NIME 2011.
- Our wireless footwear protoype is exploited for playing percussive instruments by tapping the feet.
- Wearable musical interface with audio-tactile feedback.
- New mapping strategy for impact detection with dynamics.
  - Useful for walking as well.
- Low latency allows to play fast paced and complex rythms.

Other

- :(The article describing the experiment on the effect of low-freq audio on underfoot vibro-tactile perception has been rejected by ACM TAP.

- :) We have been accepted for FET 2011 in Budapest. We are going to demo our wireless footwear setup and a real-time version of the sensing floor (see Marco's presentation).

- Official release of the SDT: http://soundobject.org/SDT/

Future activities

- Stefano will be a tutor in the SMC summer school in Padova → Pilot experiments on audio-tactile feedback in foot-related tasks, for example:
  - Compliance perception;
  - Gait analysis;
  - Re-make of the experience rejected by TAP.
- New experiments.
- Footwear: refined mapping for use with more sound models.