

COST-287 ConGAS meeting 2004/12/02

Meeting report of WG1

Coordination & planning of ConGAS books

Oslo University, Norway

Participants:

Daniel Arfib, Frederic Bevilacqua, Sofia Dahl, Sylvie Gibet, Kristoffer Jensen, Rolf Inge Godøy (organizer), Marc Leman (report), Teemu Mäki-Patola, Kia Ng, Jan Tro, Gualtiero Volpe

Also present as observers were:

Egil Haga and Alexander Refsum Jensenius (doctoral fellows at the Musical Gestures Project, University of Oslo)

General discussion concerning practical issues

Preliminary remarks

If ConGAS would produce a collection of papers then that should go to a journal. If it is a textbook like the DAFX-book, then more editorial work will be needed. It is decided to go for a collaborative work: more textbook-like.

Audience - who is the target reader?

Broad audience, from music technology students/researchers to students in aesthetic studies.

Also: composers, and computer scientists working with musicians. The book should be readable so that people outside music gesture research can follow. The book is going to be used for teaching, so: textbook + more technical topics
but jargon should be avoided.

Amount of books – number of pages/size

The different approaches probably will not fit into one single book. Instead, it is found that three books should be produced, more or less in line with the three WGs.

Book 1: Basics of gesture and sound

Book 2: Platforms, Measurement & methodologies

Book 3: Applications & technology of gestural control

While the focus is in agreement with each WG, members of the different WGs are invited to collaborate to each book.

Writing organization

As (more or less) decided in Barcelona, there is a general book steering committee with Leman and Godoy (WG1), Wanderley and Kia (WG2), and Hunt and Volpe (WG3), who take the lead in

organization and book editing. In addition to that, chapter-leaders have been assigned for each chapter. Each chapter has different authors. Chapters should be written by at least two institutions, in order to foster collaboration within the ConGAS community. Co-authors mainly come from the ConGAS community but each chapter-leader can launch an open call, or invite additional authors.

Chapter organization and writing styles/formats

Macros and styles depend on the publisher, so this has to be decided later on. As to organization and writing style, the main issue is to avoid jargon. All chapters should adopt a similar organization with:

- abstract
- introduction
- problem specification
- state-of-the-art
- development of the main topic
- conclusion

Open call for chapters?

No open call will be launched. Collaboration is on informal basis as the ConGAS consortium is considered to contain already most of the specialists in the field. However, delegates should look for people in their country to contribute to chapters

Which publisher?

Almost all participants to ConGAS WG1 are academics. Since academic credits are important for survival it was agreed that the books should be published with an official publisher, no internet publication. However, somehow a balance should be found between a cheap publication and a good distribution, plus a prestigious publisher. It should be investigated whether the publisher has a companion web-page, for the storage of sound examples, software etc...

Springer LLNCS is taken up in ISI-database, but doesn't fit in the concept of ConGAS

Other possible publishers:

MIT-press, Springer-verlag, Oxford UP, Cambridge UP, Taylor & Francis, Focus Press (cheap...), Wiley & Sons (expensive), Ashgate (not very technology oriented).

Publishers should be asked price/time of publication etc... This should be an official question from ConGAS, therefore, the meeting would ask Nicola Bernardini and Alessandra to address a letter to different publishers in order to obtain a contract. Pricing is an issue. Many publishers nowadays ask money. Is COST giving financial support for publication? Also this should be investigated. The proposal is to ask Nicola and Alessandra to address a request to ESF.

Number of pages

300 pages/book. About 7/8 chapters/book. Therefore, about 35-40 pages/chapter

Deadlines

Presentations at Oslo 20041203 + organization of chapters (forming chapter groups). Detailed powerpoint presentations of chapters to be put on the internet by 20050401. In this context, it is important to notice that WG2 will have its meeting in Limirick 200501XX. Kia Ng will activate WG2 and make a proposal for chapters. Written texts should be available by 20051201, one year from now. A reasonable estimation for publication is mid 2006. Coordination with WG2 is important in order to

have an equilibrium in chapter design: 20040129-30(?). Also WG3 should be activated and it would be nice to have a more detailed proposal soon.

Role of chapter-leaders:

Check writing styles. Do coordination of writing the chapter. Activate co-authors. Follow up of deadlines.

Booktitle

Book 1: Gestural control of audio systems – concepts and foundations ???

Gesture controlled audio systems

Music gesture research

Review procedures

ConGAS members are the experts in the field. Therefore, there will be non-anonymous review round by the partners of ConGAS, possibly with help of external referees. It is to be expected that the publisher organizes an additional anonymous review.

Electronic additions

There should be a possibility for having CD-rom/Web-site, for storing software programs, having an appendix/glossary/abbreviations.

ConGAS-books on Music Gesture Research

This list of topics contains an extension and rework of the list of topics that circulated among the ConGAS members. Starting from this list of topics, chapters have been compiled. A chapter may cover several topics of this list. WG2 and WG3 are invited to modify their part.

BOOK 1 - Basics of gesture and sound (covering the actions of WG1)

1 Gesture and Perception-Action Ontologies

- Definitions of Gesture – different meanings
- Link/difference between gesture and control
- Aims and Goals of Gesture Research
- Subjective Experience and Objective Description of Gestures
- Sensory-Motor Theory and Gesture
- Gesture action and perception – abilities in gestural action and reaction
- Gesture Typologies
- Gestural in Relation to Expression & Emotion
- Expressive gesture: Neutral levels? Expressiveness as deviation?
- How gesture can be taken from signal and related to emotion
- Gestural in Relation to Intentionality and Imitation
- Challenges and Perspectives
- How to learn gesture (autodidact – in education)
- Ensemble gestures – e.g. how gestures of musicians are synchronized in ensemble

playing

2 Paradigms of Musical Interactivity

- History & Development
- Gesture in relation to culture & history (music analysis point of view)
- Layers of Musical Interaction (low, middle, high)
- Concepts of Musical Interactivity (hyper-instruments, dialogue instruments)
- Electronic v Acoustic Instruments:
 - Gesture to sound links in acoustic instruments
 - Mapping in digital instruments
- Challenges and perspectives

BOOK 2 – Platforms, Measurement & methodologies (should be worked out in more detail by WG2)

1. Hardware and Software Platforms

1.1. Sensing Systems

- Type of sensors (audio, visual, haptic etc...)
- Challenges and perspectives

1.2 System Architectures

- Taxonomy
- Input & Output considerations
- Real-time issues
- Hardware/software

1.3 Standards

- OSC
- PD
- MPEG ...

2. Research Methodologies

2.1 Design of Sensors and Architectures

- Affordances, Conventions & Constraints
- Practical considerations
- Testing

2.2 Multi-modal Measurement of Gestures

Movement & audio & Haptic Tracking
Movement Quantification

3. Experiments, annotation and evaluation

3.1 Setting up Experiments

- Experimental Paradigms
- Overview of Research Done

3.2 Annotation of Gestures

- Techniques of Annotation
- Examples of Annotation

3.3 Evaluation of Gestural Research

BOOK 3 – Applications & technology of gestural control (to be worked out in more detail by WG3)

1 Instruments, tools and systems

1.1 Hardware software

- Examples of sensors (discussion in context of the application)
- Digital music instruments (DMI): conception, design and use
- Instruments and installations)

1.2 Environments/Platforms

- EyesWeb, MEGA...
- Kia's work...
- ExpressiBall
- Performance Worm

1.3 Analysis (or Scientific Applications)

Interactive Sonification . . .

1.4 Artistic Applications

[Diverse reports of artistic applications of Gestural Systems]

1.5 Medical & Social

- Interfaces for visually impaired
- Instruments for people with limited control bandwidth
- Therapists
- Education: how to go from gesture score to performance / are there gesture scores? / how to represent gestures? / how to learn people to use these new instruments?

Presentation of chapter topics

After having defined general topics in a list, the participants have explained in more detail their topic and interests.

Rolf Inge:

- audio-motor link
 - contour rhythm timbre tonality are related to gestures
 - action units (chunks) correspond with segmentations in the audio domain – gesture-based segmentation in musical sound
 - co-articulation: fusion of phonemes, fusion of sounds in a sound trajectory. Unit formation
 - mental images of sound, how listeners form action scripts in their minds, essential when we remember musical
- Gesture and action ontologies, epistemology of actions. Action gestures structure sounds

Marc:

- corporeal resonances – different types
- musical gestures and imitation
- relevance for annotation and empirical modelling
- relationship with expressiveness

Jan: Measurements of instruments – relation gesture / audio

acoustical instruments and their control is more important than measuring the gesture itself. Instrument is gestural controlled.

What are we doing when playing an acoustical instrument.

Technology – state-of-the art

Expressive gestures is a topic that should be worked out:

- typical human way of communication
- communication of emotion

Daniel:

- distinction between expressive gesture as free gesture and expressive gesture devoted to sound (1.1.1)
- link between gesture and body -> sensorimotor part (1.1.1)
- work on the mapping. Physical systems between gesture and sound. Dynamic/static/many-one/one-many mappings (1.1.2)
- typologies preparation (no sounds), excitation (point in time), modulation (along with time) gestures (1.1.1)
- digital musical instruments as implementations/applications (Paradiso – classifying hyper-instruments etc...) 2.1 -> 1.3.1. ???

Sofia:

- control aspect + mappings of emotional expressions in controlling digital instruments
- measurement of gestures

Christopher:

- Gesture theory + gesture controllers
- Tony Brooks: gestures & disabled people

Gualtiero:

- 1.1.1. definition gesture/emotions – expressive gestures
- interaction, multi-modal systems 1.1.2.
- measurement – multi-modal analysis
- application (EyesWeb)

Silvi:

- studies gestural control of virtual actors
- sensorimotor theory: extract from signals the main laws (e.g. Viviani's law)
- modeling gestures – model them like a system with parameters. Application to virtual characters
- Three approaches: black-box (signals-identify gestures), right movement equations, trying to do learning what is inside gestures.
- Motion capture and Annotations of gestures – labeling gestures for indexing of movement in large databases.

Frederick:

- motion measurement – link with music notation & notation of gesture modal
- link gesture modal and acoustics
- electronic vs. acoustic instrument – augmented instruments (1.3)

Link between cognitive modeling, kinematic modeling, acoustical modeling.

Teemu:

Latency studies

- latency i gestural controlled (fundamentals) : action and sound reaction
- what is the influence of perceptual issues
- related to synchronization,

Related to perception and to mapping

Different kinds of feedback – experiments

- gestural control of continuous sound – fits within physical modelling, comparing mappings
- applications: plucking point estimation for acoustic guitar
- appl.: artistic applications & installations
- appl.: virtual air guitar (plucking, vibrato, sliding...)

Kia:

- sensors, motion capture, motion tracking technology (electronmagn, optical, ...)
- standards state of the art, proposals, extend MPEG, linked with music network project
- Hardware components
- Testing: latencies, procedural testing
- motion capture: Vicon, stereo-vision, 3D-trackings
- application side: electronic instruments to virtual, hyper or hyper-augmented instruments
- Application: music/motion system, 3D tracking for musical performances, relationship between musical and physical gestures, gesture modelling and simulations using ballet, capture real-human dancers, using deviation & Laban approach.

Chapter Titles, Chapter Leaders and Authors

BOOK1: Basics of gesture and sound

- Aims and goals of Gesture controlled audio research (Hunt, Wanderley, Leman, Ng, **Bernardini**, Volpe)
- Gesture definition & typologies (Arfib, **Wanderley**, Murphy, Jorda)
- Gesture & sensorimotor theory (**Godøy**, Leman, Gibet, Haga)
- Issues in perception/action/coordination (**Mäki-Patola**, Dahl, Jensen)
- Gesture Expression/Emotion/Intentionality/Imitation (Godøy, **Leman**, Volpe, Ng, Friberg/Bresin)
- Modeling gestural interaction & coordination (Ng, **Gibet**, Bevilacqua)
- Digital vs acoustic instruments: mapping.. (**Arfib (digital part)**, **Tro (acoustical)**, Dahl, Jensen, Jenssenius, Wanderly)

[[[BOOK2

- Concepts of interactivity (hyper-instruments/dialogue..., force feedback – Link to BOOK 2 about Hardware & software platforms...& Methodologies) (**Bevilacqua**, Jorda)???
- Representation and annotation of gesture (should be a chapter in BOOK 2?) (Ng, Leman, Gibet, Volpe, Moeslund)???)]]]