Curriculum
of teaching and scientific activity

Federico Fontana

University of Udine
Department of Mathematics, Computer Science and Physics
206 via delle Scienze - Udine 33100 (Italy)

April 11, 2023

Contents

1 Personal data

Name	Federico Fontana
birth place	Pordenone
date of birth	May 28, 1969
address	via Villa Scura 28, Porcia (PN) 33080, Italy
e-mail	federico.fontana@uniud.it
Position	Associate professor since 2014 at the Department of Mathematics, Computer Science and Physics, University of Udine, Italy
National ASN	Full, national sector INF/01 - Computer science Full, national sector ING-INF/05 - Information engineering
PhD	in Computer Science, University of Verona, Italy (2003)
Degree	in Electronic Engineering (field: Computer Science), University of Padua, Italy (1996)

2 Highlights

- 2022-25: Senior Area Editor of the IEEE/ACM Transactions on Audio, Speech, and Language Processing.
- 2021-24: Coordinator of the PhD in Computer Science and Artificial Intelligence, University of Udine, Italy.
- 2008-11: Coordinator of the FET-Open EU Project 222107 *NIW - Natural Interactive Walking.*

3 Employment record

2010-2013	Assistant professor at the Department of Mathematics, Computer Science and Physics of the University of Udine, Italy
2005-2009	Assistant professor at the Department of Computer Science of the University of Verona, Italy
2004-2005	Post-doc researcher at the Department of Computer Science of the University of Verona, Italy
2003	Post-doc researcher at the Department of Information Engineering of the University of Padua, Italy
2001	Research grant from the Department of Signal Processing and Acoustics at Aalto University, Espoo, Finland
2000-2002	Ph.D. student in Computer science at the Department of Computer Science of the University of Verona, Italy
1998-2003	Independent R&D consultant Research grants from the Department of Information Engineering of the University of Padua, Italy
1996	Process, Acoustics & Vibration Engineer at Electrolux Compressors S.A., Barcelona, Spain

4 Affiliations

- IEEE Senior Member

- AIMI (Associazione Informatica Musicale Italiana) Member, Secretary 2015-2022.

5 Research interests

A short synopsis of the present and past *research interests* is provided, along with pointers to related personal publications.

1995-today *Sound and Music computing* [10, 17, 58, 60, 59, 61, 62, 63, 18, 20, 11, 21, 22, 13, 24, 25, 70, 71, 72, 74, 26, 75, 27, 76, 28, 29, 77, 78, 79, 80, 81, 82, 83, 84, 31, 85, 87, 34, 35, 14, 36, 37, 40, 41, 46, 49, 108, 113, 118, 106, 47, 48, 89, 107, 127, 135, 50, 132, 133] deals with the analysis, synthesis, manipulation and evaluation of audio and musical information. This field is constantly vitalized by the modeling and design of interactive systems for applications of multimodal (especially auditory and tactile) augmented reality, in which real-time feedback control is instantaneously and continuously informed by users' gestures, manipulation, intentions, and even affective characters. In this context, the design of non visual displays capable of supporting our tasks and seamlessly enriching the perception of our surroundings is a complex process, involving knowledge ranging across the psychology and ecology of hearing up to the user-centered, especially *Sonic interaction design* [51, 15, 16, 19, 6, 64, 23, 65, 66, 67, 68, 69, 1, 52, 53, 73, 30, 32, 33, 54, 86, 3, 2, 90, 91, 92, 93, 4, 94, 95, 96, 38, 39, 99, 100, 101, 102, 103, 104, 105, 5, 111, 112, 122, 123, 125, 130]. Products of this research activity include both hardware and software models as well as physical prototypes of interface components, covering issues of user's data acquisition up to the acoustic and tactile rendering and evaluation of non visual information.

2003-2006 *Biosignal processing* [42, 43, 44, 45, 110, 55, 114, 115, 117]. Signal transduction networks are traditionally modeled in the continuous domain, via nonlinear differential equation systems. Alternative methodologies have been investigated as well, which work in the symbolic domain. Membrane computing is one of these alternative methodologies: by means of its generative tools, interesting observations can be made about the nature and behavior of sophisticate genomic signals such as those governing circadian cycles.

1998-2003 *DSP software* [7, 8, 9] design and engineering of real-time signal processing algorithms for the synthesis, equalization and spatialization of piano sounds onboard marketed digital piano keyboards. Moreover, a digital signal processing algorithm of the known "Dolby B" noise suppressor, that was successfully employed in some widely marketed digital car radios.

6 Teaching

- 2018-23: Course on Computer architectures, Bachelor in Computer Science, University of Udine, Italy (12 ECTS).
- 2017-23: Course on Auditory and tactile interactions, Master in Computer Science, University of Udine, Italy (6 ECTS).
- 2022: ERASMUS+/KA1 STA Course entitled *Efficiency vs. complexity of sound algorithms*, Master in *Sound and Music Computing*, Aalborg University Copenhagen, Copenhagen, Denmark. May 2-6, 2022.
- 2022: PhD Course entitled *Big Data*, Transversal teaching initiative for PhD students at the University of Udine, Italy, February 21-24, 2022.
- 2021: PhD course entitled *Continuous vs. discrete signals*, PhD in Computer Science, Mathemathics and Physics, University of Udine, Italy, June 7-11, 2021.

- 2015-17: Course on Object-oriented programming, Bachelor in Computer Science, University of Udine, Italy (6 ECTS).
- 2011-17: Lectures on Computer networks, Bachelor in Computer Science, University of Udine, Italy (3 ECTS).
- 2011-16: Course on Sound processing, Master in Computer Science, University of Udine, Italy (6 ECTS).
- 2013: Course on Bio-electric signal processing at the Dept. Neurosciences of the University of Udine, Italy (3 ECTS).
- 2011: PhD course entitled *Interactive SMC: The Challenges of Continuous Interaction*, Sound and Music Computing (SMC) Summer School, University of Padua, Italy, July 2-5, 2011.
- 2011: PhD course entitled *Non Visual Interaction Design*, Institut de Recherche en Mathématiques et Informatique Appliquées, Université de la Réunion, France, January 24-28, 2011.
- 2010-11: Course on Non visual interaction, Master in Computer Science, University of Verona, Italy (6 ECTS).
- 2009: Course on Sound processing for the Master course in *Computer Game Development* at the Dipartimento di Informatica, University of Verona, Italy.
- 2009: Tutor at the Sound and Music Computing (SMC) Summer School, Casa da Musica, Porto, Portugal, July 18-21.
- 2009: Tutor of a PhD course entitled *Introduction to an environment for scientific calculation*, University of Verona, Italy.
- 2008-09: Course on Sound processing, Master in Computer Science, University of Verona, Italy (6 ECTS).
- 2006-08: Course on Object-based programming, Bachelor in Computer Science, University of Verona, Italy (9 ECTS).
- 2005-08: Course on Fundamentals of computer science, Bachelor in Computer Science, University of Verona, Italy (3 ECTS).
- 2007: Tutor at the Sound and Music Computing (SMC) Summer School, KTH Royal Institute of Technology, Stockholm, Sweden, July 2-6.
- 2005: Laboratory of Musical informatics at the Faculty of Literature of the University of Udine, Italy.

7 Coordination and participation in research projects

- 2022: Coordinator of the *Proof of Concept* project entitled *Mechaanical and Electronic Enhancement of a programmable knob invention*, funded by the University of Udine and participated by SpecialWaves srl – Pedrengo, BG, Italy ($\sim$ 10 kEUR).
- 2018-22: Foreign Scientific Collaborator in the national project *HAPTEEV - Haptic technology and evaluation for digital musical interfaces*, Zurich University of the Arts and ETH - Zürich, Switzerland.

- 2016: Recipient of the IZK0Z2_171102 International Short Visit entitled *Enduring international leadership of ZHdK in Musical Haptics*, funded by the Swiss National Science Foundation, and spent at the Institute for Computer Music and Sound Technology, Zurich University of the Arts in Switzerland ($\sim$ 5 kEUR).

- 2015: Coordinator of the Proof of Concept Network national project *Virtual piano system on a tablet pc* funded by the MIUR through the AREA Science Park in Trieste, Italy, participated by the University of Udine and Julia SRL, Italy, and co-financed by Viscount SpA through the University of Verona, Italy ($\sim$ 50 kEUR).

- 2014-16: Foreign Scientific Collaborator in the national project *AHMI - Audio-Haptic modalities in Musical Interfaces*, Zurich University of the Arts and ETH - Zürich, Switzerland.

- 2013: Secondary Investigator in the project *PiaNo - Piano from Nothing*, an ISRA Project for Intelligent Art Media between Tsinghua University - Beijing, China and Intel - Santa Clara, CA (pre-financed for 6 months; initiative discontinued by Intel).

- 2008-11: Coordinator of the FET-Open EU Project 222107 *NIW - Natural Interactive Walking* ($\sim$ 1 MEUR).

- 2008-11: Coordinator of the project *E-PHASE - Electronic Piano with Haptic And Spatial Enhancements*, a "Joint Project" between the University of Verona and Viscount SpA ($\sim$ 100 kEUR).

- 2008-10: Coordinator of the project *REVIVAL - Restauro dell'Archivio Vicentini di Verona e sua accessibilità come Audio e-Library*, a "Joint Project" between the University of Verona and Fondazione Arena di Verona ($\sim$ 100 kEUR).

- 2008-10: Research team coordinator of the European Foundation for the Study of Diabetes (EFSD)-Novartis project *Genetic Bases of β-Cell Role in Glucose Homeostasis of Patients With Type 2 Diabetes: A Computational Biomedicine Study.*

- 2006-09: Local coordinator from 2008 of the EU Project FP6-NEST-29085 *CLOSED - Closing the Loop Of Sound Evaluation and Design* under the path "Measuring the impossible".

- 2007-08: Coordinator of the project *Sound synthesis by physical models of the piano*, a "Joint Project" between the University of Verona and Viscount SpA ($\sim$ 100 kEuro).

- (2005-06): Team member in the national project COFIN 2004 *Symbolic models of cellular dynamics: biomolecular algorithms and membrane systems* funded by the Italian Ministry of University Research.

- 2004, 2005: Consultant for the EU Project IST IST-2-511316-IP *RACINE - IP* funded by the European Community in the ICT-EU research activity.

- 2003, 2004: Consultant for the EU Project IST 2001-37117 *RACINE - S* funded by the European Community in the ICT-EU research activity.

- 2001-03: Team member in the EU Project IST 2000-25287 *SOb – The Sounding Object* funded by the European Community in the IST *Future and Emerging Technologies* initiative.

- 2002: Team member in the national project *Augmented Reality for Teleoperation of Free Flying Robots*, funded by the Italian Space Agency.

8 Participation to editorial boards

- 2022-25: Senior Area Editor of the IEEE/ACM Transactions on Audio, Speech, and Language Processing.
- 2022-25: Associate Editor of the IEEE Signal Processing Letters.
- 2023: Guest co-editor of a Springer *EURASIP Journal of Audio, Speech and Music processing* special issue on "Directions of Digital Audio Effects".
- 2022: Guest co-editor of an AES *Journal of the Audio Engineering Society* special issue on "Audio Filter Design".
- 2017-21 Associate Editor of the IEEE/ACM Transactions on Audio, Speech, and Language Processing.
- 2020: Guest co-editor of an MDPI *Applied Sciences* special issue on "Digital Audio Effects".
- 2019: Guest co-editor of an Hindawi *Wireless Communications and Mobile Computing* special issue on "Interactions in Mobile Sound and Music Computing".
- 2011: Guest co-editor of an EURASIP *Journal on Advances in Signal Processing* special issue on "Musical Applications of Real-Time Signal Processing".
- 2010: Guest editor of an IEEE *Transactions on Audio, Speech and Language processing* special issue on "Virtual Analog Audio Effects and Musical Instruments".

9 Participation to conference chair committees

- 2023: Paper co-chair of the *International Conference on Digital Audio Effects* (DAFx-23), Aalborg University Copenhagen, Copenhagen.
- 2022: Doctoral Consortium co-chair of the *International Conference on New Interfaces for Musical Expression* (NIME2022), The University of Auckland, New Zealand.
- 2022: Scientific co-chair of the *23th Colloquium on Music Informatics* (XXIII CIM), Università Politecnica delle Marche, Ancona.
- 2018: General chair of the *22st Colloquium on Music Informatics* (XXII CIM), Conservatorio J. Tomadini, Udine, Italy.
- 2016: Scientific co-chair of the *21st Colloquium on Music Informatics* (XXI CIM), Conservatorio G.P. Da Palestrina, Cagliari, Italy.
- 2013: Co-chair of the special session entitled "Auditory and multimodal scene analysis" at the *40th Italian Annual Conference on Acoustics and 39th German Annual Conference on Acoustics* (AIA-DAGA), Merano, Italy.
- 2012: Scientific co-chair of the *19th Colloquium on Music Informatics* (XIX CIM), Conservatorio G. Tartini, Trieste, Italy.
- 2010: Scientific co-chair of the *Haptic and Auditory Interaction Design* (HAID2010) conference, Aalborg University in Copenhagen, Denmark.
- 2009: Session organizer at the *Eurographics - IT* conference, Dipartimento di Informatica, University of Verona.

10 Reviewing

- 2011: Project evaluator for the French *Agence Nationale de la Recherche*.
- 2008, 2010: Project evaluator for the Estonian Science Foundation.
- 2006, 2010: Book reviewer for the Engineering technology editorial team at John Wiley, UK.
- Reviewer for IEEE *Transactions on Human-Machine Systems*, Elsevier *Neuroscience*, the *Journal of the Audio Engineering Society*, *Journal of the Acoustical Society of America*, ACM *Transactions Applied Perception*, IEEE *Computer*, MDPI *Applied Sciences*, *HARTS&Minds*, IEEE *Signal Processing Magazine*, IEEE *Transactions on Signal Processing*, IEEE/ACM *Transactions on Audio, Speech, and Language Processing*, IEEE *Transactions on Systems, Man, and Cybernetics*, IEEE *MultiMedia*, IEEE *Transactions on Affective Computing*, IEEE *Signal Processing Letters*, Elsevier *Theoretical Computer Science*, Elsevier *BioSystems*, Elsevier *International Journal of Human-Computer Studies*, Elsevier *GENE*, EURASIP *Applied Signal Processing*, Hindawi *Mathematical problems in Engineering*, *Scandinavian Journal of Medicine & Science in Sports*, MDPI *Applied Sciences*, *Rivista Italiana di Acustica*.
- Reviewer for the *Sound and Music Computing Conference* (regularly), the *International Conference on Digital Audio Effects* (regularly), the *Conference on New Interfaces for Musical Expression* (regularly), the *Conference of the Audio Engineering Society* (regularly), the *Haptic and Audio Interaction Design Conference* (regularly), the *International Conference on Multimodal Interfaces* (regularly), the *ACM CHI Conference* (often), the *International Computer Music Conference* (often), the *IEEE International Workshop on Haptic Audio Visual Environments and Games* (occasionally), the *SIGCHI Conference* (2015), the *World Haptics Conference* (2015) the *IEEE International Conference on High Performance Computing and Communications* (2008, 2009), the *Information Processing and Management of Uncertainty in Knowledge-Based Systems* workshop (2006), the *International Conference on Music Information Retrieval* (2003).
- Opponent for the Ph.D. in Brain, mind and computer science, University of Padua, Italy (2022); for the Ph.D. in Neurosciences, University of Verona, Italy (2021); for the Ph.D. in Computer Sciences, University of Milano, Italy (2020); for the School of Electronic Engineering and Computer Science, Queen Mary University of London, UK (2019); for the Ph.D. in Telecommunication Engineering, Politecnico di Milano, Italy (2018); for the Ph.D. in Information Engineering, University of Padova, Italy (2014).
- Ph.D. thesis examiner for the Doctoral Programme in Electrical & Computer Engineering, McGill University, Montreal, Canada (2009); for the Doctoral Programme in Acoustics and Audio Signal Processing, Aalto University, Espoo, Finland (2006).

11 Invites to conferences, tutorials, talks

- 2022: Federico Fontana and Alberto Bernardini, "Discrete-Time Simulation of Nonlinear Musical Circuits by Means of Physically-Interpretable Iterative Solvers", tutorial at the *International Conference on Digital Audio Effects*, University of Music and Performing Arts, Vienna.
- 2019: "Where do we hear a piano tone to come from?", invited talk at the Centre for Digital Music, School of Electronic Engineering and Computer Science, Queen Mary University of London, October 2019.

- 2018: "The musical keyboard is changing: what will we need to reconstruct sense of touch?", invited talk at the Centre for Digital Music, School of Electronic Engineering and Computer Science, Queen Mary University of London, January 2018.
- 2017: "What in the piano do we hear? (and) What do we play in the piano?", invited seminar at the *MusICA Seminars* series run by the the Acoustics and Audio Group (School of Music) and the School of Informatics at the University of Edimburgh, March 2017.
- 2016: "Vibration and musical consonance", invited talk at the *Haptics and musical practice* workshop, Zurich University of the Arts, February 2016.
- 2015: "Designing on subjective tolerance to approximated piano reproductions", invited paper at the *Third Vienna Talk on Music Acoustics* conference, University of Music and Peforming Arts Vienna, September 2015.
- 2011: "Enactive sound design: Movement, touch, audition", invited talk at the *Multimodality and Cross-modality in Art and Science* workshop, Scuola Internazionale Superiore di Studi Avanzati, Trieste, Italy, June 2011.
- 2009: "Nonlinear delay-free loop filter networks: the case of the voltage-controlled filter", invited talk at the *Current Trends in Music Instrument Research*, a workshop dedicated to Anders Askenfelt's 60th birthday, KTH, Stockholm, October 2009.
- 2009: Federico Avanzini and Federico Fontana, "Numerical techniques for virtual musical instruments and virtual analog audio effects", tutorial at the *International Conference on Digital Audio Effects*, Politecnico di Milano, Como, Italy.
- 2008: Invited expert at the WG4 meeting of the COST SID Action IC0601 on Sonic Interaction Design, TU Berlin, Germany, April 4, 2008.
- 2008: Three lectures entitled "Delay-free nonlinear digital filter loops: Computation and examples", Helsinki University of Technology, Espoo, Finland (March 2-4, 2008). Granted by an STSM from the COST SID Action IC0601 on Sonic Interaction Design.
- 2008: Andrea Cipriani and Federico Fontana, "Gli 'strani anelli' nell'opera di J.S. Bach. Un esempio di musica theoretica, tra ars e scientia", invited event at the Verona Science Festival *Infinitamente*, Verona, February 2008.
- 2005: "Making Computational Systems Biology Using Symbolic Rewriting", seminar at Tsinghua University, Beijing.
- 2004: "Formal Computation of Nonlinear Filter Networks Containing Delay-Free Loops", invited talk for the inauguration of SARC, Queen's University, Belfast, UK.

12 Ph.D. coordination and tutoring

- 2021-24: Coordinator of the PhD in Computer Science and Artificial Intelligence, University of Udine, Italy.
- 2015-19: Coordinator of the PhD in Computer Science, Mathematics and Physics, University of Udine, Italy.
- 2021-24: Supervisor of Paolo Marrone, Ph.D. in Computer Science and Artificial Intelligence, University of Udine, Italy.

- 2020-23: Supervisor of Andrea Gulli, Ph.D. in Computer Science, Mathematics and Physics, University of Udine, Italy.
- 2018-21: Supervisor of Yuri De Pra, Ph.D. in Computer Science, Mathematics and Physics, University of Udine, Italy.
- 2009-13: Supervisor of Federica Bressan, Ph.D. in Computer Science, University of Verona, Italy.
- 2008-12: Supervisor of Stefano Zambon, Ph.D. in Computer Science, University of Verona, Italy.
- 2007-10: Supervisor of Stefano Papetti, Ph.D. in Computer Science, University of Verona, Italy.

13 Supervision of scholarships and grants

- 2021: Tutor during an Erasmus internship of Aalborg University Copenhagen master student Marius George Onofrei to the Dipartimento di Scienze Matematiche, Informatiche e Fisiche, University of Udine, Italy (September-December).
- 2021: Tutor during the thesis internship of master student Titas Lasickas to the Dipartimento di Scienze Matematiche, Informatiche e Fisiche, University of Udine, Italy, funded by a grant of the Aalborg University Copenhagen (March-June).
- 2016: Scientific responsibility of a research grant assigned to Daniele Salvati, University of Udine, Italy.
- 2015: Scientific responsibility of a research grant assigned to Stefano Zambon, University of Udine, Italy.
- 2011: Scientific responsibility of a research grant assigned to Marco Civolani, University of Udine, Italy.
- 2007-10: Scientific responsibility of 18 research grants assigned to Alberto Amendola, Balazs Bank, Federica Bressan, Marco Civolani, Antonio De Sena, Stefano Delle Monache, Delphine Devallez, Carlo Drioli, Stefano Zambon. University di Verona, Italy.
- 2007-10: Responsabile scientifico di 4 contratti di ricerca conseguiti da Gianpaolo Borin, Anna De Witt and Pietro Polotti. University of Verona, Italy.
- 2009: Tutor during the research visit of Dr. Jyri Pakarinen to the Dipartimento di Informatica, University of Verona, Italy, funded by a grant of the Aalto University (May-October).
- 2008: Tutor during the research visit of Dr. Heidi-Maria Lehtonen to the Dipartimento di Informatica, University of Verona, Italy, funded by a grant of the Aalto University (Spring).
- 2007: Tutor of a one-month internship of Mr. Paresh Mehta to the Dipartimento di Informatica, University of Verona, Italy (July).

14 Organization of events

- 2013: Art exhibition entitled *Feet into Place*, IEEE World Haptics Conference, Daejeon, Korea (April).
- 2011: Exhibit at the FET11 Conference *Science beyond Fiction*, Budapest, Hungary (May). The exhibit was covered among few others by the BBC.

- 2009: Exhibit at the FET09 Conference *Science beyond Fiction*, Prague, Czech Rep. (March). The exhibit was covered among few others by the BBC.
- 2008: Organization of the event entitled *La ricostruzione virtuale del pianoforte*, University of Verona, Italy, (October). Event covered by RAI 3 Veneto and the Italian national press.
- 2007: Organization of the Italian Association of Acoustics (AIA) workshop entitled *Lo spazio acustico e l'esecuzione musicale – Interazioni e rapporti*, Conservatorio "Dall'Abaco", Verona, Italy.
- 2007: Local organization of the PhD course entitled *Advanced algorithms for the analysis and visualization of DNA and protein sequences*, Dipartimento di Informatica, University of Verona, Italy (July).
- 2007: Local organizer of the *2nd ESF Training Course on Molecular Interactions*, Dipartimento di Biotecnologie, University of Verona, Italy (July).

15 Professional activity for R&D of public and private bodies

- 2012, 2013: Consultant for Viscount International, Mondaino, Italy, during the patenting process of the "Physis" digital piano instrument.
- 1999–2000: Consultant for STMicroelectronics – Automotive Division, Agrate Brianza, MI, Italy, in the design and real-time realization of a digital "Dolby B" noise suppression system.
- 1999–2000: Consultant for Generalmusic, San Giovanni in Marignano, RN, Italy, in the design and real-time realization of sound processing algorithms for electronic keyboards.
- 2000: Consultant for Consorzio Venezia Ricerche, Venice, Italy, in the realization of an high-tide phone-call alerting system based on a server-controlled cluster of speech synthesizers.
- 1996: Engineer at Electrolux Compressors S.A., Barcelona, Spain, working in the design and early testing of an automatic noise & vibration measurement process.

16 Product achievements

- *Physis Piano* - Research coordination of the design team (contractor: Viscount International, Mondaino, RN, Italy) [7]. See also `www.viscount.it`
- *MoogFF* - A widely used module for the SuperCollider real time sound processing free software environment [107]. See also `http://doc.sccode.org/Classes/MoogFF.html`
- *Dolby B Noise Reduction* - Real-time system for the simulation of the analog "Dolby B" codec (contractor: STMicroelectronic Automotive Division, Agrate Brianza, MI, Italy) [8, 9]. See also `www.st.com/internet/automotive/product/152117.jsp`
- *FADE* (Filter Algorithm Dynamic Emulation) - Real-time system for the generation of dynamic piano sounds from static samples (contractor: Generalmusic, San Giovanni in Marignano, RN, Italy). See also `www.soundonsound.com/sos/may03/articles/gempromega3.asp`
- *Call Manager* - An high-tide phone-call alerting system based on a server-controlled cluster of speech synthesizers. See also `www.comune.venezia.it/flex/cm/pages/ServeBLOB.php/L/IT/IDPagina/2421#5cf63c`

References

[] **Products having more than 50 citations in Google Scholar (access Apr. 13, 2021) are noted.**

Edited books and proceedings

[1] **F. Fontana** and A. Gulli, eds., *Machine Sounds, Sound Machines. Proceedings of the 22nd Colloquium on Music Informatics*, (Udine, Italy), Associazione Italiana di Informatica Musicale, IUAV - Università di Venezia, Nov. 20–23 2018.

[2] P. Polotti, G. Klauer, **F. Fontana**, and C. Drioli, eds., *Proceedings of the 19th Colloquium on Music Informatics*, (Trieste, Italy), Associazione Italiana di Informatica Musicale, IUAV - Università di Venezia, Nov. 21–24 2012.

[3] **F. Fontana** and Y. Visell, eds., *Walking with the Senses*. Berlin, Germany: Logos Verlag, Mar. 2012. Available on `http://uniud.academia.edu/FedericoFontana`.

[4] R. Nordahl, S. Serafin, **F. Fontana**, and S. Brewster, eds., *Haptic and Audio Interaction Design, 5th International Workshop, HAID 2010. Proceedings*, vol. 6306 of *Lecture Notes in Computer Science*. Heidelberg, Germany: Springer, 2010. ISBN: 978-3-642-15840-7.

[5] D. Rocchesso and **F. Fontana**, eds., *The Sounding Object*. Florence, Italy: Edizioni di Mondo Estremo, 2003. **207 citations in Google Scholar (access Apr. 13, 2021).**

Patents

[6] Y. D. Pra and **F. Fontana**, "Haptic controller with programmable resistive force." Italian Patent 21.U0062.12.IT.4, Apr. 2021. **Pending**.

[7] S. Zambon, E. Giordani, **F. Fontana**, and B. Bank, "A system to reproduce the sound of a stringed instrument." World Patent WO2013135627 A1, Sept. 2013.

[8] **F. Fontana** and M. Bricchi, "Process for noise reduction, particularly for audio systems, device and computer program product therefor." US Patent US2003004591, Jan. 2003.

[9] M. Bricchi and **F. Fontana**, "A process for noise reduction, particularly for audio systems, device and computer program product therefor." EU Patent EP1271772, Jan. 2003.

Editorials

[10] B. Bank, **F. Fontana**, and J. O. Smith, "Guest editor's note special issue on audio filter design," *J. of the Audio Engineering Society*, vol. 70, no. 6, pp. 412–413, 2022.

[11] V. Välimäki and **F. Fontana**, "Special issue on digital audio effects," *Applied Sciences*, vol. 10, p. 2449, Apr. 2020.

[12] R. Stables, J. Hockman, V. Välimäki, and **F. Fontana**, "22nd international conference on digital audio effects dafx 2019 (2–6 september 2019, birmingham, united kingdom)," *Applied Sciences*, vol. 10, p. 1048, Feb. 2020.

[13] M. Geronazzo, F. Avanzini, **F. Fontana**, and S. Serafin, "Interactions in mobile sound and music computing," *Wireless Communications and Mobile Computing*, vol. 2019, 2019.

[14] V. Välimäki, **F. Fontana**, J. O. Smith, and U. Zölzer, "Introduction to the special issue on virtual analog audio effects and musical instruments," *IEEE Trans. on Audio, Speech and Language Processing*, vol. 18, pp. 713–714, 2010.

Journal papers

[15] Y. De Pra, S. Papetti, H. Järveläinen, M. Bianchi, and **F. Fontana**, "Effects of vibration direction and pressing force on finger vibrotactile perception and force control," *IEEE Transactions on Haptics*, vol. 16, no. 1, pp. 23–32, 2023.

[16] A. Gulli, **F. Fontana**, E. Orzan, A. Aruffo, and E. Muzzi, "Spontaneous head movements support accurate horizontal auditory localization in a virtual visual environment," *PLoS ONE*, vol. 17, no. 12, p. e0278705, 2022.

[17] **F. Fontana**, F. Muzzolini, and D. Rocchesso, "Importance of force feedback for following uneven virtual paths with a stylus," *J. on Multimodal User Interfaces*, vol. 16, no. 2, pp. 183–191, 2022.

[18] A. Bernardini, E. Bozzo, **F. Fontana**, and A. Sarti, "A wave digital Newton-Raphson method for virtual analog modeling of audio circuits with multiple one-port nonlinearities," *IEEE/ACM Trans. on Audio, Speech and Language Processing*, vol. 29, pp. 2162–2173, 2021.

[19] Yuri De Pra, Stefano Papetti, Federico Fontana, and Emidio Tiberi. An open-source robotic tool for the simulation of quasi-static fingerpressing on stationary and vibrating surfaces. *IEEE Trans. on Haptics*, 14(2):273–278, 2021.

[20] Y. De Pra, S. Papetti, **F. Fontana**, H. Järveläinen, and M. Simonato, "Tactile discrimination of material properties: application to virtual buttons for professional appliances," *Journal on Multimodal User Interfaces*, vol. 14, pp. 255–269, Sept. 2020.

[21] Y. De Pra and **F. Fontana**, "Programming real-time sound in Python," *Applied Sciences*, vol. 10, p. 4214, June 2020.

[22] Y. D. Pra, **F. Fontana**, H. Järveläinen, S. Papetti, and M. Simonato, "Does it ping or pong? Auditory and tactile classification of materials by bouncing events," *ACM Trans. Appl. Percept.*, vol. 17, May 2020.

[23] **F. Fontana**, R. Paisa, R. Ranon, and S. Serafin, "Multisensory plucked instrument modeling in unity3d: From keytar to accurate string prototyping," *Applied Sciences*, vol. 10, p. 1452, Feb. 2020.

[24] F. Fontana and E. Bozzo, "Newton-Raphson solution of nonlinear delay-free loop filter networks," *IEEE/ACM Transactions on Audio, Speech, and Language Processing*, vol. 27, pp. 1590–1600, Oct. 2019.

[25] S. Papetti, F. Avanzini, and **F. Fontana**, "Design and application of the BiVib audio-tactile piano sample library," *Applied Sciences*, vol. 9, p. 15, 2019.

[26] F. Fontana and E. Bozzo, "Explicit fixed-point computation of nonlinear delay-free loop filter networks," *IEEE/ACM Transactions on Audio, Speech, and Language Processing*, vol. 26, pp. 1884–1896, Oct. 2018.

[27] **F. Fontana**, S. Papetti, H. Järveläinen, and F. Avanzini, "Detection of keyboard vibrations and effects on perceived piano quality," *J. of the Acoustical Society of America*, vol. 142, pp. 2953–2967, 2017.

[28] M. Geronazzo, F. Avanzini, and **F. Fontana**, "Auditory navigation with a tubular acoustic model for interactive distance cues and personalized head-related transfer functions," *Journal on Multimodal User Interfaces*, 2016.

[29] **F. Fontana**, E. Bozzo, and M. Novello, "Decimation in time and space of finite-difference time-domain schemes: Standard isotropic lossless model," *IEEE Trans. on Signal Processing*, vol. 63, pp. 5331–5341, Oct. 2015.

[30] P. Cesari, I. Camponogara, S. Papetti, D. Rocchesso, and **F. Fontana**, "Might as well jump: sound affects muscle activation in skateboarding," *PloS One*, vol. 9, no. 3, p. e90156, 2014.

[31] **F. Fontana**, S. Zambon, and E. Bozzo, "Rate switching filters: Model and efficient approximation," *IEEE Trans. on Signal Processing*, vol. 62, pp. 1290–1304, March 2014.

[32] F. Bressan, A. Rodà, S. Canazza, **F. Fontana**, and R. Bertani, "The safeguard of audio collections: A computer science based approach to quality control–the case of the sound archive of the Arena di Verona," *Adv. MultiMedia*, vol. 2013, Jan. 2013.

[33] F. Bressan, S. Canazza, A. Rodà, R. Bertani, and **F. Fontana**, "Pavarotti sings again: A multidisciplinary approach to the active preservation of the audio collection at the arena di verona," *Journal of New Music Research*, vol. 42, no. 4, pp. 364–380, 2013.

[34] **F. Fontana**, "Use of the Nyquist stability criterion in the design of interactive audio digital filters," *IEEE Signal Processing Letters*, vol. 18, pp. 271–274, 2011.

[35] J. Pakarinen, V. Välimäki, **F. Fontana**, V. Lazzarini, and J. S. Abel, "Recent advances in real-time musical effects, synthesis, and virtual analog models," *EURASIP J. Advances in Signal Processing*, vol. 2011, pp. 1–15, 2011.

[36] B. Bank, S. Zambon, and **F. Fontana**, "A modal-based real-time piano synthesizer," *IEEE Trans. on Audio, Speech and Language Processing*, vol. 18, no. 4, pp. 809–821, 2010. Special Issue on Virtual Analog Audio Effects and Musical Instruments. **52 citations in Google Scholar.**

[37] **F. Fontana** and M. Civolani, "Modeling of the EMS VCS3 voltage-controlled filter as a non-linear filter network," *IEEE Trans. on Audio, Speech and Language Processing*, vol. 18, no. 4, pp. 760–772, 2010. Special Issue on Virtual Analog Audio Effects and Musical Instruments.

[38] Y. Visell, **F. Fontana**, B. Giordano, R. Nordahl, S. Serafin, and R. Bresin, "Sound design and perception in walking interactions," *Int. J. Human-Computer Studies*, vol. 2009, no. 67, pp. 947–959, 2009. **86 citations in Google Scholar.**

[39] D. Devallez, **F. Fontana**, and D. Rocchesso, "Linearizing auditory distance estimates by means of virtual acoustics," *Acta Acustica united with Acustica*, vol. 94, no. 6, pp. 813–824, 2008.

[40] **F. Fontana** and F. Avanzini, "Computation of delay-free nonlinear digital filter networks. Application to chaotic circuits and intracellular signal transduction," *IEEE Trans. on Signal Processing*, vol. 56, pp. 4703–4715, Oct. 2008.

[41] **F. Fontana** and D. Rocchesso, "Auditory distance perception in an acoustic pipe," *ACM Trans. Applied Perception*, vol. 5, no. 3, pp. 16:1–16:15, 2008.

[42] **F. Fontana** and V. Manca, "Predator-prey dynamics in P systems ruled by metabolic algorithm," *BioSystems*, vol. 91, pp. 545–557, Mar. 2008.

[43] **F. Fontana** and V. Manca, "Discrete solution of differential equations by metabolic P systems," *Theoretical Computer Science*, vol. 372, pp. 165–182, Mar. 2007. **51 citations in Google Scholar.**

[44] L. Bianco, **F. Fontana**, and V. Manca, "P systems with reaction maps," *International Journal of Foundations of Computer Science*, vol. 17, no. 1, pp. 27–48, 2006. **63 citations in Google Scholar.**

[45] **F. Fontana** and G. Franco, "Finding the maximum element using P systems," *J. of Universal Computer Science*, vol. 10, no. 5, pp. 567–580, 2004.

[46] **F. Fontana**, "Computation of linear filter networks containing delay-free loops, with an application to the waveguide mesh," *IEEE Trans. on Speech and Audio Processing*, vol. 11, pp. 774–782, Nov. 2003.

[47] B. Bank, F. Avanzini, G. Borin, G. D. Poli, **F. Fontana**, and D. Rocchesso, "Physically informed signal processing methods for piano sound synthesis: a research overview," *EURASIP J. Audio Signal Processing*, no. 10, pp. 941–952, 2003. Special issue on Digital Audio for Multimedia Communications. **62 citations in Google Scholar.**

[48] **F. Fontana** and M. Karjalainen, "A digital bandpass/bandstop complementary equalization filter with independent tuning characteristics," *IEEE Signal Processing Letters*, vol. 10, pp. 88–91, Apr. 2003.

[49] **F. Fontana** and D. Rocchesso, "Signal-theoretic characterization of waveguide mesh geometries for models of two-dimensional wave propagation in elastic media," *IEEE Trans. on Speech and Audio Processing*, vol. 9, pp. 152–161, Feb. 2001. **80 citations in Google Scholar.**

[50] **F. Fontana** and D. Rocchesso, "Physical modeling of membranes for percussion instruments," *Acustica*, vol. 83, pp. 529–542, Jan. 1998. **97 citations in Google Scholar.**

Book chapters

[51] **F. Fontana**, H. Järveläinen, and S. Papetti, "Augmenting sonic experiences through haptic feedback," in *Sonic Interactions in Virtual Environments* (M. Geronazzo and S. Serafin, eds.), pp. 353–381, Cham: Springer International Publishing, 2023.

[52] **F. Fontana**, S. Papetti, H. Järveläinen, F. Avanzini, and B. L. Giordano, "Perception of vibrotactile cues in musical performance," in *Musical Haptics* (S. Papetti and C. Saitis, eds.), pp. 49–72, Zurigo - CH: Springer Nature Switzerland, 2018. **Ranked 9th in the 2018 Top-10 Downloaded New Springer Books in Computer Science.**

[53] S. Papetti, M. Fröhlich, **F. Fontana**, S. Schiesser, and F. Avanzini, "Implementation and characterization of vibrotactile interfaces," in *Musical Haptics* (S. Papetti and C. Saitis, eds.), pp. 257–282, Zurigo - CH: Springer Nature Switzerland, 2018. **Ranked 9th in the 2018 Top-10 Downloaded New Springer Books in Computer Science.**

[54] M. Marchal, G. Cirio, Y. Visell, **F. Fontana**, S. Serafin, J. Cooperstock, and A. Lécuyer, "Multimodal rendering of walking over virtual grounds," in *Human Walking in Virtual Environments* (F. Steinicke, Y. Visell, J. Campos, and A. Lécuyer, eds.), pp. 263–295, Springer New York, 2013.

[55] L. Bianco, **F. Fontana**, G. Franco, and V. Manca, "P systems for biological dynamics," in *Applications of Membrane Computing* (G. Ciobanu, G. Păun, and M. J. Pérez-Jiménez, eds.), pp. 81–126, Springer, 2006. **76 citations in Google Scholar.**

[56] V. Manca, *Metodi Informazionali*. Torino, Italy: Bollati Boringhieri, 2003. In Italian. Appendice by D. Botturi, **F. Fontana**, and G. Pravadelli.

[57] **F. Fontana**, A. Fusiello, M. Gobbi, V. Murino, D. Rocchesso, L. Sartor, and A. Panuccio, "A cross-modal electronic travel aid device," in *Human Computer Interaction with Mobile Devices* (F. Paternò, ed.), pp. 393–397, Milano, Italy: Springer, 2002.

Conference proceedings

[58] Y. De Pra, **F. Fontana**, H. Järveläinen, S. Papetti, M. Bianchi, and M. Sonego, "Evaluation of rotation gestures in rotary vs. motionless knobs," in *Proceedings of the 27th IEEE Haptics Symposium, HAPTICS 2022* (I. B. Fernando Bello, Hiroyuki Kajimoto, ed.), (Santa Barbara, CA), Mar. 21-24 2022.

[59] M. G. Onofrei, **F. Fontana**, and S. Serafin, "Rubbing a physics based synthesis model: From mouse control to frictional haptic feedback," in *Proceedings of the 19th Sound and Music Computing Conference (SMC2022)* (R. Michon, L. Pottier, and Y. Orlarey, eds.), (St. Etienne, France), pp. 25–32, Jun. 5-12 2022.

[60] P. Marrone, S. D'Angelo, **F. Fontana**, G. Costagliola, and G. Puppis, "Ciaramella: A synchronous data flow programming language for audio dsp," in *Proceedings of the 19th Sound and Music Computing Conference (SMC2022)* (R. Michon, L. Pottier, and Y. Orlarey, eds.), (St. Etienne, France), pp. 412–419, Jun. 5-12 2022.

[61] Y. De Pra, **F. Fontana**, and S. Papetti, "Interacting with digital audio effects through a haptic knob with programmable resistance," in *Proc. 24th International Conference on Digital Audio Effects (DAFx20in21)*, (Vienna, Austria), pp. 113–120, Sep. 8-10 2021.

[62] Y. De Pra, **F. Fontana**, and S. Papetti, "Endless knob with programmable resistive force feedback," in *Human-Computer Interaction – INTERACT 2021* (C. Ardito, R. Lanzilotti, A. Malizia, H. Petrie, A. Piccinno, G. Desolda, and K. Inkpen, eds.), (Cham), pp. 580–589, Springer International Publishing, 2021.

[63] Federico Fontana, Hanna Järveläinen, and Maurizio Favaro. Is an auditory event more takete? In Simone Spagnol and Andrea Valle, editors, *Proceedings of the 18th Sound and Music Computing Conference (SMC2021)*, pages 219–224, Torino, Italy, Jun. 29 - Jul. 1 2021. Best paper award.

[64] Y. D. Pra, **F. Fontana**, S. Papetti, and M. Simonato, "A low-cost endless knob controller with programmable resistive force feedback for multimedia production," in *Proceedings of the 17th Sound and Music Computing Conference (SMC2020)* (S. Spagnol and A. Valle, eds.), (Torino, Italy), pp. 242–246, Jun. 24–26 2020.

[65] **F. Fontana**, A. Passalenti, S. Serafin, and R. Paisa, "Keytar: Melodic control of multisensory feedback from virtual strings," in *Proc. Conf. on Digital Audio Effects (DAFx-19)*, (Birmingham, UK), Mar 23–27 2019.

[66] A. Passalenti, R. Paisa, N. C. Nilsson, N. S. Andersson, **F. Fontana**, R. Nordahl, and S. Serafin, "No strings attached: Force and vibrotactile feedback in a guitar simulation," in *Proc. 16th Sound and Music Computing Conference (SMC2019)*, (Malaga, Spain), pp. 210–216, May 28–31 2019.

[67] A. Passalenti, R. Paisa, N. C. Nilsson, N. S. Andersson, F. Fontana, R. Nordahl, and S. Serafin, "No strings attached: Force and vibrotactile feedback in a virtual guitar simulation," in

Proc. IEEE Conference on Virtual Reality and 3D User Interfaces (IEEEVR), (Osaka, Japan), pp. 1116–1117, Mar 23–27 2019.

[68] D. Salvati, C. Drioli, A. Gulli, G. L. Foresti, **F. Fontana**, and G. Ferrin, "Audiovisual active speaker localization and enhancement for multirotor micro aerial vehicles," in *Proc. of the 23rd International Congress on Acoustics: integrating 4th EAA Euroregio 2019* (J. F. Martin Ochmann, Michael Vorländer, ed.), (Aachen, Germany), Deutsche Gesellschaft für Akustik, Sep. 9–13 2019.

[69] Y. D. Pra, **F. Fontana**, H. Järveläinen, S. Papetti, M. Simonato, and R. Furlanetto, "Auditory and tactile recognition of resonant material vibrations in a passive task of bouncing perception," in *Proc. International Workshop on Haptic and Audio Interaction Design - HAID2019*, (Lille, France), Mar. 13–15 2019.

[70] S. Papetti, F. Avanzini, and **F. Fontana**, "Bivib: A multimodal piano sample library of binaural sounds and keyboard vibrations," in *Proc. Conf. on Digital Audio Effects (DAFx-18)* (M. Davies, A. Ferreira, G. Campos, and N. no Fonseca, eds.), (Aveiro, Portugal), pp. 237–242, Sep. 4–8 2018.

[71] A. Passalenti and **F. Fontana**, "Haptic interaction with guitar and bass virtual strings," in *Proceedings of the 15th Sound and Music Computing Conference (SMC 2018)* (A. Georgaki and A. Andreopoulou, eds.), (Limassol, Cyprus), pp. 427–432, Jul. 4–7 2018.

[72] **F. Fontana**, F. Avanzini, and S. Papetti, "Evidence of lateralization cues in grand and upright piano sound," in *Proceedings of the 15th Sound and Music Computing Conference (SMC 2018)* (A. Georgaki and A. Andreopoulou, eds.), (Limassol, Cyprus), pp. 80–84, Jul. 4–7 2018.

[73] D. Salvati, C. Drioli, **F. Fontana**, and G. L. Foresti, "Importance of binaural cues of depth in low-resolution audio-visual 3d scene reproductions," in *Proc. IEEE 4th VR Workshop on Sonic Interactions for Virtual Environments (SIVE)* (M. Geronazzo, S. Serafin, C. Erkut, F. Grani, F. Avanzini, and N. C. Nilsson, eds.), pp. 1–6, Mar. 18 2018.

[74] Y. D. Pra, **F. Fontana**, and M. Simonato, "Development of real-time audio applications using python," in *MACHINE SOUNDS, SOUND MACHINES – XXII Colloquio di Informatica Musicale*, (Udine, Italy), pp. 226–231, Nov. 20–23 2018.

[75] **F. Fontana**, D. Scappin, F. Avanzini, M. Bernardi, D. Bianco, and G. Klauer, "Auditory, visual and somatosensory localization of piano tones: A preliminary study," in *Proceedings of the 14th Sound and Music Computing Conference*, pp. 254–260, July 5–8 2017.

[76] **F. Fontana**, I. Camponogara, P. Cesari, M. Vallicella, and M. Ruzzenente, "An exploration on whole-body and foot-based vibrotactile sensitivity to melodic consonance," in *Proc. 13th Sound and Music Computing Conference (SMC2016)*, (Hamburg, Germany), pp. 143–150, Aug. 31 - Sep. 3 2016. Available at `http://smcnetwork.org/node/2009`.

[77] **F. Fontana**, S. Zambon, and Y. D. Pra, "Designing on subjective tolerance to approximated piano reproductions," in *Proc. of the Third Vienna Talk on Music Acoustics*, (Vienna, Austria), pp. 197–204, Sep. 16-19 2015. Invited paper.

[78] L. Gabrielli, S. Zambon, and **F. Fontana**, "Parallel digital signal processing for efficient piano synthesis," in *Proc. 23rd European Signal Processing Conference (EUSIPCO 2015)*, (Nice, France), pp. 2019–2022, Aug. 31–Sep. 4 2015.

[79] M. Geronazzo, F. Avanzini, and **F. Fontana**, "Use of personalized binaural audio and interactive distance cues in an auditory goal-reaching task," in *Proc. 21st International Conference*

on Auditory Display (ICAD 2015) (K. Vogt, A. Andreopoulou, and V. Goudarzi, eds.), (Graz, Austria), July 6-10 2015.

[80] **F. Fontana**, H. Järveläinen, S. Papetti, F. Avanzini, G. Klauer, and L. Malavolta, "Rendering and subjective evaluation of real vs. synthetic vibrotactile cues on a digital piano keyboard," in *Proc. 12th International Conference on Sound and Music Computing (SMC2015)*, (Maynooth, Ireland), pp. 161–168, 2015.

[81] Y. de Pra, **F. Fontana**, and F. Spoto, "Confronto tra sistemi di rilevamento del gesto basati su sensori a infrarossi o ultrasuoni per applicazioni di pianoforte virtuale," in *Proc. XX CIM*, (Rome, Italy), 2014. **Recipient of the Aldo Piccialli Best Paper Award**. In Italian.

[82] Y. de Pra, **F. Fontana**, L. Tao, and F. Spoto, "Perception of interactive vibrotactile cues on the acoustic grand and upright piano," in *Proc. Joint ICMC/SMC Conf.*, (Athens, Greece), pp. 654–658, 2014.

[83] **F. Fontana**, F. Avanzini, H. Järveläinen, S. Papetti, F. Zanini, and V. Zanini, "Perception of interactive vibrotactile cues on the acoustic grand and upright piano," in *Proc. Joint ICMC/SMC Conf.*, (Athens, Greece), pp. 948–953, 2014.

[84] M. Novello, **F. Fontana**, and E. Bozzo, "Decimation of finite-difference time-domain schemes in 1D and 2D boundary-absorbing acoustic model simulations," in *Proc. of the 2014 IEEE International Conference on Acoustic, Speech and Signal Processing*, (Florence, Italy), pp. 8227–8231, IEEE, 2014.

[85] **F. Fontana**, Y. D. Pra, and A. Amendola, "Sensitivity to loudspeaker permutations during an eight-channel array reproduction of piano notes," in *Proc. SMAC/SMC 2013*, (Stockholm, Sweden), Jul. 30 - Aug. 3 2013.

[86] **F. Fontana**, "Association of haptic trajectories to takete and maluma," in *Haptic and Audio Interaction Design* (I. Oakley and S. Brewster, eds.), vol. 7989 of *Lecture Notes in Computer Science*, pp. 60–68, Springer Berlin Heidelberg, 2013.

[87] **F. Fontana**, "Interactive sound synthesis by the Lotka-Volterra population model," in *Proceedings of the 19th Colloquium on Music Informatics* (P. Polotti, G. Klauer, **F. Fontana**, and C. Drioli, eds.), (Trieste, Italy), pp. 24–29, Associazione Italiana di Informatica Musicale, Nov. 21-24 2012.

[88] S. Papetti and **F. Fontana**, "Effects of audio-tactile floor augmentation on perception and action during walking: Preliminary results," in *Proc. of the 9th Sound and Music Computing Conf.*, (Copenhagen, Denmark), pp. 17–22, July 2012.

[89] F. Bressan, A. Rodà, S. Canazza, and **F. Fontana**, "Towards an informed procedural approach to the preservation of audio documents: The case of the "Fondazione Arena di Verona"," in *Proceedings of Sharing Cultures 2011*, (Tomar, Portugal), pp. 177–185, July 3-6 2011.

[90] **F. Fontana**, F. Morreale, T. Regia-Corte, A. Lécuyer, and M. Marchal, "Auditory recognition of floor surfaces by temporal and spectral cues of walking," in *Proc. 17th International Conference on Auditory Display*, (Budapest, Hungary), June 20-24 2011.

[91] **F. Fontana**, S. Papetti, V. dal Bello, M. Civolani, and B. Bank, "An exploration on the influence of vibrotactile cues during digital piano playing," in *Proc. 8th Sound and Music Computing Conference (SMC2011)*, (Padua, Italy), pp. 273–278, Padova University Press, July 6-9 2011. Available at `http://www.padovauniversitypress.it/`.

[92] S. Papetti, M. Civolani, and **F. Fontana**, "Rhythm'n'shoes: a wearable foot tapping interface with audio-tactile feedback," in *Proc. Int. Conference on New Interfaces for Musical Expression*, (Oslo, Norway), pp. 473–476, June 30 - July 1st 2011. Available at `http://www.nime2011.org/proceedings/papers/M15-Papetti.pdf`.

[93] M. Romagnoli, **F. Fontana**, and R. Sarkar, "Vibrotactile recognition by western and indian population groups of traditional musical scales played with the harmonium," in *Haptic and Audio Interaction Design* (E. W. Cooper, V. Kryssanov, H. Ogawa, and S. Brewster, eds.), vol. 6851, (Kyoto, Japan), pp. 91–100, Springer, August 25-26 2011. Lecture Notes in Computer Science, 2011, Volume 6851/2011.

[94] S. Papetti, **F. Fontana**, M. Civolani, A. Berrezag, and V. Hayward, "Audio-tactile display of ground properties using interactive shoes," in *Haptic and Audio Interaction Design* (R. Nordahl, S. Serafin, **F. Fontana**, and S. Brewster, eds.), vol. 6306 of *Lecture Notes in Computer Science*, pp. 117–128, Springer Berlin / Heidelberg, 2010. 10.1007/978-3-642-15841-4_13.

[95] M. Civolani, **F. Fontana**, and S. Papetti, "Efficient acquisition of force data in interactive shoe designs," in *Haptic and Audio Interaction Design* (R. Nordahl, S. Serafin, **F. Fontana**, and S. Brewster, eds.), vol. 6306 of *Lecture Notes in Computer Science*, pp. 129–138, Springer Berlin / Heidelberg, 2010. 10.1007/978-3-642-15841-4_14.

[96] R. Bresin, A. de Witt, S. Papetti, M. Civolani, and **F. Fontana**, "Expressive sonification of footstep sounds," in *Proc. of the Interactive Sonification Workshop (ISon 2010*, pp. 51–54, Apr. 7 2010. **52 citations in Google Scholar.**

[97] M. Civolani and **F. Fontana**, "A nonlinear digital model of the EMS VCS3 voltage-controlled filter," in *Proc. Conf. on Digital Audio Effects (DAFX-08)*, (Espoo, Finland), pp. 35–42, Sept. 1–4 2008.

[98] M. Civolani and **F. Fontana**, "Modelli di filtri VCF a retroazione istantanea," in *Proc. of the XVII Colloquio di Informatica Musicale*, (Venice, Italy), Oct. 15–17 2008. In Italian.

[99] D. Devallez, **F. Fontana**, and D. Rocchesso, "An audio-haptic interface based on auditory depth cues," in *Proc. Int. Conf. on Multimodal Interfaces (ICMI'08)*, (Chania, Greece), pp. 209–216, Oct. 20-22 2008.

[100] D. Devallez, D. Rocchesso, and **F. Fontana**, "An audio-haptic interface concept based on depth information," in *Proc. of Workshop on Haptic and Audio Interaction Design (HAID 08)*, (Jyväskylä, Finland), pp. 102–110, Sep. 15-16 2008.

[101] Y. Visell, J. R. Cooperstock, B. L. Giordano, K. Franinovic, A. Law, S. McAdams, K. Jathal, and **F. Fontana**, "A vibrotactile device for display of virtual ground materials in walking," in *Haptics: Perception, Devices and Scenarios*, no. 5024 in Lecture Notes in Computer Science, pp. 420–426, Berlin/Heidelberg: Springer, 2008. **57 citations in Google Scholar.**

[102] R. Bresin, S. D. Monache, **F. Fontana**, S. Papetti, P. Polotti, and Y. Visell, "Auditory feedback from continuous control of crumpling sound synthesis," in *CHI 2008 Workshop on Sonic Interaction Design*, (Florence, Italy), pp. 23–28, ACM-SIGCHI, Apr. 5-10 2008.

[103] S. Papetti, D. Devallez, and **F. Fontana**, "Depthrow: a physics-based audio game," in *Proc. Int. Conf. on Auditory Display*, (Paris, France), Jun. 24-27 2008.

[104] S. Papetti, D. Devallez, and **F. Fontana**, "Depthrow: uno strumento di indagine sulla percezione uditiva della distanza in forma di gioco audio," in *Proc. of the XVII Colloquio di Informatica Musicale*, (Venice, Italy), Oct. 15–17 2008. In Italian.

[105] D. Devallez, D. Rocchesso, and **F. Fontana**, "An experimental evaluation of the influence of auditory cues on perceived visual orders in depth," in *Proc. Int. Conf. on Auditory Display*, (Montreal, Canada), pp. 312–318, June 26-29 2007.

[106] S. Zambon and **F. Fontana**, "A real time piano model including longitudinal modes," in *Proc. of Workshop "Toni Mian"*, (Padova, Italy), 2007.

[107] **F. Fontana**, "Preserving the structure of the Moog VCF in the digital domain," in *Proc. Int. Computer Music Conf.*, (Copenhagen, Denmark), pp. 291–294, 27–31 Aug. 2007.

[108] F. Avanzini and **F. Fontana**, "Exact discrete-time realization of a Dolby B encoding/decoding architecture," in *Proc. Conf. on Digital Audio Effects (DAFX-06)*, (Montreal, Quebec, Canada), pp. 297–302, Sept. 18–20, 2006.

[109] **F. Fontana** and V. Manca, "Discrete solution of differential equations by P metabolic algorithm," in *Proc. of Fourth Brainstorming Week on Membrane Computing (BWMC4)*, (Sevilla, Spain), pp. 31–40, 2006.

[110] L. Bianco and **F. Fontana**, "Towards a hybrid metabolic algorithm," in *WMC 7* (H. J. H. et al., ed.), vol. 4361 of *LNCS*, (Leiden, The Netherlands), pp. 183–196, Springer, July 2006.

[111] G. Bertini, **F. Fontana**, D. Gonzalez, L. Grassi, and M. Magrini, "Voice transformation algorithms with real time DSP rapid prototyping tools," in *Proc. of EUSIPCO2005*, (Antalya, Turkey), Sept. 2005.

[112] **F. Fontana** and D. L. Gonzalez, "Advanced LPC techniques of voice regeneration for "virtual dubbing"," in *Proc. of the 2005 Forum Acusticum*, (Budapest, Hungary), pp. 325–330, AES, Sept. 2005.

[113] F. Avanzini, **F. Fontana**, and D. Rocchesso, "Efficient computation of nonlinear filter networks with delay-free loops and applications to physically-based sound models," in *Proc. of "The Fourth International Workshop on Multidimensional Systems, 2005 (NDS 2005)*, (Wuppertal, Germany), pp. 110–115, IEEE, July 2005.

[114] **F. Fontana**, L. Bianco, and V. Manca, "P systems and the modeling of biochemical oscillations," in *6th Workshop on Membrane Computing (WMC6)* (R. Freund, G. Păun, G. Rozenberg, and A. Salomaa, eds.), vol. 3850 of *Lecture Notes in Computer Science*, pp. 199–208, Springer, 2006. **54 citations in Google Scholar.**

[115] L. Bianco, **F. Fontana**, and V. Manca, "Reaction-driven membrane systems," in *Advances in Natural Computation, First International Conference, ICNC 2005, Changsha, China, August 27-29, 2005, Proceedings, Part II* (L. Wang, K. Chen, and Y.-S. Ong, eds.), vol. 3611 of *Lecture Notes in Computer Science*, pp. 1155–1158, Springer, 2005.

[116] L. Bianco, **F. Fontana**, and V. Manca, "Metabolic algorithm with time-varying reaction maps," in *Proc. of the Third Brainstorming Week on Membrane Computing (BWMC3)*, (Sevilla, Spain), pp. 43–62, Feb. 2005.

[117] V. Manca, L. Bianco, and **F. Fontana**, "Evolutions and oscillations of P systems: Applications to biological phenomena," in *Membrane Computing, 5th International Workshop* (G. Mauri, G. Păun, M. J. Pérez-Jiménez, G. Rozenberg, and A. Salomaa, eds.), vol. 3365 of *Lecture Notes in Computer Science*, pp. 63–84, Springer, 2005. **102 citations in Google Scholar.**

[118] **F. Fontana**, F. Avanzini, and D. Rocchesso, "Computation of nonlinear filter networks containing delay-free paths," in *Proc. Conf. on Digital Audio Effects (DAFX-04)*, (Naples, Italy), pp. 113–118, Oct. 2004.

[119] **F. Fontana** and G. Franco, "Maximum search using P systems," in *Proc. of the Brainstorming Week on Membrane Computing (BWMC2)* (G. Păun, A. R.-N. nez, A. Romero-Jiménez, and F. Sancho-Caparrini, eds.), (Seville, Spain), pp. 152–163, Feb. 2004.

[120] **F. Fontana** and D. Rocchesso, "A physics-based approach to the presentation of acoustic depth," in *Proc. Int. Conf. on Auditory Display*, (Boston (MA)), pp. 79–82, June 2003.

[121] **F. Fontana** and S. Serafin, "Modeling savart's trapezoidal violin using a digital waveguide mesh," in *Proc. Stockholm Musical Acoustics Conference (SMAC-03)*, vol. I, (Stockholm), pp. 51–53, Aug. 2003.

[122] **F. Fontana** and R. Bresin, "Physics-based sound synthesis and control: crushing, walking and running by crumpling sounds," in *Proc. Colloquium on Musical Informatics*, (Florence, Italy), pp. 109–114, May 2003. **66 citations in Google Scholar.**

[123] M. Rath, F. Avanzini, N. Bernardini, G. Borin, **F. Fontana**, L. Ottaviani, and D. Rocchesso, "An introductory catalog of computer-synthesized contact sounds, in real-time," in *Proc. Colloquium of Musical Informatics*, (Florence, Italy), pp. 103–108, May 2003.

[124] L. Ottaviani, **F. Fontana**, and D. Rocchesso, "Recognition of distance cues from a virtual spatialization model," in *Proc. Conf. on Digital Audio Effects (DAFX-02)*, (Hamburg, Germany), pp. 187–190, Sept. 2002.

[125] **F. Fontana**, D. Rocchesso, and L. Ottaviani, "A structural approach to distance rendering in personal auditory displays," in *Proc. International Conference on Multimodal Interfaces (ICMI'02)*, (Pittsburgh, PA), pp. 33–38, IEEE, Oct. 2002.

[126] A. Fusiello, A. Panuccio, V. Murino, **F. Fontana**, and D. Rocchesso, "A multimodal electronic travel aid device," in *Proc. International Conference on Multimodal Interfaces (ICMI'02)*, (Pittsburgh, PA), pp. 39–44, IEEE, Oct. 2002.

[127] **F. Fontana**, L. Savioja, and V. Välimäki, "A modified rectangular waveguide mesh structure with interpolated input and output points," in *Proc. Int. Computer Music Conf.*, (La Habana, Cuba), pp. 87–90, ICMA, Sept. 2001.

[128] F. Avanzini, B. Bank, G. Borin, G. D. Poli, **F. Fontana**, and D. Rocchesso, "Musical instrument modeling: the case of the piano," in *Proc. of the Workshop on Current Research Directions in Computer Music*, (Barcelona, Spain), pp. 124–133, Nov. 2001.

[129] **F. Fontana**, L. Ottaviani, M. Rath, and D. Rocchesso, "Recognition of ellipsoids from acoustic cues," in *Proc. Conf. on Digital Audio Effects (DAFX-01)*, (Limerick, Ireland), pp. 160–164, COST-G6, Dec. 2001.

[130] L. Ottaviani, **F. Fontana**, D. Rocchesso, and M. Rath, "Sounds from shape morphing of 3-d resonators," in *Proc. of the Workshop on Current Research Directions in Computer Music*, (Barcelona, Spain), pp. 233–238, Nov. 2001.

[131] **F. Fontana** and M. Karjalainen, "Magnitude-complementary filters for dynamic equalization," in *Proc. Conf. on Digital Audio Effects (DAFX-01)*, (Limerick, Ireland), pp. 160–164, COST-G6, Dec. 2001.

[132] **F. Fontana**, D. Rocchesso, and E. Apollonio, "Acoustic cues from shapes between spheres and cubes," in *Proc. Int. Computer Music Conf.*, (La Habana, Cuba), pp. 278–281, Sept. 2001.

[133] **F. Fontana**, D. Rocchesso, and E. Apollonio, "Using the waveguide mesh in modelling 3d resonators," in *Proc. Conf. on Digital Audio Effects (DAFX-00)*, (Verona - Italy), pp. 229–232, COST-G6, Dec. 2000.

[134] **F. Fontana** and D. Rocchesso, "Online correction of dispersion error in 2d waveguide meshes," in *Proc. Int. Computer Music Conf.*, (Berlin, Germany), pp. 78–81, ICMA, Aug. 2000.

[135] **F. Fontana**, L. Gibin, O. Ballan, and D. Rocchesso, "Common pole equalization of small rooms using a two-step real-time digital equalizer," in *Proc. IEEE Workshop on Applications of Signal Processing to Audio and Acoustics*, (Mohonk, NY), pp. 195–198, IEEE, Oct. 1999.

[136] **F. Fontana** and D. Rocchesso, "Signal-theoretic characterization of waveguide mesh geometries for membrane simulation," in *Proc. Int. Computer Music Conf.*, (Ann Arbor, Michigan), pp. 260–263, ICMA, Oct. 1998.

[137] **F. Fontana** and D. Rocchesso, "A new formulation of the 2D-waveguide mesh for percussion instruments," in *Proc. of the XI Colloquium in Musical Informatics*, (Bologna, Italy), pp. 27–30, AIMI, Nov. 1995. **58 citations in Google Scholar.**