



FP6-2004-NEST-PATH project n°: 29085

CLOSED

Closing the Loop of Sound Evaluation and Design

Instrument: Specific Targeted Research Project (STREP)

Thematic priority: Strengthening the European Research Area

Deliverable 6.2

Project related publications (part 3)

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Project coordinator name: Patrick Susini

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Project coordinator organization name: IRCAM

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1 Exploitable knowledge and its use

1.1 Overview table

Exploitable Knowledge	Exploitable product(s) or measure(s)	Sector(s) of application	Timetable for commercial use	Patents or other IPR protection	Owner & Other contractor involved
Physically-based sound models for everyday sounds	Sound_Design_Tools (software package)	Sound Design	No plan	GNU General Public License v.2	UNIVERONA
Preference Based Learning	Online Adaptive Parameter Optimisation	Sound Design	No Plan	No Patent	Owner: NIPG, Other contractors: ZHdK, VIPS
Dynamic metaphors for control mapping	Interactive, manually-operated sound-producing products of various description	Product design	Unknown (further development required)	Essentially unpatentable (prior art exists)	ZHdK
Physical lights	Future lamps, toys, and similar artifacts	Product design	Unknown	Copyright	ZHdK
EcoTile	Architectural components; VR equipment; Other (unknown)	Product design; Architecture; Art; Entertainment	2010-	Possible patent	Concept, Design: ZHdK and McGill University (Franinovic/Visell)
Adaptive Sounding Artifacts	Interactive sound producing products (various)	Product design; Sound design	Unknown	Further development required prior to patent	NIPG and ZHdK
Predictors of Perceptual Sound Attributes	Sound Search	Product design; Sound design	Unknown	Further development required prior to patent	NIPG

1.2 Physically-based sound models for everyday sounds

Description The SDT package is envisaged to be exploited as a sound design tool for sound-augmented artefacts and everyday objects. The SDT package provides sound models which allows to simulate everyday sounds (e.g., impacts and frictions between solids, liquid drops and splashes). The sound synthesis models are physics-based, that is, they simulate interactions between physical objects that produce sounds. The models are made available as plugins for popular software platforms. The main advantage of the physics-based approach is that models are driven, and therefore can be controlled, by physically consistent and perceptually meaningful parameters. The SDT package provides a truly innovative approach to sound synthesis in that it allows to simulate non-musical sounds controlled by continuous interaction.

Public target A possible market can be that of software applications for (sound-) product designers. The increasing demand for quality of the sonic aspects of products and everyday environments is envisaged as a potential strong stimulus for research in sound interaction design, of which the SDT is an outstanding example.

Stage of development The current version of the SDT package is pre-final laboratory prototype (version 0.4.2c)

License SDT is free software that can be redistributed and/or modified under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or any later version. The official STD package distribution contains copy of the GNU General Public License in the files GPL.txt and GPL.mxt. Copyright (C) 2007-2008 VIPS group, University of Verona. Contact details: stefano.papetti@univr.it

1.3 Preference Based Learning

Description In a parametric design process - like SDT/ UNIVERONA controlled with many parameters - designing the model is far from being enough for the success of the model alone. The parameters should be tuned to be able to obtain the desired result. In such environments, parameter tuning is mostly done by hand by using the trial-error method. This can be a hard task.

In an online environment, this could be even harder, because the parameter tuning should be done in small number of iterations. *Adaptive optimization* is being developed to solve such parameter tuning problems.

In sound design, input parameter optimisation is again a crucial task to obtain the desired sound. The *adaptive optimization* method can be applied to sound design to make the parameter tuning task in a more structural way based on the user preference.

Stage of development The method is being developed by NIPG. It is planned to be ready by the end of the second reporting period. The demonstration of the method will be done in an adaptive bottle scenario. The adaptive bottle is an artefact to simulate action of pouring liquid. The bottle has been developed by ZHdK. The physical sound model to simulate the emerging sound, when liquid is poured out has been developed by UNIVERONA. This sound model will be optimised by the adaptive optimization technique.

Public target It is planned to present this methodology as a proof of concept to the scientific community to discuss and improve it, such that a successful implementation as a product would be possible.

1.4 Dynamic metaphors for control mapping

- Description: Solution to designing control mappings for interactive sonic artifacts in such a way as to suggest their proper use (introduced in D3.1)
- Exploitable products: Interactive, manually-operated sound-producing products of various description
- Timetable for commercial use: Unknown (further development required)
- Patents: Essentially unpatentable (prior art exists)
- Owner: ZHdK (Franinovic/Visell)
- Exploitation channels: Future software frameworks; Consulting

1.5 Physical lights

- Description: Manipulatable lamps based on physical metaphors for their illumination control
- Exploitable products: Future lamps, toys, and similar artifacts
- Timetable for commercial use: Unknown
- IP Protection: Copyright
- Owner: ZHdK (Franinovic/Visell)
- Exploitation channels: Production (directly) or licensing

1.6 EcoTile

- Description: Floor tile with active control over perceived material properties
- Exploitable products: Architectural components; VR equipment; Other (unknown)
- Timetable for commercial use: 2010-
- IP Protection: Possible patent
- Owner: Concept, Design: ZHdK and McGill University (Franinovic/Visell)
Sound synthesis model: UNIVERONA

- Exploitation channels: Production (directly), product licensing, contractual installation

1.7 Adaptive Sounding Artifacts

- Description: Active-learning type algorithm for preference-based design of sound in a product based on a parametric model
- Exploitable products: Interactive sound producing products (various)
- Timetable for commercial use: Unknown
- IP Protection: Further development required prior to patent
- Owner: NIPG and ZHdK (Franinovic/Visell)
- Exploitation channels: Software sound design tools (sales), or algorithm licensing; Consulting

1.8 Predictors of Perceptual Sound Attributes

- Based on timbre descriptor and dissimilarity measure based on spikes.
- Models have been developed to predict perceptual relevant sound attributes.
- Development by NIPG.

1.9 Expected future activities not yet exploitable

- Human factors evaluation methods for ecological sonic interaction design (preference, performance): Joint work with IRCAM during CLOSED project period 2.
- Simplified control space identification methods based on psychoacoustic-parameter subspace visualization: Future work with NIPG.

2 Dissemination of knowledge

2.1 Overview table

The overview table of dissemination of knowledge is presented p. 16.

2.2 Presentations

Summer school

- 2006
 - D. Devallez presented her Ph.D. project and research in progress in relationship with CLOSED at the S2S² Summer School in Barcelona, Spain, July 24-28, 2006.
- 2007
 - P. Polotti. Presentation of the CLOSED project during the Sound and Music Computing Summer School at the KTH in Stockholm, Sweden. July 6, 2007.
http://www.soundandmusiccomputing.org/summer_school/stockholm2007
- 2008
 - S. Papetti will present his Ph.D. project and research in progress, in relationship with CLOSED, at ICAD 08 (Think Tank session) in Paris, France, June 23, 2008.

Seminars

- 2006
- 2007
 - G. Lemaitre, O. Houix, N. Misdariis and P. Susini, “Presentation des travaux de l’équipe Perception et Design Sonores dans le cadre du projet européen CLOSED”. Séminaire Recherche et Création, Ircam, Paris, June 27, 2007.
 - K. Franinovic and Y. Visell. “Le son interactif dans les choses de tous les jours”. Pecha Kucha night, La Société des arts technologiques [SAT], Montreal, September 2007.
<http://montreal.pecha-kucha.ca/editions-editions/2-2007-09-18-sat/>
 - Y. Visell, “Presentation of the CLOSED project”. AI-Lab, University of Zurich, Brown Bag presentation, October 2007.
 - Y. Visell, “Presentation of the CLOSED project”. BIRG Lab, EPFL Lausanne, Switzerland. October 2007.
 - D. Rocchesso, “Presentation of the CLOSED project”. The lecture “Sonic interaction design and sound synthesis” held for the course “Audio Signal Processing” at the Helsinki University of Technology, Laboratory of Acoustics and Audio Signal Processing, November 7, 2007
<http://www.acoustics.hut.fi/teaching/S-89.3580/>
 - P. Polotti, “Oggetti e Suono: l’evidenza attraverso la contraddizione”. Seminar held at the Conservatorio di Musica ‘G. Verdi. Como, Italy. December 17, 2007.
- 2008
 - K. Franinovic. Sonic Interaction Design Research, lecture at Nanyang Technological University, Singapore, July 2008.

- K. Franinovic. “Presentation of the CLOSED project”. Summit on New Media Arts Policy and Practice, The Asia-Europe Foundation (ASEF) and the International Federation of Arts Councils and Culture Agencies (IFACCA), Singapore, July 2008.
- 2009
 - H. Purwins. “Sparse Sound Representations and Adaptive Methods for Modeling Musical Expectation and Interactive Sound Search”, IRCAM, January 27, 2009
 - H. Purwins. “Vom Sinus zum Sound Design”, Duesseldorf Robert-Schumann Hochschule, May 23, 2009

Conferences and workshops

- 2006
 - D. Rocchesso. Presentation of the CLOSED project and established contacts with other EU NEST project, namely BrainTuning and TACT. CIM (XVI Colloquio di Informatica Musicale). Genova, Italy. October 24-25, 2006.
- 2007
 - D. Rocchesso and P. Polotti jointly with IRCAM. Presentation of the CLOSED project within the workshop at the HGKZ in Zurich, Switzerland. January 9, 2007.
 - G. Lemaitre, O. Houix, N. Misdariis and P. Susini, “Perception et classification des sons environnementaux”. Journées du Groupe Perception Sonore de la Société Française d’Acoustique. Lyon, France. January 18-19, 2007.
 - G. Lemaitre, IRCAM, France and P. Polotti, University of Verona, Italy. Presentation of the CLOSED project at the 1st MINET workshop. Portoroz, Slovenia. September 26, 2007.
<http://minet.files.wordpress.com/2007/11/newsletter-1.pdf>
 - H. Purwins. Project Presentation: Closing the Loop of Sound Evaluation and Design (CLOSED), Music, Brain and Cognition. Part 2: Models of Sound and Cognition. Neural Information Processing Systems Conference (NIPS). Whistler, Canada. December 7-8, 2007.
http://videlectures.net/mbc07_purwins_cls/
 - K. Adiloglu, R. Annies, Y. Visell, K. Franinovic, C. Drioli, K. Obermayer, “Adaptive Control for Sound Design”. Music, Brain and Cognition. Part 2: Models of Sound and Cognition. Neural Information Processing Systems Conference (NIPS). Whistler, Canada. December 7-8, 2007.
http://web.mac.com/davidrh/MBCworkshop07/Day_2.html
- 2008
 - G. Lemaitre, O. Houix, N. Misdariis, P. Susini, “Naive and expert listeners use different strategies to categorize everyday sounds. Presented at Acoustics 08. Paris, France. June 29 - July 4, 2008.
 - K. Aura, G. Lemaitre, P. Susini, “Verbal imitations of sound events enable recognition of the imitated sound events”. Presented at Acoustics 08. Paris, France. June 29 - July 4, 2008.
 - O. Houix, G. Lemaitre, N. Misdariis, P. Susini, “Classification of everyday sounds : influence of the degree of sound source identification”. Presented at Acoustics 08. Paris, France. June 29 - July 4, 2008.
- 2009
 - H. Purwins, “Time series analysis of sound and music signals”, 425. WE-Heraeus-Seminar Stochastic Approaches to Complexity January 8.-10. 2009
 - H. Purwins. “Measuring the Perception of Everyday Sounds”, MINET Meeting, Wageningen, NL May 15
 - G. Lemaitre, O. Houix, K. Franinovic, Y. Visell, P. Susini, “ The Flops glass: a device to study emotional reactions arising from sonic interactions”. To be presented at Sound and Music Computing, Porto, Portugal, July 2009
 - A. Dessenin, G. Lemaitre “Free classifications of vocal imitations of everyday sounds”. To be

presented at Sound and Music Computing, Porto, Portugal, July 2009

- P. Susini N. Misdariis O. Houix G. Lemaitre. Does a “natural” feedback affect perceived usability and emotion in the context of use of an ATM?” To be presented at Sound and Music Computing, Porto, Portugal, July 2009

2.3 Conference organization

- 2006
- 2007
- 2008
 - Organization of the 14th International Conference on Auditory Display, ICAD, with a special day with a CLOSED/SID thematic. IRCAM, Paris, June 24-28, 2008. <http://icad08.ircam.fr>.

2.4 Workshop and Course Realization

- 2006
- 2007
 - Realization of the CLOSED Workshop during the Sound and Music Computing Summer School organized by the Music Acoustics Group of the KTH in Stockholm, Sweden. July 1-6, 2007.
http://www.soundandmusiccomputing.org/summer_school/stockholm2007
 - Organization of the workshop ”Embodied Sound” held at HGKZ Industrial and Scenographic Design program. Zurich, Switzerland. July 23-28, 2007.
 - Organization of the course ”Acoustic Display and Interactive Sound” held at ZHdK Interaction Design program. Zurich, Switzerland. December 6-21, 2007. (see website section).
 - H. Purwins (Berlin University of Technology), X. Serra (Universitat Pompeu Serra), K. Obermayer (Berlin University of Technology). Organization of the workshop : Music, Brain and Cognition. Part 2: Models of Sound and Cognition. Neural Information Processing Systems Conference (NIPS). Whistler, Canada. December 7-8, 2007.
<http://web.mac.com/davidrh/MBCworkshop07/Workshop.html>
- 2008
 - Y. Visell and K. Franinovic. “Sonic Artefacts in Interactive Arts”. Workshop at Oboro gallery, Montreal, February 2008.
 - Organization of the workshop “Sonic Interaction Design: Sound, Information, and Experience” at the COST Action IC0601 on Sonic Interaction Design, to be held in Florence, Italy. April 6, 2008.
<http://www.cost-sid.org/wiki/CHIworkshop>
 - K. Franinovic and Y. Visell. “Sound and Interaction for Interior Design”. Workshop at Nuova Accademia di Belle Arti di Milano, Interior Design MA program. Milano, Italy. June 2008.
 - P. Susini. Psychological measurement for sound description and evaluation : application to sound quality. MINET Training Course : *Theory and methods of measurements with persons*. Genova, Italy, June 9-11, 2008.
<http://minet.wordpress.com/events/trainingcourse2008/>
 - K. Franinovic, L. Gaye and F. Behrendt. “Exploring Sonic Interaction with Tangible Artifacts in Everyday Contexts” Workshop at the 14th International Conference on Auditory Display. IRCAM, Paris, France. June 24-28, 2008.
<http://sonicinteraction.wordpress.com/>

2.5 Reports

- 2006
- 2007
 - M. Pellerin, “Gestion de bases de données sonores”. Institut Supérieur des Techniques du Son. Technical Report. 2007.
 - E. Martinez, K. Adiloglu, R. Annies, H. Purwins, K. Obermayer. “Biologically inspired classification of everyday sounds”. Technical Report. 2007.
- 2008
 - Matthias Schultze-Kraft, “Generating Prototypes of Everyday Sounds”, Technical Report, Berlin Institute of Technology, 2008.
- 2009
 - S. de Bruijn, H. Purwins, R. Annies, C. Laurier, K. Adiloglu, K. Obermayer, Comparative Prediction of Emotional Attributes of Sound and Music Bites”, Technical Report Berlin Institute of Technology, 2009.

2.6 Master Thesis and PhD Thesis

- 2006
- 2007
 - D. Hug, “Sounds or Movers and Shakers”. Diplom (thesis), University of the Arts, Zurich, 2007.
- 2008
 - V. Ludlow. “Approche perceptive de la synthèse sonore par modèles physiques”. Chalmers University of Technology (Göteborg, Suède) : Master Thesis (MSc Sound and Vibration) Université Technologique de Compègne : Projet de Fin d’Etudes, May, 2008.
 - Elio Wahlen. “Gehörgerechte Klangrepräsentation für automatische Merkmalsklassifikationen”. Diplomarbeit, Hochschule für Angewandte Wissenschaften Hamburg, 2008 .
- 2009
 - Robert Annies. “Machine Learning for Sound Design”, Ph.D. Thesis (working title, in progress), NIPG, Berlin Institute of Technology.
 - Arnaud Desseign. “Incremental Multi-Source Recognition with Non-Negative Matrix Factorization”. ATIAM Master’s thesis, Université Pierre et Marie Curie, Paris 6, France.

2.7 Publications

Book Chapters

Conference Abstracts and Posters

- 2006
- 2007
 - D. Hug, “Game Sound Education at HGKZ - Between Research Laboratory and Experimental Education”. Proceedings of Audio Mostly. 2nd Conference on Interaction with Sound. Ilmenau, Germany. September 27-28, 2007.
 - D. Hug, “Sound Design for Interactive Objects”. Multimedia, Interaction and Games. 2nd VST Tonmeistertagung. Ludwigsburg, Germany. October 31 - November 2, 2007.
- 2008

- D. Hug, “Towards a Hermeneutics and Typology of Sound for Interactive Commodities”. Proceedings of the ACM CHI workshop - Sonic interaction design. Florence, Italy. April 7-11, 2008.
- D. Rocchesso and P. Polotti, “Designing Continuous Multisensory Interaction”. Proceedings of the ACM CHI workshop - Sonic interaction design. Florence, Italy. April 7-11, 2008.
- P. Polotti, S. Delle Monache, S. Papetti and D. Rocchesso, “Gamelunch: Forging a Dining Experience through Sound”. Proceedings of the ACM CHI workshop - Sonic interaction design. Florence, Italy. April 7-11, 2008.
- R. Bresin, S. Delle Monache, F. Fontana, S. Papetti, P. Polotti, Y. Visell, “Auditory Feedback from Continuous Control of Crumpling Sound Synthesis”. Proceedings of the ACM CHI workshop - Sonic interaction design. Florence, Italy. April 7-11, 2008.
- D. Rocchesso, Y. Visell, K. Franinovic, F. Behrendt, S. Pauletto, P. Susini, R. Bresin, et al., Sonic Interaction Design: Sound, Information, and Experience. ACM CHI workshop - Sonic interaction design. Florence, Italy. April 7-11, 2008.
- R. Bresin, S. Delle Monache, F. Fontana, S. Pappetti, P. Polotti, Y. Visell, “Auditory Feedback from Continuous Control of Crumpling Sound Synthesis”. ACM CHI workshop - Sonic interaction design. Florence, Italy. April 7-11, 2008.
- T. Hermann, Y. Visell, R. Murray-Smith, J. Williamson, E. Brazil, “Sonification for Sonic Interaction Design”. ACM CHI workshop - Sonic interaction design. Florence, Italy. April 7-11, 2008.
- D. Rocchesso, S. Serafin, F. Behrendt, N. Bernardini, R. Bresin, G. Eckel, K. Franinovic, T. Hermann, S. Pauletto, P. Susini, Y. Visell. “Sonic Interaction Design: Sound, Information and Experience”. ACM CHI, extended abstracts on Human Factors in Computing Systems, pp. 3969-3972, 2008.
- G. Lemaitre, O. Houix, N. Misdariis, P. Susini, “Naive and expert listeners use different strategies to categorize everyday sounds. Euronoise”. Proceedings of Acoustics 08. Paris, France. June 29 - July 4, 2008.
- K. Aura, G. Lemaitre, P. Susini, “Verbal imitations of sound events enable recognition of the imitated sound events”. Proceedings of Acoustics 08. Paris, France. June 29 - July 4, 2008.
- O. Houix, G. Lemaitre, N. Misdariis, P. Susini, “Classification of everyday sounds : influence of the degree of sound source identification”. Proceedings of Acoustics 08. Paris, France. June 29 - July 4, 2008.
- D. Rocchesso, “Experimentation in physics-based sound modeling”. Proceedings of Acoustics 08. Paris, France. June 29 - July 4, 2008.
- 2009
 - S. de Bruijn, H. Purwins, R. Annies, C. Laurier, K. Adiloglu, K. Obermayer, “ An Emotional Color Palette for the Sound Artist” , submitted to the Sound and Music Computing Conference (Special Session), 2009.
 - Robert Annies, Kamil Adiloglu, Hendrik Purwins, “Playing with SID”, submitted to Sound and Music Computing Conference (Special Session), 2009.

Refereed Conference Papers

- 2006
 - P. Susini, N. Misdariis, G. Lemaitre, D. Rocchesso, P. Polotti, K. Franinovic, Y. Visell, K. Obermayer, H. Purwins, K. Adiloglu, “Closing the Loop of Sound Evaluation and Design”. Proceedings of the 2nd ISCA/DEGA Tutorial and Research Workshop on Perceptual Quality of Systems. Berlin, Germany. 2006.
 - Y. Visell, “The Sensual Move: Gesture Learning and Sensory-Motor Based Interaction Design”. ACM Intl. Conf. on Multimodal Interfaces. Banff, Canada. November 2-4. 2006.
- 2007
 - K. Franinovic, Y. Visell, D. Hug, “Sound Embodied: Explorations of Sonic Interaction Design

- for Everyday Objects in a Workshop Setting”. Int. Conf. on Auditory Displays (ICAD’07). Montreal, Canada. June 26-29 2007.
- Y. Visell and J. Cooperstock, “Modeling and Continuous Sonification of Affordances for Gesture Based Interfaces”. Proceedings of the International Conference on Auditory Display. Montreal, Canada. June 26-29 2007.
 - D. Devallez, D. Rocchesso, F. Fontana, “An experimental evaluation of the influence of auditory cues on perceived visual orders in depth”, Proceedings of the International Conference on Auditory Display. Montreal, Canada. July 2007.
 - F. Fontana, “Preserving the structure of the Moog VCF in the digital domain”. Proceedings of the International Computer Music Conference 2007. Copenhagen, Denmark. August 27-31, 2007.
 - S. Delle Monache, P. Polotti, S. Papetti and D. Rocchesso, “Gamelunch: a Physics-based Sonic Dining Table”. Proceedings of the International Computer Music Conference 2007. Copenhagen, Denmark. August 27-31, 2007.
 - E. Martinez, K. Adiloglu, R. Annies, H. Purwins, K. Obermayer. “Classification of everyday sounds using perceptual representation”. Proceedings of Audio Mostly. 2nd Conference on Interaction with Sound. Ilmenau, Germany. September 27-28, 2007.
 - Y. Visell, J. Cooperstock, and K. Franinovic, “The EcoTile: An Architectural Platform for Audio-Haptic Simulation in Walking”. Proceedings of the 4th Intl. Conf. on Enactive Interfaces (ENACTIVE’07), Grenoble, France. November 19-24, 2007.
 - R. Annies, E. Martinez, K. Adiloglu, H. Purwins, K. Obermayer, “Classification Schemes for Step Sounds Based on Gammatone Filters”. Music, Brain and Cognition. Part 2: Models of Sound and Cognition. Neural Information Processing Systems Conference (NIPS). Whistler, Canada. December 7-8, 2007.
http://web.mac.com/davidrh/MBCworkshop07/Day_2.html
- 2008
 - K. Franinovic, “Basic Interaction Design for Sonic Artifacts in Everyday Context”. Proceedings of the Swiss Design Network Symposium: Focused - projects and methods of current design research. Bern, Switzerland. May 2008.
<http://www.focused08.ch/>
 - S. Delle Monache, P. Polotti, S. Papetti and D. Rocchesso, “Sonically Augmented Found Objects”. Proceedings of the NIME conference. Genoa, Italy. June 5-7, 2008.
 - K. Franinovic, Y. Visell, “Strategies for Sonic Interaction Design: From Context to Basic Design”. Proceedings of Acoustics 08. Paris, France. June 29 - July 4, 2008.
 - K. Franinovic, L. Gaye, F. Behrendt, “Exploring Sonic Interaction with Tangible Artifacts in Everyday Contexts”. Proceedings of the 14th International Conference on Auditory Display. IRCAM, Paris, France. June 24-28, 2008.
 - S. Papetti, D. Devallez, and F. Fontana. “DepThrow: a Physics-based Audio Game”. Proceedings of the 14th International Conference on Auditory Display, Paris, France, June 24-27 2008.
 - Y. Visell, J. Cooperstock, K. Franinovic, B. Giordano, S. McAdams, K. Jathal, A. Law, F. Fontana, “A Vibrotactile Device for Display of Virtual Ground Materials in Walking”. Proceedings of the Eurohaptics conference 2008. Madrid, Spain. June, 2008.
 - K. Franinovic, “Amplified Movements, An Enactive Approach to Sound in Interaction Design”. Proceedings of the Planetary Collegium’s 9th Intl. Conference. New Realities: Being Syncretic. Springer. 2008, July, Vienna.
 - K. Adiloglu, R. Annies, K. Obermayer, Y. Visell and C. Drioli, “Adaptive Bottle”. Proceedings of the International Computer Music Conference, August 2008, Belfast, Ireland.
 - D. Devallez, D. Rocchesso and F. Fontana, “An Audio-Haptic Interface Concept Based on Depth Information”. Proceedings of the HAID 2008. Jyväskylä, Finland. September 15-16 2008.

- D. Devallez, D. Rocchesso, and F. Fontana, “An Audio-Haptic Interface Concept Based on Depth Information”. Proceedings of the International Haptic and Auditory Interaction Design Workshop. Jyväskylä, Finland. September 15-16 2008.
- D. Devallez, F. Fontana and D. Rocchesso, “An Audio-Haptic Interface Based on Auditory Depth Cues”. Proceedings of the ICMI 2008. October 20-22 2008. Chania, Crete, Greece.
- K. Adiloglu, R. Annies, F. Henrich, A. Paus, K. Obermayer, “Geometrical Approaches to Active Learning”. Proceedings of the Workshop Autonomous Systems – Self-Organisation, Management, and Control. October 2008. Shanghai, China.
- S. Papetti, D. Devallez, and F. Fontana. “Depthrow: uno strumento di indagine sulla percezione uditiva della distanza in forma di gioco audio”. Proceedings of the 17th Colloquio Di Informatica Musicale, Venice, Italy, October 2008.
- S. Delle Monache, D. Devallez, P. Polotti, and D. Rocchesso. “Sviluppo di un’interfaccia audio-aptica basata sulla profondita’ spaziale”. Proceedings of CIM Colloquio di Informatica Musicale, Venice, Italy, October 2008.
- D. Devallez, F. Fontana, and D. Rocchesso. “An Audio-Haptic Interface Based on Auditory Depth Cues”. Proceedings of the Tenth International Conference on Multimodal Interfaces, Chania, Crete, Greece, October 20-22 2008.
- D. Devallez, F. Fontana, and D. Rocchesso. “Linearizing Auditory Distance Estimates by Means of Virtual Acoustics”. Acta Acustica United with Acustica, vol. 94(6), November-December 2008.
- 2009
 - C. Drioli, P. Polotti, D. Rocchesso, S. Delle Monache, K. Adiloglu, R. Annies, K. Obermayer, “Auditory Representations as Landmarks in the Sound Design Space”, To be published in the Proceedings of Sound and Music Computing Conference. Porto, Portugal, July 2009.
 - G. Lemaitre, O. Houix, K. Franinovic, Y. Visell, P. Susini. “The Flops glass: a device to study emotional reactions arising from sonic interactions”, To be published in the Proceedings of Sound and Music Computing Conference. Porto, Portugal, July 2009.
 - A. Dessein, G. Lemaitre, P. Susini. “Free classifications of vocal imitations of everyday sounds”. To be published in the Proceedings of Sound and Music Computing Conference. Porto, Portugal, July 2009.
 - P. Susini, N. Misdariis, O. Houix and G. Lemaitre “Does a natural sonic feedback affect perceived usability and emotion in the context of use of an ATM?”. To be published in the Proceedings of Sound and Music Computing Conference. Porto, Portugal, July 2009.
 - C. Drioli, D. Rocchesso. “Acoustic rendering of particle-based simulation of liquids in motion” Submitted to the International Conference on Digital Audio Effects - DAFx-09. Como, Italy, September 2009.
 - H. Purwins, P. Holonowicz, P. Herrera, (In Press). Prediction of Surprise Based on Loudness - A Preliminary Study . Sound and Music Computing Conference, Porto, 2009.

Refereed Journal Papers

- 2006
 - S. Papetti, “The Sounding Object: estensione dei modelli di sintesi basati su impatto e frizione”, Proceedings of the CIM-07 (XVI Colloquio di Informatica Musicale). Genoa, Italy, 24-25 October 2006.
- 2007
 - C. Drioli and D. Rocchesso, “On the use of Kernel-based methods in sound synthesis by physical modeling”, in Numerical Algorithms, Vol. 45, pp. 315-329, 2007.
- 2008
 - F. Fontana and D. Rocchesso, “Auditory distance perception in the acoustic pipe”. ACM Transactions on Applied Perception. 2008.

- P. Susini. Psychological measurement for sound description and evaluation : application to sound quality. in *Theory and methods of measurements with persons*, MINET Training Course. 2008.
- D. Devallez, F. Fontana and D. Rocchesso, “A virtual model for linear access to auditory distance”. Submitted to *Acta Acustica united with Acustica*.
- A. de Götzen, P. Polotti, and D. Rocchesso. “Sound design and auditory display.” In P. Polotti and D. Rocchesso, editors, *Sound to Sense, Sense to Sound. A State of the Art in Sound and Music Computing*. Logos Verlag, Berlin, 2008.
- 2009
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 - G. Lemaitre, O. Houix, N. Misdariis, P. Susini. “Listener expertise and sound identification influence the categorization of environmental sounds”. *Journal of Experimental psychology*, accepted with modifications, 2009.
 - G. Lemaitre, O. Houix, Y. Visell, K. Franinovic, N. Misdariis, P. Susini. “Toward the Design and Evaluation of Continuous Sound in Tangible Interfaces: The Spinotron”. *International Journal of Human-Computer Studies*. Special issue on sonic interaction design, accepted with modifications, 2009.
 - R. Annies, K. Adiloglu, E. Wahlen, H. Purwins, K. Obermayer. “A Graphical Representation and Dissimilarity Measure for Basic Everyday Sound Events”. Submitted to the *IEEE Transactions on Audio, Speech and Language Processing*, 2009.
 - Purwins, H. and Hardoon, D. (2009). Trends and Perspectives in Music Cognition Research and Technology. *Connection Science*. 21(2-3), 85-88.
 - Hardoon, D. and Purwins, H. (Editors) Special Issue “Music Brain, Cognition”, *Connection Science*. 21(2-3), 2009.

2.8 Project web-sites

- Creation of the CLOSED website presenting the project and containing the different deliverables and SDT.
<http://closed.ircam.fr>
- Creation of a trac-based software management web site with a browsable svn repository containing the software models and their supporting documentation.
<http://trac.soundobject.org>
- Creation of wiki website containing proposals for CLOSED prototypes, a platform for discussion with contractors.
<http://sound-scene-storm.wikispaces.com/>.
- Creation of wiki website documenting kitchen field research and analysis.
<http://actionanalysis.wikispaces.com/>
- Creation of two CLOSED course websites at ZHdK containing lectures about CLOSED related topics and references, participatory exercises, field video materials and student projects.
<http://sonic.wikispaces.com/>
<http://cumulusound.wikispaces.com/>
- Neural Information Processing Systems Conference (NIPS) 2007: Music, Brain & Cognition Workshop. Whistler Canada. December 7-8, 2007
<http://web.mac.com/davidrh/MBCworkshop07/Workshop.html>
http://videlectures.net/mbc07_whistler/

2.9 Film/video

- A video showing a Gamelunch performance was uploaded on the YouTube web site <http://www.youtube.com/watch?v=-gbAjeLD7MY>
- Event_OS short video sequences were uploaded on the YouTube web site <http://youtube.com/vipsunivr>

2.10 Exhibitions & demonstrations

- 2006
- 2007
 - S. Della Monache, P. Polotti and D. Rocchesso. Presentation of the Gamelunch, within the Basicdesign-Lab organized by the Department of Art and Industrial Design of the University IUAV of Venice, Italy. June 29, 2007.
 - S. Delle Monache and P. Polotti, "Gamelunch - The Sonic Dining", *Enaction_in_Arts Catalogue*, pp. 25 *Enactive07/Enaction_in_Arts*, November 19 - 24, 2007, Grenoble - France. http://acroe.imag.fr/enactive07/downloads/Enactive07_Catalogue-En.pdf
 - K. Adilogu, R. Annies, Y. Visell, K. Franinovic, C. Drioli, K. Obermayer "The Adaptive Bottle: Adaptive Sonic Artifacts". Demonstration at 21st Annual Conference on Neural Information Processing Systems (NIPS'07), Vancouver, Canada. December 4, 2007.
- 2008
 - NIPG. Public presentation of the CLOSED project and the Adaptive Bottle. The MTG-Open. Music Technology Group Barcelona. January 11, 2008.
 - S. Papetti, D. Devallez, and F. Fontana, "DepThrow: a Physics-based Audio Game". Demo. To be published in the Proceedings of ICAD 08. Paris, France. June 24-27, 2008.
 - K.Franinovic and Y. Visell, "Intimacy" Exhibition at Oboro Gallery. Montreal, Canada. September 16 - October 14, 2008. <http://www.oboro.net/>
 - Presentation planned of the CLOSED project and demonstration planned of sound-enhanced prototypes. Theme: "Demain c'est aujourd'hui". Biennale Internationale du Design de Saint Etienne, November 2008.

Planned/actual dates	Type	Name	Type of audience	Countries addressed	Size of the audience	partner responsible /involved
24-28/07/06	summer school	S25^2 Summer School in Barcelona	higher education	International	50	UNIVERONA
27/06/07	seminar	Séminaire recherche et création - Ircam	research / art	France	40	IRCAM
7/11/07	seminar	course of audio signal processing, Helsinki University of Technology	higher education	Helsinki	40	UNIVERONA
10/07	seminar	AI-Lab, Uni-Zurich	research	Switzerland	30	ZhdK
10/07	seminar	BIRG-Lab, EPFL	research	Switzerland	15	ZhdK
17/12/07	seminar	Conservatori di Musica 'G. Verdi, Como, Italy	Art	Italy	30	UNIVERONA
2-4/11/	conference / workshop	ACM Intl. Conf. On Multimodal Interfaces 06	research / industry	International	300	ZhdK
4-6/09/06	conference / workshop	2nd ISCA/DEGA Workshop on Perceptual Quality of Systems	research	International	100	ALL
24-25/10/06	conference / workshop	XVI Colloquio di Informatica Musicale	research	Italy	100	UNIVERONA
9/01/07	conference / workshop	Sound Interaction Design Workshop	higher education	Switzerland	20	UNIVERONA
18-19/01/07	conference / workshop	Journées du Groupe Perception Sonore / SFA	research	France	50	IRCAM
26-29/06/07	conference / workshop	Intl. Conf. on Auditory Display 07	research / industry	International	300	UNIVERONA, ZhdK, IRCAM
1-6/07/07	conference / workshop	Sound and Music Computing	research / higher education	International	50	ALL
26/09/07	conference / workshop	1st MINET workshop	research	European countries	50	IRCAM, UNIVERONA
27-28/09/07	conference / workshop	Audio Mostly	research / industry	International	100	NIPG, ZhdK
2/11/07	conference / workshop	VST-Tonmeisterstagung	research / industry	International	200	ZhdK
7-8/12/07	conference / workshop	Neural Information Processing Systems	research / industry	International	3000	NIPG, ZhdK, UNIVERONA
29/06/08-4/07/08	conference / workshop	Acoustic 08	research	International	3000	IRCAM, ZhdK
6/04/08	conference / workshop	ACM CHI workshop - Sonic Interaction Design	research / higher education	International	100	IRCAM, UNIVERONA, ZhdK
7/06/08	conference / workshop	Eurohaptics	research / industry	International	500	ZhdK
planned /11/08	conference / workshop	Auditory Perception, Cognition and Action Meeting	research	International	500	IRCAM
planned /06/08	conference / workshop	Intl. Conf. on Auditory Display 08	research	International	100	ZhdK
planned /08/08	conference / workshop	Intl. Symposium on Electronic Arts	research / art	International	2000	ZhdK
planned /08/08	conference / workshop	Neural Information Processing Systems 08	research / industry	International	3000	NIPG, ZhdK, UNIVERONA
24-28/06/08	conference / workshop	Intl. Conf. on Auditory Display 08	research	International	100	IRCAM
1-6/07/07	workshop organization	CLOSED workshop, Sound and Music Computing Summer School	research / higher education	International	20	ALL
23-28/07/07	workshop organization	"Embodied Sound" workshop	higher education	Switzerland	30	ZhdK
7-8/12/07	workshop organization	Music, Brain and Cognition part 2, NIPG	research	International	60	NIPG
6/04/08	workshop organization	ACM CHI workshop - Sonic Interaction Design	research / higher education	International	100	UNIVERONA
6-21/12/07	course organization	"Acoustic Display and Interactive Sound"	higher education	Switzerland	30	ZhdK
9-11/06/08	course organization	MINET training course	research	European countries	50	IRCAM
07	report	technical report	higher education	France	xxx	IRCAM
07	report	technical report	higher education	Germany	xxx	NIPG
08	master thesis	master thesis	higher education	France	xxx	IRCAM
08	PHD thesis	PHD thesis	higher education	France	xxx	NIPG
06	publication	Proc. of 2nd ISCA/DEGA Workshop on Perceptual Quality of Systems	research	Switzerland	xxx	NIPG
06	publication	Proc. XVI Colloquio di Informatica Musicale	research	International	xxx	ALL
07	publication	Proc. Intl. Conf. on Auditory Display 07	research	Italy	xxx	UNIVERONA
07	publication	Proc. Intl. Conf. on Auditory Display 07	research	International	xxx	UNIVERONA
07	publication	Proc. International Computer Music Conf. 07	research	International	xxx	UNIVERONA
07	publication	Numerical Algorithms	research	International	xxx	UNIVERONA
07	publication	Proc. Intl. Conf. On Enactive Interfaces 07	research / industry	International	xxx	ZhdK
07	publication	Proc. Conf. On Interaction with Sound	research	International	xxx	NIPG
08	publication	Proc. Of ACM CHI workshop - Sonic Interaction Design	research	International	xxx	UNIVERONA
08	publication	ACM Trans. On Applied Perception	research	International	xxx	UNIVERONA
08	publication	Proc. Acoustic 08	research	International	xxx	IRCAM
08	publication	chapter of book "Theory and methods of measurements with persons"	research	International	xxx	IRCAM
08	publication	Connection Science on Music, Brain, Cognition : special issue NIPG	research	International	xxx	NIPG
planned /08	publication	article in international journal	research	International	xxx	IRCAM
planned /09	publication	article in international journal	research	International	xxx	NIPG
planned /09	publication	Sound design, Cognition, Computing, Book Cambridge Univ. Press	research / higher education	International	xxx	NIPG
xxx	project website	http://closed.ircam.fr	xxx	xxx	xxx	IRCAM
xxx	project website	http://trac.soundobject.org	xxx	xxx	xxx	UNIVERONA
xxx	project website	http://sound-scene-storm.wikispaces.com	xxx	xxx	xxx	ZhdK
xxx	project website	http://actionanalysis.wikispaces.com	xxx	xxx	xxx	ZhdK
xxx	project website	http://sonic.wikispaces.com	xxx	xxx	xxx	ZhdK
xxx	project website	http://cumulusound.wikispaces.com	xxx	xxx	xxx	ZhdK
xxx	project website	http://web.mac.com/davidm/MBC/workshop07/Workshop.html	xxx	xxx	xxx	NIPG
xxx	film / video	http://www.youtube.com/watch?v=gbAjeLD7MY	xxx	xxx	xxx	UNIVERONA
xxx	film / video	http://youtube.com/vipsumivr	xxx	xxx	xxx	UNIVERONA
19-24/11/07	exhibition / demonstration	Enactive 07	research / Art	International	100	UNIVERONA
04/12/07	exhibition / demonstration	NIPG 07	Research	International	100	UNIVERONA
11/01/08	exhibition / demonstration	MTG-Open House	Public	Spain	3000	NIPG, ZhdK, UNIVERONA
planned 11/08	exhibition / demonstration	Biennale Internationale du Design	Art / Design	International	1000	ALL

Figure 2.1: Dissemination of knowledge: Overview table

3 Publishable results

The exploitable knowledge presented in Section 1 p.4 will lead to publishable results for the second period of the project.