

DANCE

DANCE

D6.2 – Intermediate report on dissemination activities

Version	Edited by	Changes
0.1	UNIGE	
0.2	KTH	Added KTH activities
1.0	UNIGE	Final version

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Introduction

During the one and half year of the DANCE Project several events were organized to promote it and the research results. In this Deliverable, we enumerate the most significant dissemination activities that were undertaken by the DANCE Project Partners in this period.

The DANCE events organized during the first half of the Project duration were addressed to both experts and wide audience. They include specialized conferences and workshop such as EyesWeb Week in Genoa, but also public exhibitions (e.g., during festivals: SONAR+D and Festival della Scienza). The DANCE Project was also engaged in cultural events, e.g., by co-organizing the performance of Sagi Gross Company in May 2016. In parallel, the research outputs of the project were presented at important scientific conferences (such as CHI) and published in the scientific journals. Last but not least, the DANCE Project was actively promoted in Internet, and on Social Network media such as Facebook, or Twitter.

1. Scientific Papers in International Journals and Conferences

During the first one and half year of the DANCE Project several works related to development of the new algorithms to compute various expressive features were presented on international conferences, workshops and published in the conference proceedings. The works related to DANCE Project were presented on the most prestigious conferences in human-computer interactions such as CHI 2016, as well as on very specific events related to dance such as 3rd International Symposium On Movement & Computing MOCO 2016. Additionally, the initial works on sonification and neuroscience were published or submitted to conferences. Below we provide the full list of the papers. The papers can also be downloaded on the DANCE Project webpage:

- <http://dance.dibris.unige.it/index.php/results>

Alborno, P., Kolykhalova, K., Frid, E., Malafronte, D., Huis in 't Veld. L., Analysis of the qualities of human movement in individual action, Proceedings of eNTERFACE 2015 workshop

Alborno, P., Piana, S., Mancini, M., Niewiadomski, R., Volpe, G., Camurri, A., Analysis of Intrapersonal Synchronization in Full-Body Movements Displaying Different Expressive Qualities. In Proceedings of the International Working Conference on Advanced Visual Interfaces (AVI '16), Paolo Buono, Rosa Lanzilotti, and Maristella Matera (Eds.). ACM, New York, NY, USA, 136-143, 2016
DOI=<http://dx.doi.org/10.1145/2909132.2909262>

Bresin, R., Elblaus, L., Frid, E., Favero, F., Annersten, L., Berner, D., Morreale. F., Sound Forest/Ljudskogen: A Large-Scale String-Based Interactive Musical Instrument, In proceedings of SMC Sound and Music Computing Conference 2016, Hamburg, 2016

Camurri, A., Volpe, G., The Intersection of Art and Technology, IEEE MultiMedia 2016 vol.23, Issue No.01, Jan.-Mar. 2016 DOI = <http://doi.ieeecomputersociety.org/10.1109/MMUL.2016.13>

Camurri, A., Canepa, C., Ferrari, N., Mancini, M., Niewiadomski, R., Piana, S., Volpe, G., Matos, J-M., Palacio, P., Romero, M., A System to Support the Learning of Movement Qualities in Dance: a Case Study on Dynamic Symmetry, accepted to BodySenseUX Workshop, held in conjunction with UBICOMP 2016

Camurri, A., Volpe, G., Piana, S., Mancini, M., Niewiadomski, R., Ferrari, N., Canepa, C., The Dancer in the Eye: Towards a Multi-Layered Computational Framework of Qualities in Movement, 3rd International Symposium on Movement and Computing, MOCO 2016, 5-6 July 2016, Thessaloniki, Greece
DOI: <http://dx.doi.org/10.1145/2948910.2948927>

Elblaus, L., Unander-Scharin, A., Unander-Scharin, C., New Scenic Subjects: Explorations of a System of Autonomous On-Stage Observers, Proceedings of the 2016 CHI Conference Extended Abstracts on Human Factors in Computing Systems, 7-12 May, ACM, New York, NY, USA, 265-268, 2016

Frid, E., Bresin, R., Alborno, P., Elblaus, L., Interactive Sonification of Spontaneous Movement of Children - Cross-modal Mapping and the Perception of Body Movement Qualities through Sound, SUBMITTED to Frontiers in Human Neuroscience.

Frid, E., Bresin, R., Elblaus, L., Sonification of Fluidity - Interactive Adjustment of Audible Parameters for Communication of Expressive Body Movement Properties, SUBMITTED to Interactive Sonification Workshop 2016, Bielefeld

Derey K., Formisano E., Valente G., Zhan M., Kupers R., De Gelder B., Intra-modal plasticity for binaural spatial processing in the auditory cortex of early blind individuals. Poster presentation at FENS Forum of Neuroscience, Copenhagen, Denmark.

Kolykhalova, K., Alborno, P., Camurri, A., Volpe, G., A serious games platform for validating sonification of human full-body movement qualities, 3rd International Symposium on Movement and Computing, MOCO 2016, 5-6 July 2016, Thessaloniki, Greece

Niewiadomski, R., Mancini, M., Volpe, G., Camurri, A., Automated Detection of Impulsive Movements in HCI, Proceedings of the 11th Biannual Conference on Italian SIGCHI Chapter (CHIItaly 2015). ACM, New York, NY, USA, 166-169, 2015

DOI=<http://dx.doi.org/10.1145/2808435.2808466>

Paloranta, J., Lundström, A., Elblaus, L., Bresin, R., Frid, E., Interaction with a large sized augmented string instrument intended for a public setting, Proceedings of Sound and Music Computing Conference 2016, Hamburg, 2016.

Piana, S., Alborno, P., Niewiadomski, R., Mancini, M., Volpe, G., Camurri, A., Movement Fluidity Analysis Based on Performance and Perception, In *Proceedings of the 2016 CHI Conference Extended Abstracts on Human Factors in Computing Systems* (CHI EA '16). ACM, New York, NY, USA, 1629-1636, 2016

DOI: <http://dx.doi.org/10.1145/2851581.2892478>

Piana, S., Coletta, P., Ghisio, S., Niewiadomski, R., Mancini, M., Sagoleo, R., Volpe, G., Camurri, A., Towards a Multimodal Repository of Expressive Movement Qualities in Dance, 3rd International Symposium on Movement and Computing, MOCO 2016, 5-6 July 2016, Thessaloniki, Greece

DOI: <http://dx.doi.org/10.1145/2909132.2909262>

Piana, S., Staglianò, A., Odone, F., Camurri, A., Adaptive Body Gesture Representation for Automatic Emotion Recognition, *ACM Trans. Interact. Intell. Syst.* 6, 1, Article 6 (March 2016), 31 pages.

DOI=<http://dx.doi.org/10.1145/2818740>

Singh, A., Tajadura-Jimez, A., Bianchi-Berthouze, N., Marquardt, N., Tentori, M., Bresin, R. & Kulic, D., Mind the Gap: A SIG on Bridging the Gap in Research on Body Sensing, Body Perception and Multisensory Feedback. In: *Proceedings of the 2016 CHI Conference Extended Abstracts on Human Factors in Computing Systems*, 7-12 May, ACM, New York, NY, USA, 1092-1095, 2016

Volpe, G., Alborno, P., Camurri, A., Coletta, P., Ghisio, S., Mancini, M., Massari, A., Niewiadomski, R., Piana, S., Sagoleo, R., Designing Multimodal Interactive Systems Using EyesWeb XMI, Smart Ecosystems cReation by Visual dEsign Workshop (SERVE 2016), held in conjunction with AVI 2016

2. Organization and Participation to International Workshops and Other Scientific Events

2.1 STARTS Symposium, Bozar, Brussels, 22-23 June 2015; Sónar+D, Barcelona, 18-20 June 2015

The DANCE Project participated to the SONAR+D festival in Barcelona¹ and STARTS symposium Bozar in Brussels². These two public events become the opportunity to present DANCE Project demos dedicated to real-time analysis and interactive sonification of full-body movement expressive qualities. The demos have been developed by UNIGE, in collaboration with the composer Pablo Palacio and dancers Muriel Romero and Roberta Messa. Each demo focused on one expressive quality e.g., Smoothness or Energy. During the event, visitors could actively participate in the experience by testing demos. They were also introduced to the theoretical and scientific background and research aim of the Project as well as role of each Project Partner.

The videos showing interactive sonification demos at Sonar+D can be found online:

- <https://www.youtube.com/watch?v=q-gZiZPxBzI>

2.2 eNTERFACE 2015, Mons, 10 August - 05 September 2015

The idea of eNTERFACE workshops to gather, in a single place, a team of leading professionals in multimodal human-machine interfaces together with students, to work on a pre-specified projects, for four weeks. It also gives an occasion to present and promote own research, tools, and datasets as well as to discuss and exchange ideas with the most important researchers in the domain. The eNTERFACE is largest workshop on multimodal interfaces, with more than 50 participants every year.

The DANCE Project was present on eNTERFACE workshop in 2015 with the project: *Analysis of the qualities of human movement in individual performances*. During the 4 weeks researchers from all three Partners developed an integrated serious game platform called: *Move in the Dark*. The aim of the game is to develop in players' sensibility of their body movements and expressive qualities. In the game the player listens to pre-recorded sonification of a baseline expressive movement and tries to move accordingly to sounds. His/her expressive quality is analysed on-line and compared to the baseline one (i.e., the one that was used to generate the sound). The game is organized in a form of a duel between two players, the winner of the game is the one whose movement quality corresponds better to the sound. An example of game session can be seen online:

- <https://www.youtube.com/watch?v=3wwaaAhoH-U>

¹ <http://sonarplused.com/activity/european-comission-presents-starts-sel/>

² <http://ictartconnect.eu/resource/id/55683c2cfd147b677efcf8a>

2.3 BIENNALE EC Workshop, La Biennale di Venezia, 3-4 November 2015

The DANCE Project jointly with *La Biennale di Venezia* and the European Commission organized the symposium: *Creation at the Nexus of Science Technology and Art*. Within the two-days workshop the participants (both researchers and artists) discussed on the possible interactions between the contemporary art and science. Several artists and researchers participated in the discussion. To be noted participation of important guests such as Paolo Baratta (President of La Biennale di Venezia), Gerfried Stocker (Director of Ars Electronica, Linz), Robert Trapp (Director of Austrian Research Center for Artificial Intelligence), Mel Slater (University of Barcelona) and Martin Roth (Director of Victoria and Albert Museum). More about this event can be found here:

- <http://www.labiennale.org/en/art/news/29-10.html>
- <http://www.infomus.org/Events/programma-NEXUS1-prew18-PUBBLICO.pdf>

2.4 AISC - XII annual Conference on Language, Cognition & Society, Genoa 10-12 December 2015

The DANCE Project was also presented at the *Conference on Language, Cognition & Society*³ organized by of the *Italian Association of Cognitive Sciences (AISC)*. The participants of the conference could see and experience several demos that focused on different full-body expressive qualities studied in DANCE Project such as: *Balance, Fluidity, or Weight* (see *Camurri et. al., 2016* in Section 1, for more detailed description of the expressive qualities). They could also play a game *Move in the Dark* developed at eNTERFACE 2015 (see Section 2.3).

2.5 SIG meeting at CHI 2016, San Jose, 8-12 May 2016

Roberto Bresin (KTH) was involved in the organization of the SIG meeting with title “Mind the Gap: A SIG on Bridging the Gap in Research on Body Sensing, Body Perception and Multisensory Feedback”.

Abstract: People's perceptions of their own body's appearance, capabilities and position are constantly updated through sensory cues that are naturally produced by their actions. Increasingly cheap and ubiquitous sensing technology is being used with multisensory feedback in multiple HCI areas of sports, health, rehabilitation, psychology, neuroscience, arts and games to alter or enhance sensory cues to achieve many ends such as enhanced body perception and body awareness. However, the focus and aims differ between areas. Designing more effective and efficient multisensory feedback re-quires an attempt to bridge the gap between these worlds. This interactive SIG with minute madness technology presentations, expert sessions, and multidisciplinary discussions will: (i) bring together HCI

³ <https://aisc2015.wordpress.com/>

researchers from different areas, (ii) discuss tools, methods and frameworks, and (iii) form a multidisciplinary community to build synergies for further collaboration.

2.6 5th EyesWeb Week, Genoa, 6-10 June 2016

At the beginning of June 2016, The 5th EyesWeb Week was organised by InfoMus Research Centre in Casa Paganini. The main focus was on the EyesWeb XMI open software platform developed at InfoMus Lab. The EyesWeb XMI is designed to be used in scientific and technological research and development of innovative multimodal interfaces, systems, and different applications e.g., for therapy and rehabilitation, artistic production, active experience of cultural heritage, and education. The Fifth EyesWeb Week gathered more than 20 participants.

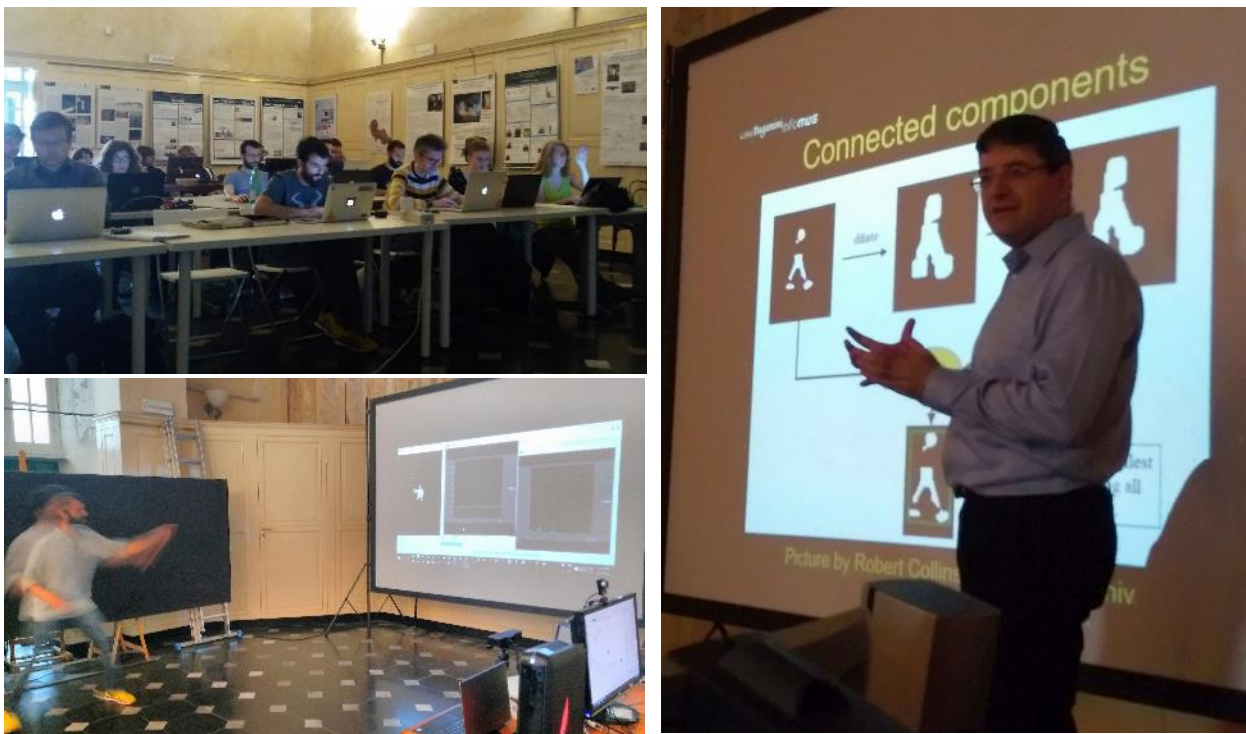


Figure 1. Many young researchers came to Casa Paganini June 2016 to participate in EyesWeb Week.

Within this event, a special session was dedicated to DANCE project, including presentation and discussion of the capture technologies (in particular IMUs), of the developed movement analysis algorithms, and of different sonifications of movement qualities such as equilibrium and fluidity.

2.7 ISON – Interactive Sonification workshop 2016, Bielefeld, 15-16 December 2016

Roberto Bresin (KTH) is part of the organizing and scientific committee of ISON – Interactive Sonification workshop 2016 in Bielefeld. This is the fifth ISON workshop after those in Bielefeld, (2004) York (2007), Stockholm (2010), Erlangen (2013). More information about ISON workshop can be found here:

- <http://interactive-sonification.org/#AboutISON>

3. Organization of Public Events Related to the Topics of the Project

3.1 Maastricht Jazz Festival, Embodies, 19 March 2016

Within seminar: *When Art Meets Science* organized at *Theater aan het Vrijthof Maastricht* two artists: the blind pianist Bert van der Brink and the dancer and choreographer Sagi Gross proposed the performance titled *Embodies*. The performance exploits technologies developed in DANCE Project: four IMU sensors are used to capture the dancer movements, expressive movement detection algorithms are used to recognize the dancer's movement quality, which then is sonified in real-time using sonification models. In the performance, the dancer dances his choreography with IMU sensors attached to his limbs, and the blind pianist hears the sonification of the dancer's movements through the headphones. Thus, the audience can hear the pianist improvising to the sonification of the dancer movements. In the last stage of the performance, the audience can also hear directly sonification that is used by the pianist. The video of the performance can be found here:

- <https://youtu.be/dcq4FkJJnf8>

3.2 Festival della Scienza 2015, Genoa, 27 October 2015

The DANCE Project was participating in *Festival della Scienza 2015*. The *Festival della Scienza (Genoa Science Festival)* is organized every year and is addressed to wide audience. Its aim is to promote and explain the research activities. Every year several events are organized by main research centers of Genoa, which gather thousands of spectators.

The DANCE Project Partners organized an event during the Festival called *Sound gestures: hearing dances, seeing music - Interactive exhibits on new technologies and sensory substitution: the ICT EU Horizon 2020 Project DANCE*. More than 50 participants came to InfoMus Lab to see and experience several demos related to the DANCE Project such as: Balance, Fluidity, Weight and Move in the Dark game. Each demo is an interactive sonification of one expressive quality. The different input devices (Kinect, smartphone) are used to capture the movement expressive quality of the person; next computed values of expressive qualities are used to control in real-time the sonification of the movement quality. Thus, the participants (see Figure 2c and 2d) can hear the sonification of their movement. More can be found at:

- <https://www.youtube.com/watch?v=jUJZKvSyKb8>



Figure 2. Some pictures from Festival della Scienza: c) the event attracted many spectators, b) The Nebula Garment Demo by KTH and the dancer Robert Messa, c and d) spectators experiment with interactive sonifications generated by expressive movements captured with a smartphone.

3.3 An Unveiled Dance, Genoa, 19 May 2016

In collaboration with the *Institut Goethe* and *Teatro Carlo Felice* of Genoa, the DANCE Project Partners organized a workshop titled: *Interpretation of the expressive qualities of the gesture between the Salome of Richard Strauss and the European project Horizon 2020 ICT DANCE*. This event was addressed to non-experts interested in dance and the IT applications. It took place at *Teatro Carlo Felice* before the premiere of Richard Strauss' "Salome" by Rosetta Cucchi.

Within the workshop, the research and artistic challenges related to the project were discussed with the audience. The event was illustrated with the video that explains the research methodology applied in the Project. In the video a

world-famous dancer Beate Vollack⁴ performs three different versions of “*Dance of the seven veils*” - the most important dance choreography of “Salome”, each version is performed with different expressive equality. These different realisations of the same choreography are compared using the algorithms developed in the DANCE Project. For the purpose of the recordings, Beate Vollack was a guest of InfoMus Lab in May 2016. The official webpage of the event as well as a video that illustrates the workshop can be found here:

- http://www.goethe.de/ins/it/it/gen/ver.cfm?fuseaction=events.detail&event_id=20755850
- http://www.carlofelicegenova.it/index.php/salome_ita_PGE458.html
- https://youtu.be/gT9HgRK4_is

3.4 Genova OutsideR DanceR Festival, Blind Sight, Genoa, 24 May 2016

In collaboration with the Goethe Institut of Genoa, the contemporary dance performance of the choreographer Sagi Gross⁵ and his international company *GrossDanceCompany* was presented at InfoMus Lab in Casa Paganini, Genoa. The spectacle called “Blind Sight” is devoted to the impact that technological and social developments have on human relationships. In the spectacle, Sagi Gross proposed an exploration of present-day interpersonal relationships where people are not able to build real encounters, but they collide and rebound off in accidental physical contacts. The event brought to Casa Paganini more than 100 spectators and it got several positive outcomes in Italian papers and electronic medias, such as: *La Repubblica*, *ligurianotizie.it*, *www.ansa.it*, and *www.mentelocale.it*, *comune.genova.it*

Online resources about the spectacle:

- http://www.goethe.de/ins/it/it/gen/ver.cfm?fuseaction=events.detail&event_id=20746627
- <http://www.grossdancecompany.com/reviews.html>
- <http://ricerca.repubblica.it/repubblica/archivio/repubblica/2016/05/05/da-l-ducale-a-boccadasse-una-citta-in-movimentoGenova21.html>
- <http://www.ligurianotizie.it/sagi-gross-porta-lottima-danza-contemporanea-a-genova/2016/05/25/203130/>
- http://www.ansa.it/liguria/notizie/2016/04/28/al-via-7-maggio-genova-outsider-dancer_41d0d2fd-491e-4454-9a7b-66d8f17e7c2a.html
- <http://www.mentelocale.it/agenda-teatro/genova/23698-festival-internazionale-di-danza-blind-sight.htm>
- <http://www.comune.genova.it/content/genova-il-festival-internazionale-della-danza-contemporanea>

⁴ <http://www.beate-vollack.com/>

⁵ <http://www.grossdancecompany.com>

5. Advisory and Liaison Board

We organized a number of Skype sessions and physical meetings with expert choreographers, including the following famous artists: Virgilio Sieni⁶ (January, March, September and October 2015, January and March 2016), Sagi Gross⁷ (March 2015, May 2016), and Jacopo Godani. The meetings were mostly devoted to study and understanding of the expressive vocabularies of contemporary artists, as well as knowledge transfer on the expressive movement in contemporary dance. The role of Advisory and Liaison Board experts was: 1) to advice, and supervise the process of the creation of formal definitions of the different expressive qualities, 2) to increase the sensibility of the Project Partners on the role and the variety of expressive qualities in the contemporary dance.

In particular, during the two presences of Virgilio Sieni in InfoMus Lab we recorded (video, audio respiration, MoCap data) about 150 short dance performances, which illustrate the richness of his expressive vocabulary.

During the presence of Sagi Gross in InfoMus Lab in May 2016 an internal workshop was organized for DANCE Partners by Sagi Gross that was dedicated to his expressive language and artistic research. Extracts from this workshop can be accessed through the private area of the DANCE website:

<http://dance.dibris.unige.it/index.php/private>

We also organized a number of meetings with the composers Pablo Palacio⁸ (May 2015) and Andrea Cera⁹ (May 2016). The meetings were dedicated to knowledge transfer on interactive sonification process. These meetings became also the opportunity to test various sonification models on the full-body movement expressive qualities data. The role of Advisory and Liaison Board experts was to increase the sensibility of the Project Partners on the role and the variety of different sound parameters in the process of creating the sound models.

6. Website and Social Networks

The Project Partners conduct dissemination actions of the DANCE Project in several Social Networks. They are present on a large set of popular social network services such as Facebook, Pinterest, Twitter, YouTube etc. by publishing regularly posts on DANCE related events and papers with some posts having more than 500 visits.

Also, DANCE website (<http://dance.dibris.unige.it>) is an important dissemination channel of Project activities. It is regularly updated (section Blog and Results). The visitors may discover information about the new events, download the latest publications and see the videos. The YouTube channel of the project is available at:

https://www.youtube.com/channel/UCakTGI5hkshVAcrfw_iMSSg

⁶ <http://www.sienidanza.it>

⁷ <http://www.grossdancecompany.com>

⁸ http://www.pablopalacio.com/SONIC_DANCE.html

⁹ <http://andrea.cera.free.fr/>