



Wii Game Technology for Music Therapy: A First Experiment with Children Suffering from Behavioral Disorders

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Large audience

- Psychological disorders (autism, instability...)
- Neurological disorders (Alzheimer, Parkinson...)
- Adverse effects reduction

Proven efficiency

- Case studies, test-retest methods
- Application in hospitals

Active Analytic Group Music Therapy (Priesley, Lecourt)

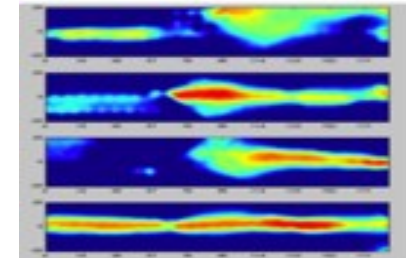


CAMTAS, MIDICreator/Grid
U. of York

**Instrumented Footwear
Hyperscore/instruments**
MIT Media Lab



PDWii, Remission
Games for Health



MTTB
U. of Jyväskylä

Motivational power of video games

Design of therapeutic electronic instruments

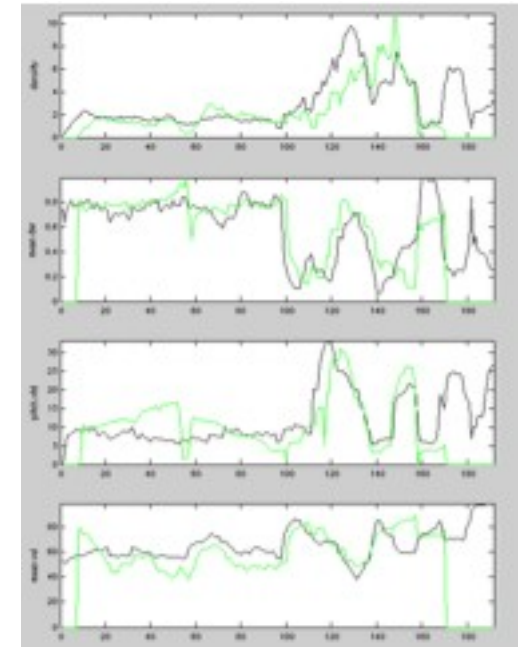
- By the patient
- By the therapist

Data collection and analysis

- MIDI
- Interaction logs

Management of therapeutic sessions

Ease of use



Wiimote

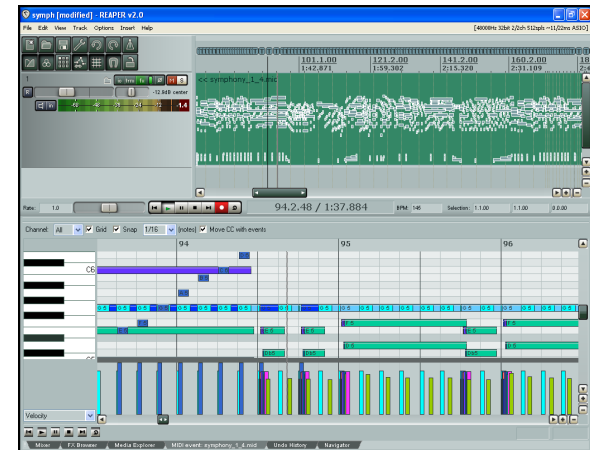
- 3 accelerometers
- IR sensor
- Buttons and stick

Sound synthesis

- MIDI
- XV-2020, software synthesizer
- Hi-Fi stereo system

Software

- Glovepie
- Cubase, Reaper



Goals

- Intuitive
- Robust
- Rich (exploration)

UI

- 2 Wiimotes per patient
- Percussion-like triggering (5 volume levels)
- Instrument change (+, -)
- Sound selection (\emptyset , A, B, D-pad)



Sounds

- 3 instruments: Congas/Djembe, Cymbals, Marimba
- 4 timbres per instrument



Participants

- Children from 6 to 11 with behavioural disorders (after-school mental health hospital)
- E. Lecourt (Paris V): *Sonorous Communication*
- R. Michel (Paris V): design, treatment
- P. Jouvelot (CRI): design
- S. Benveniste (CRI): design, implementation

Protocol

- 4 groups of 2 or 3 children under treatment with MT
- Welcome, explanation
- 1 SC session per group



Cultural and motivational aspects

- Increased self-esteem

“What can we change?”, “Remove this button”, “I’m like a real musician on TV”

- Appealing technology

“Whoa, the Wii!”, “It’s magic!”, “Thanks for the Wii”

- New capabilities

“There are several musics (sic)”, “Call it the Catalogue”, “Where’s my derbuka?”

Usability

- Difficult navigation

- Intuitive triggering

- Added freedom (dancing, system “tricking”)

“Here, I’m doing it with the wrist”

Individual psychodynamical aspects

- No violent acting-out
- Lack of corporality has no impact
- Symbolization and representation enabling
“It sounds like it's running”, “I'm playing like a beating heart”

Group psychodynamical aspects

- Easily shared common pulse
- Collaborative exploration
*“You changed the volume”, “You're playing too loud!”,
“Look at me; you can do it like this”*
- Identification
“That's me!”

Sound space exploration

- One year with the same children (~10)
- Same UI, new sounds (sampled or purely synthetic)
- *Sonorous History* map

Design space analysis

- E. Lecourt's M.S. MT students (~10)
- New instrument controls (based on real ones or not)
- Language, guidelines and tools for instrument design

Data analysis

- Control group (“normal” children)
- Collected MIDI data (MTTB, Beatroot)
- Movements (silent play)

MAWii System for music therapy

Proof-of-concept experiment in a day-care mental health hospital

- Robust design and implementation
- Good acceptance by patients
- Promising signs of therapeutic value

Therapeutic impacts of patient-centric digital instrument design using video game technology