



Xavier Serra is a Professor at the Universitat Pompeu Fabra in Barcelona, where he leads the Music Technology Group within the Department of Information and Communication Technologies. He earned his PhD in Computer Music from Stanford University in 1989, focusing on spectral processing of musical sounds, a foundational work in the field. His research spans computational analysis, description, and synthesis of sound and music signals, blending scientific and artistic disciplines. Dr. Serra is very active in the fields of Audio Signal Processing, Sound and Music Computing, Music Information Retrieval and Computational Musicology at the local and international levels, being involved in the editorial board of several journals and conferences and giving lectures on current and future challenges of these fields. He received an Advanced Grant from the European Research Council for the CompMusic project, promoting multicultural approaches in music information research. Currently, he directs the UPF-BMAT Chair on AI and Music, dedicated to fostering Ethical AI initiatives that can empower the music sector. More information in: <https://www.upf.edu/web/xavier-serra>

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## PERSONAL INFORMATION

LAST NAME: Serra  
FIRST NAME: Xavier  
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DATE OF BIRTH: Sept. 10<sup>th</sup>, 1959  
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## EDUCATION

1989 PhD in Music Technology, Stanford University, USA. (October)  
1983 Master in Music, Florida State University, USA. (June)  
1981 Bachelor in Biology (Licenciatura), Universitat de Barcelona, Spain. (June)  
1970-1981 Music studies at the Conservatori Superior Municipal de Música de Barcelona.

## PHD THESIS

**Title:** “A System for Sound Analysis/Transformation/Synthesis based on a Deterministic plus Stochastic Decomposition”

**Thesis supervisor:** Dr. John Chowning

**Jury of thesis defense:** Dr. Julius O. Smith III, Dr. Earl Schubert, Dr. Max V. Mathews

## CURRENT PROFESSIONAL SITUATION

INSTITUTION: Universitat Pompeu Fabra, Barcelona  
DEPARTMENT: Department of Information and Communication Technologies  
POSITION AND DATE OF START: Full Professor since 30/11/2017  
ADDRESS: Roc Boronat 138, 08018 Barcelona  
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WEBSITE: <https://www.upf.edu/web/xavier-serra>

## EMPLOYMENT HISTORY

2017 - Full Professor (Catedrático) at UPF  
1996-2017 Associate Professor (Profesor Titular) at UPF  
1995-1996 Visiting Professor (Profesor Visitante) at UPF  
1991-1994 Post-doc at Phonos Foundation  
1989-1991 Chief Engineer at Yamaha Music Technologies USA, Inc.

## CURRENT MANAGEMENT RESPONSIBILITIES AT UPF

2023 - Director of the UPF-BMAT Chair on AI and Music.  
2018 - Member of the Faculty Commission of the UPF.  
2008 - Coordinator of the Master in Sound and Music Computing of the Department of Information and Communication Technologies.  
2008 - Member of the Postgraduate and Doctoral Studies Commission of the Department of Information and Communication Technologies.  
2008 - Member of the Faculty Commission of the Department of Information and Communication Technologies.

1994 - Founder and Director of the Music Technology Group (MTG).

### **CURRENT TEACHING ACTIVITIES**

- 2021 - Music Technology Lab. Undergraduate course of the Department of Information and Communication Technologies, Universitat Pompeu Fabra.
- 2018 - Sound, Speech and Music Processing. Undergraduate course of the Department of Information and Communication Technologies, Universitat Pompeu Fabra.
- 2017 - Signals and Systems I. Undergraduate course of the Department of Information and Communication Technologies, Universitat Pompeu Fabra.
- 2014 - Audio and Music Processing for Music Applications. MOOC on Coursera.
- 2008 - Audio and Music Processing for Music Applications. Master course of the Department of Information and Communication Technologies, Universitat Pompeu Fabra.

### **OTHER CURRENT PROFESSIONAL RESPONSIBILITIES**

- 2021 - Associate Editor of *Frontiers in Audio and Acoustic Signal Processing*.
- 2018 - Member of the Advisory Board of RITMO Centre for Interdisciplinary Studies in Rhythm, Time and Motion, of the University of Oslo (Norway).
- 2017 - Co-founder and Chief Research Officer of Music Muni Labs.
- 2013 - Member of the International Advisory Council of the Centre for Interdisciplinary Research in Music Media and Technology (CIRMMT) of McGill University (Montreal, Canada).
- 2011 - President of Phonos Foundation.
- 2008 - Member of the International Society for Music Information Retrieval.
- 2008 - Member of the Scientific Committee of the Sound and Music Computing Conference.
- 2005 - Member of the European Association for Signal Processing.
- 1999 - Member of the editorial board of the *Journal of New Music Research*.
- 1998 - Member of the Scientific Committee of the Digital Audio Effects Conference.

### **PAST MANAGEMENT RESPONSIBILITIES AT UPF**

- 2016-2020 Scientific Director of the Maria de Maeztu Strategic program of the Department of Information and Communication Technologies.
- 2004-2020 Member of the Commission for Information Resources and Technology Strategies.
- 2013-2016 Member of the Postgraduate and Doctoral Studies Commission.
- 2009-2013 Member of the Culture Activities Commission.
- 2009-2013 Member of the Permanent Commission of the Department of Information and Communication Technologies.
- 2009-2013 Vice-president of the Research Commission of the Department of Information and Communication Technologies.
- 2004-2007 Director of the Department of Information and Communication Technologies.
- 2000-2004 Director of the Audiovisual Institute.
- 1999-2004 Director of the PhD program of the Department in Information and Communication Technologies.
- 1999-2004 Member of the Research Policy Commission.

### **OTHER PAST MANAGEMENT RESPONSIBILITIES**

- 2003-2010 Vice-president of the Phonos Foundation.
- 2002-2005 Head of the Department of Sonology of the Escola Superior de Música de Catalunya.
- 1992-1999 Executive Director of the Phonos Foundation.

### **OTHER PAST PROFESSIONAL RESPONSIBILITIES**

- 2009-2021 Co-founder and Board member of Reactable Systems Inc.

- 2015-2017 Member of the Special Area Team on Acoustic, Sound and Music Signal Processing of the European Association for Signal Processing.
- 2001-2017 Associate Professor of the Department of Information and Communication Technologies of the UPF.
- 2006-2012 Co-founder and Scientific advisor of Barcelona Music and Audio Technologies Inc.
- 1991-2009 Invited researcher and teacher at the Center for Computer Research in Music and Acoustics from Stanford University.
- 1997-2008 Scientific reviewer of the International Computer Music Conference.
- 1983-2008 Member of the International Computer Music Association.
- 1998-2002 Spanish delegate and vice-president of the Executive Committee of the G6 Action “Digital Audio Effects” of the European Program COST.

## **EXPERIENCE IN ORGANIZATION OF R+D ACTIVITIES**

- 2022 Co-organizer of the CompMusic workshop 2022. IIT Madras, Chennai, India, December 12-16.
- 2022 Scientific Program Chair of the 23<sup>rd</sup> International Society for Music Information Retrieval Conference (ISMIR). Bangalore, India, December 4-8.
- 2021 Co-Chair of the Workshop on Detection and Classification of Acoustic Scenes and Events (DCASE). UPF, Barcelona, November 15-19.
- 2021 Co-Chair of the Web Audio Conference (WAC). UPF, Barcelona, July 5-7.
- 2019 Organizer of the Barcelona Music Technology Forum. UPF, Barcelona, June 27-28.
- 2018 Organizer of the European Music Research Conference. UPF, Barcelona, June 11-13.
- 2016 Organizer of the Seminar on Music Knowledge Extraction Using Machine Learning. UPF, Barcelona, December 4.
- 2016 Organizer of the Data-driven Knowledge Extraction Workshop. UPF, Barcelona, Spain, June 28-29.
- 2016 Member of Program Committee of the Summer School on Music Science and Technology Research (MuSTeR). Indian Institute of Science, Bangalore, India, May 9 –12.
- 2013 Chair of the 3<sup>rd</sup> CompMusic Workshop (Chennai, India, December 13-14).
- 2012 Chair of the 2<sup>nd</sup> CompMusic Workshop (Istanbul, Turkey, July 12-13).
- 2012 Chair of the 1<sup>st</sup> CompMusic Workshop (Gurgaon, India, January 20).
- 2010 General Chair of the 7<sup>th</sup> Sound and Music Computing Conference (Barcelona, July 21-24).
- 2009 Scientific Programme Chair of the 6<sup>th</sup> Sound and Music Computing Conference (Porto, July 23-29).
- 2007 Co-organizer of the Workshop on Music, Brain and Cognition at NIPS (Whistler, Canada)
- 2006 President of the Organizing Committee of the Summer School in Sound and Music Computing (Barcelona, July 24-28).
- 2005 Member of the Organizing Committee of the 118<sup>th</sup> Audio Engineering Society Convention (Barcelona, May 28-31).
- 2005 President of the Program Committee of the International Computer Music Conference (Barcelona, September 5-9)
- 2004 President of the Organizing Committee of the International Conference in Music Information Retrieval (Barcelona, October 10-14)
- 2001 President of the Organizing Committee of the Workshop on Current Research Directions in Computer Music (Barcelona, November 14-16)
- 1998 President of the Organizing Committee of the International Conference on Digital Audio Effects (Barcelona, November 19-21)

## **PERSONAL DISTINCTIONS AND AWARDS**

- 2019 ICREA Academia Prize. Generalitat de Catalunya.
- 2018 Google Research Award for Freesound Datasets.
- 2017 Proof of Concept Grant for TEC SOME. European Research Council.
- 2016 “Teaching activity at Master level” Prize given by UPF Board of Trustees.
- 2016 Best paper award at 6<sup>th</sup> International Workshop Folk Music Analysis, June 15-17.
- 2017 Proof of Concept Grant for CAMUT. European Research Council.
- 2013 Best paper award at 14<sup>th</sup> International Workshop on Content-based Multimedia Indexing, June 15-17.
- 2013 ICREA Academia Prize by the Generalitat de Catalunya.

- 2010 Advanced Grant for CompMusic. European Research Council.
- 2009 Google Research Award for Freesound.
- 2008 ICREA Academia Prize by the Generalitat de Catalunya.
- 2007 Universitat Pompeu Fabra Medal.
- 2007 Google Research Award for Freesound.
- 2005 City of Barcelona Prize in Multimedia for the Freesound project.
- 1997 Swets & Zeitlinger Distinguished Paper Award at the International Computer Music Conference.
- 1994 Grant from the Catalan Government to spend half a year in the USA.
- 1992 Postdoctoral Scholarship from the Spanish Ministry of International Affairs to return to Spain (2 years).
- 1989 Research and Teaching assistantship from Stanford University (6 years).
- 1983 Scholarship from Comité Conjunto Hispano Norteamericano para Asuntos Educativos y Culturales to start PhD at Stanford University (2 years).
- 1981 Scholarship from Caixa de Barcelona to study the Master at Florida State University (2 years).
- 1983 Pi Kappa Lambda, Phi Kappa Phi (academic distinctions at Florida State University).

### **ACADEMIC MERITS**

- 3 Spanish Research "Sexenios": 01/01/1996 to 31/12/2001; 01/01/2002 to 31/12/2008; 01/01/2009 to 31/12/2014
- 4 Spanish Teaching "Quinquenios": 01/01/1995 to 31/12/1999; 01/01/2000 to 31/12/2004; 01/01/2005 to 31/12/2009; 01/01/2010 to 31/12/2014
- 3 Autonomic Research "Sexenios": 01/01/1996 to 31/12/2001; 01/01/2002 to 31/12/2008; 01/01/2009 to 31/12/2014
- 4 Autonomic Teaching "Quinquenios": 01/01/1995 to 31/12/1999; 01/01/2000 to 31/12/2004; 01/01/2005 to 31/12/2009

### **DISTINCTIONS AND AWARDS GIVEN TO THE RESEARCH GROUP**

- 2016 3<sup>rd</sup> price of the Knowledge Transfer category by the Board of Trustees of the UPF.
- 2013 ACM Multimedia Open-Source Competition Award.
- 2008 Golden Nica Award of the Prix Electronica for the Reactable.
- 2008 Honorary Mention of the Prix Electronica for Freesound.
- 2008 Two D&AD yellow pencil awards for the Reactable.
- 2008 BMW Initiative Award.
- 2007 UPF Innovation Award.
- 2007 Reactable chosen the most innovative instrument at MIDEM.
- 2007 City of Barcelona Price in multimedia for the Reactable.
- 2006 2nd prize of the Semantic Web Challenge for Foafing the Music.

### **RELEVANT TALKS AND SEMINARS**

- June 21<sup>st</sup>, 2024. "Impacto de la Inteligencia Artificial en la Música." Sociedad Bilbaina (Bilbao, Spain). Invited talk.
- June 16<sup>th</sup>, 2024. "From Audio Processing to Music Understanding: A Research Journey." Richard C Heyser Memorial Lecture at AES Europe. Keynote talk.
- June 5<sup>th</sup>, 2024. "Presentación Cátedra UPF-BMAT en IA y Música." BCNMusicLab-Connecta (Barcelona, Spain). Invited talk.
- May 29<sup>th</sup>, 2024. "Impacto de la Inteligencia Artificial en la creación y protección de obras artísticas." Fundación Professor Uria (Madrid, Spain). Invited talk.
- June 9<sup>th</sup>, 2023. "Sustaining music in the digital arena." European Forum on Music (Budapest, Hungary). Invited participation in Panel.
- May 31<sup>st</sup>, 2023. "Computational Approaches for Enhancing Multicultural Musicality: Understanding Auditory Patterns and Promoting Learning." International Academic Communication Month on Computational Analysis of World Traditional Music (Shandong, China). Invited Talk.
- May 23<sup>rd</sup>, 2023. "Retos y Oportunidades de la Inteligencia Artificial en el sector de la música." Convención de la Asociación Española de Editores de Música (Sitges, Spain). Keynote talk.

- April-May 2023: "Trends and Challenges in Music Technology Research." Central Conservatory of Music (Beijing, China). 4 invited seminars.
- March 26, 2023. "Computational Approaches for Enhancing Multicultural Musicality: Understanding Auditory Patterns and Promoting Learning." International Conference on New Music Concepts (Treviso, Italy). Keynote talk.
- November 9<sup>th</sup>, 2022: "Sound and music technologies of relevance to mobile devices." Huawei Future Device Technology Summit Program (Helsinki, Finland). Invited talk.
- June 15<sup>th</sup>, 2022: "Computational Approaches for Educating a Multicultural Musicality." Analytical Approaches to World Music (AAWM). The University of Sheffield (UK). Keynote talk.
- May 12<sup>th</sup>, 2022: "AI Challenges in Audio and Music Technologies." ISE 2022 (Barcelona, Spain). Invited talk.
- February 11<sup>th</sup>, 2022. "Enhancing musicality: scientific, technological and practical challenges." 26th International Symposium on Frontiers of Research in Speech and Music. Indian Institute of Information Technology Pune (India). Keynote talk.
- January 4<sup>th</sup>, 2022. "Audio Quality and its Impact on Sound and Music Processing." Video/Audio Quality in Computer Vision Workshop @ WACV2022 (Hawaii, USA). Keynote talk.
- July 14<sup>th</sup>, 2021: "From sound analysis/synthesis to music understanding." Goethe Institut – Arte Scienza Festival (Rome, Italy). Invited talk.
- July 12th-13<sup>th</sup>, 2021: "Music Technology Research: from sound analysis/synthesis to music understanding." Conservatorio di Musica Luigi Canepa (Sassari, Italy). Invited talk.
- June 9<sup>th</sup>, 2021: "CompMusic: Computational models for the discovery of the World's Music." MIRAGE Symposium #1: Computational Musicology. RITMO Centre for Interdisciplinary Studies in Rhythm, Time and Motion (Oslo, Norway). Invited talk.
- February 10<sup>th</sup>, 2021: "The complexity of timbre analysis and the approaches brought about by machine learning." Colloque sur l'analyse et la description du timbre en musique (Saint-Étienne, France). Invited talk.
- April 16<sup>th</sup>, 2020: "Signal Processing and Machine Learning Challenges in Sound and Music Computing." ICASSP 2020 (Barcelona, Spain). Invited ETON talk.
- December 2<sup>nd</sup>-6<sup>th</sup>, 2019: Workshop on Computational Musicology and Indian Music, IIT-B (Mumbai, India). Teacher.
- December 8<sup>th</sup>, 2019: "Current Trends and Challenges in Music Information Processing." IIT-Dharwad (Dharwad, India). Invited talk.
- September 28<sup>th</sup>, 2019: "From Digital to Human Intelligence in Music Understanding Research." Imrotech 2019 (Athens, Greece), Invited talk.
- September 24<sup>th</sup>, 2019: "Gathering, Analyzing, and Structuring the Digital Artifacts of a Musical Culture: a Research Perspective." CMO Workshop (Istanbul, Turkey), Invited talk.
- March 3<sup>rd</sup>, 2018: "Computational studies of several non-western musical repertoires." Eastman School of Music, University of Rochester (New York), Invited talk.
- March 2<sup>nd</sup>, 2018: "Music Information Retrieval approaches for Music Understanding." Department of Electrical and Computer Engineering, University of Rochester (New York), Invited talk.
- September 3<sup>rd</sup>, 2017: "CompMusic project: motivations, results, reflections." 16th Brazilian Symposium on Computer Music (São Paulo, Brasil), Keynote.
- March 22<sup>nd</sup>, 2017. Presentation of CompMusic at the International Musicological Society 20th Quinquennial Congress (Tokyo, Japan). Invited talk.
- October 27<sup>th</sup>, 2016: Presentation of CompMusic at the conference on "Frontier Research and Science Diplomacy" organized by the European Research Council (Brussels, Belgium), Invited talk.
- July 1<sup>st</sup>, 2016: "The computational study of a musical culture through its digital traces." Conference of the International Musicological Society (Stavanger, Norway), Keynote.
- June 29<sup>th</sup>, 2016: "Machine learning approaches for structuring large sound and music collections." Data-driven Knowledge Extraction Workshop, UPF, Barcelona, June 28<sup>th</sup>-29<sup>th</sup> 2016.
- June 28<sup>th</sup>, 2016: "The MdM Knowledge Extraction Strategic Research Program at DTIC-UPF." Data-driven Knowledge Extraction Workshop, UPF, Barcelona, June 28<sup>th</sup>-29<sup>th</sup> 2016.
- May 9<sup>th</sup>-12<sup>th</sup>, 2016: "Audio Signal Processing for Music Applications." Summer School on Music Science and Technology Research (MuSTeR), Indian Institute of Science (Bangalore, India), Organizer and teacher.
- May 7<sup>th</sup>, 2016: "CompMusic: Technologies for exploring and teaching Indian Classical Music." IIT Bombay, (Mumbai, India), Invited talk.
- February 24<sup>th</sup>, 2016: "CompMusic project." Yıldırım Beyazıt Üniversitesi (Ankara, Turkey). Invited talk.

- February 23<sup>rd</sup>, 2016: “Music Information Retrieval from a Cultural Perspective.” Bilkent University (Ankara, Turkey). Invited talk.
- February 22<sup>nd</sup>, 2016: “Music Information Retrieval from a Cultural Perspective.” Middle East Technical University (Ankara, Turkey). Invited talk.
- February 18<sup>th</sup>, 2016: “Introduction to CompMusic and Dunya.” Istanbul Technical University Turkish Music Conservatory, (Istanbul, Turkey). Invited talk.
- February 17<sup>th</sup>, 2016: “Music Information Retrieval from a Cultural Perspective.” Boğaziçi University (Istanbul, Turkey). Invited talk.
- February 16<sup>th</sup>, 2016: “Introduction to CompMusic and Dunya.” Yıldız Technical University (Istanbul, Turkey). Invited talk.
- November 30<sup>th</sup>, 2015: “The AudioCommons Initiative and the technologies for facilitating the reuse of open audio content.” Digital Audio Effects Conference (Trondheim, Norway). Tutorial.
- October 1<sup>st</sup>, 2015: “Music Information Retrieval from a Multicultural Perspective.” IRCAM (Paris, France). Invited talk.
- August 7<sup>th</sup>, 2015: “Music Information Retrieval from a Multicultural Perspective.” SoundCloud (Berlin, Germany). Invited talk.
- June 4<sup>th</sup>, 2015: “Research highlights in my journey within the field of Sound and Music Computing.” Universitat Pompeu Fabra (Barcelona). Invited talk.
- May 17<sup>th</sup>, 2015: “Computational Methods for Jingju Music Research: the CompMusic project.” Fudan University (Shanghai, China). Invited talk.
- May 18<sup>th</sup>, 2015: “Computational Methods for Jingju Music Research: the CompMusic project.” Shanghai Conservatory of Music (Shanghai, China). Invited talk.
- May 19<sup>th</sup>, 2015: “Computational Methods for Jingju Music Research: the CompMusic project.” Ningbo University (Ningbo, China). Invited talk.
- May 21<sup>st</sup>, 2015: “Computational Methods for Jingju Music Research: the CompMusic project.” Peking University (Beijing, China). Invited talk.
- May 22<sup>nd</sup>, 2015: “Computational Methods for Jingju Music Research: the CompMusic project.” China Conservatory, University (Beijing, China). Invited talk.
- May 23<sup>rd</sup>, 2015: “Computational Methods for Jingju Music Research: the CompMusic project.” Peking University Chinese Music Institute (Beijing, China). Invited talk.
- May 25<sup>th</sup>, 2015: “Computational Methods for Jingju Music Research: the CompMusic project.” Communication University of China (Beijing, China). Invited talk.
- May 27<sup>th</sup>, 2015: “Computational Methods for Jingju Music Research: the CompMusic project.” National Academy of Chinese Theatre Arts (Beijing, China). Invited talk.
- May 7<sup>th</sup>, 2015. “Music Information Research from a Cultural Perspective.” 138<sup>th</sup> International AES Convention (Warsaw, Poland). Tutorial.
- April 6<sup>th</sup>, 2015: “Music Information Retrieval from a Multicultural Perspective.” Stanford University (California, USA). Invited talk.
- April 3<sup>rd</sup>, 2015: “Music Information Retrieval from a Multicultural Perspective.” University of California in Santa Barbara (California, USA). Invited talk.
- January 28<sup>th</sup>, 2015: “Music Information Retrieval from a Multicultural Perspective.” CalArts (Valencia, California, USA). Invited talk.
- January 26<sup>th</sup>, 2015: “Music Information Retrieval from a Multicultural Perspective.” University of California in San Diego (California, USA). Invited talk.
- October 13<sup>th</sup>, 2014: “Rhythm analysis in the CompMusic project.” Rhythm Workshop, NYU Abu Dhabi (Abu Dhabi, United Arab Emirates). Invited talk.
- June 26<sup>th</sup>, 2014: “Exploiting Cultural Specificity in Music Information Research.” 21<sup>st</sup> International Symposium on Methodologies for Intelligent Systems (Roskilde, Denmark). Keynote.
- June 11<sup>th</sup>, 2014. “Introduction to CompMusic and Dünya.” CompMusic Seminar. Culture specific approaches in music technology: Turkish music case (Istanbul, Turkey). Invited talk.
- May 12<sup>th</sup>, 2014: “Introduction to CompMusic.” CompMusic Seminar: Computational analysis of Indian art music (Mumbai, India). Invited talk.
- January 27<sup>th</sup>, 2014: “Creating Research Corpora for the Computational Study of Music: the case of the CompMusic Project.” AES 53<sup>rd</sup> International Conference on Semantic Audio (London, UK). Invited talk.
- December 17<sup>th</sup>, 2013: “Computational description of Carnatic and Hindustani music.” 87<sup>th</sup> Annual Conference

- of the Music Academy Madras (Chennai, India). Invited talk.
- November 30<sup>th</sup>, 2013: "Heu complert, ara ja sou lliures." Universitat Pompeu Fabra (Barcelona, Spain).  
Graduation speech.
- November 4<sup>th</sup>, 2013: "Music Information Research: State of the Art and Future Challenges." University of Sao Paulo (Brazil). Invited talk.
- September 2<sup>nd</sup>, 2013: "Singing voice synthesis in the context of music technology research." 8<sup>th</sup> ISCA Speech Synthesis Workshop (Barcelona, Spain). Keynote.
- July 31<sup>st</sup>, 2013: "Exploiting Domain Knowledge in Music Information Research." SMAC Stockholm Music Acoustics Conference 2013 & SMC Sound and Music Computing Conference 2013 (Stockholm, Sweden). Keynote.
- March 19<sup>th</sup>, 2013: "Opportunities and Challenges in Rhythm Research Using Data-driven and Culture Specific Approaches." Rhythm Workshop, NYU Abu Dhabi (Abu Dhabi, United Arab Emirates). Invited talk.
- February 5<sup>th</sup>, 2013: "Information Technologies and World Music." Digitalia (Salvador, Brazil). Invited talk.
- November 5<sup>th</sup>, 2012: "Computational Models for the Discovery of the World's Music." ERC Workshop (Barcelona, Spain). Invited talk.
- September 9<sup>th</sup> 2012: "Sound Synthesis for Computer Games." IEEE Signal Processing Society Summer School on Game Audio, Middle East Technical University (Ankara, Turkey). Invited seminar.
- July 6<sup>th</sup> 2012: "The Need for Multicultural Web Technologies." WebVisions (Barcelona, Spain). Invited talk.
- May 2012: Invited talks on CompMusic at Taiwan Normal University (Taipei, Taiwan), National Taiwan University (Taipei, Taiwan), Academia Sinica (Taipei, Taiwan), Beijing University of Post and Telecommunication (Beijing, China), Institute of Acoustics Chinese Academy of Sciences (Beijing, China), China Conservatory of Music (Beijing, China), Renmin University of China (Beijing, China), Institute of Computer Science & Technology, Peking University (Beijing, China), Tsinghua University (Beijing, China).
- April 23<sup>rd</sup> 2012: "Knowledge Transfer Practices in Music Technology Research." Training workshop: Establishing relationships with industry, CIRMMT, McGill University (Canada). Invited talk.
- March 3<sup>rd</sup> 2012: "Instruments musicals, tecnologia i context cultural." Museu de la Música, Curs d'Organologia (Barcelona, Spain). Invited talk.
- February 29<sup>th</sup> 2012: "Information technologies for the discovery of culture specific music repertoires." Harmony and variation in music information retrieval Symposium (Utrecht, Netherlands). Invited talk.
- January 19<sup>th</sup> 2012: "CompMusic: Computational models for the discovery of the world's music." Frontiers of Research in Speech and Music (FRSM) (Gurgaon, India). Keynote talk.
- November 18<sup>th</sup> 2011: "Tecnología Musical, Redes Sociales y Multiculturalidad." Dept. de Teoria de la Señal, Telemática y Comunicaciones, University of Granada (Spain). Invited talk.
- July 18<sup>th</sup> 2011: "Com serà la Música de la Web 3.0?." Festa de la Ciència, (Barcelona, Spain). Invited talk.
- November 9<sup>th</sup> 2011: "The need of a multicultural approach in IT research." European Computer Science Summit (ECSS) (Milan, Italy). Keynote talk.
- July 11<sup>th</sup> 2011: "Multiculturalism in Music Information Research." Telefonica Multimedia Workshop, Telefónica I+D (Barcelona, Spain). Invited talk.
- May 2011: "CompMusic: Computational models for the discovery of the world's music." Queen Mary (London, UK). Invited talk.
- May 2011: Invited talks on CompMusic in India, at IIT-Madras, IISC-Bangalore, IIIT-Hyderabad, Jadavpur University, IIT-Bombay.
- February 2011: Invited talks on CompMusic in Turkey, at Bogaziçi University, Istanbul Technical University, Yildiz Technical University, Koç University, Chamber of EE at Izmir.
- January 2011: "Audio Content Analysis and Retrieval." Winter School on Speech and Audio Processing 2010 (Bombay, India). Invited talk.
- September 22<sup>nd</sup> 2010: "Research approaches and challenges in Sound and Music Computing." Electronics Meets Challenges of the 21st Century (Warsaw, Poland). Invited talk.
- March 20<sup>th</sup> 2010: "New audio technologies for new architectural spaces." Smart Geometry Conference (Barcelona, Spain). Invited talk.
- December 14<sup>th</sup> 2009: "Music creation technology and its impact on social networks." TEDx Barcelona (Spain). Invited talk.
- November 21<sup>st</sup>, 2009: 10th Festival International de Artes Digitais, Porto, Portugal, 2009. "Technology Trends, Social Context and their Impact on the Musical Culture." Invited talk.
- November 2<sup>nd</sup>, 2009: "The Music Technology Group of the Universitat Pompeu Fabra in Barcelona." SIGMUS



- Symposium, Tokyo, Japan, 2009. Invited talk.
- October 30<sup>th</sup>, 2009: "The discipline formerly known as MIR." 2nd Workshop on the Future of MIR, Kobe, Japan, 2009. Invited talk.
- October 22<sup>nd</sup>, 2009. "Scientific and Technological Challenges of Musical Interest." Dotzè Congrés Internacional de l'Associació Catalana d'Intel·ligència Artificial, Cardona, Spain, 2009. Invited talk.
- September 8<sup>th</sup>, 2009: "Freesound.org and the collaborative production of sounds." Google Tech Talk, California, 2009. Invited talk.
- May 16<sup>th</sup>, 2009: "Els Instruments Electrònics del Segle XX: una història d'amor entre música i tecnologia." CosmoCaixa, Barcelona 2009. Invited talk.
- March 16<sup>th</sup>, 2009: "Technologies to Support the Collaborative Production of Sounds: The Example of Freesound.org." Unlocking Audio 2, London, 2009.
- December 22<sup>nd</sup>, 2008: "Trends in Sound and Music Computing." AES Portugal 2008, Lisbon, Portugal. Keynote.
- November 2<sup>nd</sup>, 2008: "Music Content Description." Telefònica I+D, Barcelona, 2008. Invited talk.
- November 17<sup>th</sup>, 2008: "A Tutorial on Sound and Music Computing." November 17<sup>th</sup>, International Conference for High Performance Computing, Networking, Storage and Analysis (SC2008) Austin, Texas, USA. 2008. Invited tutorial.
- November 13<sup>th</sup>, 2008: "La Música en la Nova Societat Tecnificada." Innova Música, Andorra, 2008. Keynote.
- September 25<sup>th</sup>, 2008: "Explotació de la producció col·laborativa de continguts multimèdia." 22@Update Breakfast 2008. Invited talk.
- September 27<sup>th</sup>, 2008: "Research in Music Technology: Artistic and Scientific Challenges." Music, Science and the Brain Workshop, Plymouth, UK, 2008. Invited talk.
- June 7<sup>th</sup> 2008: "Technological innovation in the current social context: Who is really in control?." June 7<sup>th</sup> 2008. International Conference New Interfaces for Musical Expression (NIME 2008) (Genova, Italy). Keynote.
- May 20<sup>th</sup> 2008: "La tecnología musical: entre el arte y la ciencia." Science Museum of Pamplona, 2008. Invited talk.
- April 9<sup>th</sup> 2008: "Sound Analysis and Synthesis for Multimedia Applications." Media Technology Days at the University of Linköping, 2008. Invited talk.
- January 8<sup>th</sup> 2008: "Technologies for Describing and Sharing Sounds: the Freesound example." Communia Workshop, Torino, Italy, 2008. Invited talk.
- November 9<sup>th</sup> 2007: "Informàtica i Música." CosmoCaixa, Barcelona 2006. Invited talk.
- July 10<sup>th</sup> 2007: Google Tech Talk, Mountain View, California, USA, 2007. "From Sound Synthesis to Sound Retrieval and Back." Invited talk.
- July 7<sup>th</sup> 2007: "State of the Art and Future Directions in Musical Sound Synthesis." Politecnico of Milan, Italy, 2007. Invited talk.
- May 12<sup>th</sup> 2007: "Spectral Models of Audio Signals: Music Applications." Helmholtz Workshop, 2007, Berlin, Germany. Invited talk.
- June 2<sup>nd</sup> 2006: "From Sound to Meaning: Current Directions in Music Technology Research." Formation and Deformation of the visual and acoustic space, Rome, 2006. Invited talk.
- December 19<sup>th</sup> 2005: "Bridging the Music Semantic Gap." IST Info-Day 2005, Brussels, Belgium. Invited talk.
- December 14<sup>th</sup> 2005: "From the Fourier Transform to the Development of Musical Applications based on Spectral Models of Audio Signals." University of Belfast, UK, 2005. Invited talk.
- Museu de la Música, Barcelona, 2004. "Els Instruments Electrònics del segle XX." Invited talk.
- September 10<sup>th</sup> 2003: "Spectral Modeling Synthesis: Past and Present." DAFX 2003, London, UK. Keynote.
- May 8<sup>th</sup> 2003. "Computer Music Research: Past and Present." University of Oslo, Norway, 2003. Invited talk.
- December 1999: "Current approaches to the spectral modeling of musical sounds". Diderot Forum, Viena, Austria, 1999. Invited talk.
- June 28<sup>th</sup> 1999: "Panorama del Tratamiento Digital del Sonido". Primeras Jornadas de Artes Digitales: Imagen, Música y Multimedia, 1999, Universidad de Morón, Buenos Aires, Argentina. Invited talk.
- May 9<sup>th</sup> 1999: "Trends in Sound Synthesis and Processing Research". 106th AES Convention, Munich, Germany, 1999. Invited talk.
- August 12<sup>th</sup> 1999: "Virtual Worlds/Real Sounds." SIGGRAPH, Los Angeles, USA, 1999. Tutorial.
- 1997: "Integrating Complementary Spectral Models in the Analysis, Transformation and Synthesis of Musical Sounds". Tempo Reale, Florence, Italy. Invited talk.
1996. "Beyond Sampling." International Symposium on Electronic Arts, Rotterdam, Netherlands. Talk.
1995. "De la Realidad a la Virtualidad: Direcciones Actuales de la Síntesis Digital del Sonido". Intermusic,

Valencia, Spain. Invited talk.  
August 2<sup>nd</sup> 1994. “Current Directions in Digital Synthesis”. I Brazilian Symposium on Computer Music. 1994, Caxambu, Brazil. Invited talk.  
1994. “Técnicas de Análisis y Síntesis de Sonido Basadas en Modelos Espectrales.” Festival el Callejón del Ruido, Guanajuato, Mexico, Invited talk.  
1994. “L’ordinador dins la música: Perspectives Actuals.” UAB, Sabadell, Spain, Invited talk.  
1994. “Du réel au virtuel: Orientations actuelles de la synthèse sonore numérique.” FAUST, Toulouse, France, Invited talk.

## COMPETITIVE RESEARCH PROJECTS

### ***IA y Música: Cátedra en Inteligencia Artificial y Música***

Funding Agency: Ministerio para la Transformación Digital y de la Función Pública  
Partners: Music Technology Group - Universitat Pompeu Fabra, BMAT  
Principal Investigator: Xavier Serra  
Duration: 01/03/2023 to 31/12/2026  
Funding: 1.200.000 €

### ***Essentia API: AI-powered music audio description***

Funding Agency: Generalitat de Catalunya - Departament de Recerca i Universitats  
Partners: Music Technology Group - Universitat Pompeu Fabra, BMAT  
Principal Investigator: Xavier Serra  
Duration: 01/02/2024 to 31/07/2024  
Funding: 20.000 €

### ***Soundlights***

Funding Agency: Ajuntament de Barcelona - BITHabitat  
Partners: Music Technology Group - Universitat Pompeu Fabra  
Principal Investigator at UPF: Xavier Serra  
Duration: 12/01/2023 to 11/01/2024  
Funding: 38.000 €

### ***Maria de Maeztu – Essentia API***

Funding Agency: Universitat Pompeu Fabra – Department of Information and Communication Technologies  
Partners: Music Technology Group - Universitat Pompeu Fabra  
Principal Investigator at UPF: Xavier Serra  
Duration: 12/01/2023 to 11/01/2026  
Funding: 40.000 €

### ***Maria de Maeztu - Freesound***

Funding Agency: Universitat Pompeu Fabra – Department of Information and Communication Technologies  
Partners: Music Technology Group - Universitat Pompeu Fabra  
Principal Investigator at UPF: Xavier Serra  
Duration: 06/01/2023 to 05/01/2026  
Funding: 50.000 €

### ***SGR-Cat***

Funding Agency: Generalitat de Catalunya – Departament de Recerca i Universitats  
Partners: Music Technology Group - Universitat Pompeu Fabra  
Principal Investigator at UPF: Xavier Serra  
Duration: 31/03/2023 to 30/03/2028  
Funding: 60.000 €

### ***Grup Associació TECNIO***

Funding Agency: Generalitat de Catalunya – Departament Empresa i Ocupació  
Partners: Music Technology Group - Universitat Pompeu Fabra

Principal Investigator at UPF: Xavier Serra  
Duration: 01/01/2023 to 31/12/2023  
Funding: 16.393 €

***AI models for Sound and Music Applications***

Funding agency: MCIN/AEI/10.13039/501100011033 and European Union "NextGeneration EU"/PRTR  
Partners: Universitat Pompeu Fabra  
Principal Investigator at UPF: Xavier Serra  
Duration: 01/12/2022 to 30/11/2024  
Funding: 133.400 €

***Challenges and Opportunities in Music Tech***

Funding agency: EU-Creative Europe (as part of MusicAire project) and Ajuntament de Barcelona  
Partners: Universitat Pompeu Fabra  
Principal Investigator at UPF: Xavier Serra  
Duration: 01/7/2022 to 31/04/2023  
Funding: 45.000 €

***AI system for automatic audibility estimation of background music in audiovisual productions (LoudSense)***

Funding agency: Generalitat de Catalunya - Acció  
Partners: BMAT (Coordinator), Universitat Pompeu Fabra  
Principal Investigator at UPF: Xavier Serra  
Duration: 01/5/2021 to 30/04/2023  
Funding: 80.000 €

***Next generation of music monitoring technology (NextCore)***

Funding agency: Ministerio de Ciencia e Innovación  
Partners: BMAT (Coordinator), Universitat Pompeu Fabra  
Principal Investigator at UPF: Xavier Serra  
Reference: RTC2019-007248-7  
Duration: 01/10/2020 to 31/09/2023  
Funding: 223.973 €

***Artificial intelligence to support musical experiences: towards a data-driven, human-centred approach (Musical AI)***

Funding agency: Ministerio de Ciencia e Innovación  
Partners: Universitat Pompeu Fabra  
Principal Investigator: Xavier Serra  
Reference: PID2019-111403GB-I00  
Duration: 01/06/2020 to 31/05/2024  
Funding: 215.017 €

***Infrastructure for data capture, processing, visualization and listening***

Funding agency: Ministerio de Ciencia, Innovación y Universidades  
Partners: Department of Information and Communication Technologies, Universitat Pompeu Fabra  
Principal Investigator: Xavier Serra  
Reference: EQC2018-004236-P  
Date: 7/12/2018  
Funding: 217.009 €

***Musical Bridges: Bridging cultures through music understanding***

Funding agency: RecerCaixa  
Partners: Universitat Pompeu Fabra  
Principal Investigator: Xavier Serra  
Duration: 01/03/2018 to 31/12/2021

Funding: 86.283 €

***New Frontiers in Music Information Processing (MIP-Frontiers)***

Funding agency: EC-Horizon 2020

Partners: Queen Mary University of London (Coordinator), Universitat Pompeu Fabra, Institut Mines-Telecom, Universitat Linz, Sony Europe Limited, Doremir Music Research AB, Roli Ltd

Principal Investigator at UPF: Xavier Serra

Reference: H2020 – 765068

Duration: 01/04/2018 to 28/02/2022

Funding: 743.618 €

***Technologies for Supporting Online Music Education (TECSOME)***

Funding agency: European Research Council, PoC

Partners: Universitat Pompeu Fabra

Principal Investigator: Xavier Serra

Reference: H2020 – 768530

Duration: 01/10/2017 to 31/03/2019

Funding: 150.000 €

***SGR-Cat***

Funding Agency: Generalitat de Catalunya – Departament de Recerca i Universitats

Partners: Music Technology Group - Universitat Pompeu Fabra

Principal Investigator at UPF: Xavier Serra

Duration: 01/01/2017 to 31/12/2019

Funding: 36.000 €

***Infrastructure for data management and visualization***

Funding agency: Ministerio de Economía y Competitividad

Partners: Department of Information and Communication Technologies, Universitat Pompeu Fabra

Principal Investigator: Xavier Serra

Reference: UNPF15-EE-3293

Date: 29/06/2016

Funding: 359.000 €

***DTIC-MdM Strategic Program on Data-Driven Knowledge Extraction***

Funding agency: Ministerio de Economía y Competitividad

Partners: Department of Information and Communication Technologies, Universitat Pompeu Fabra

Principal Investigator: Xavier Serra

Reference: MDM-2015-0502

Duration: 01/01/2016 to 31/12/2019

Funding: 2.000.000 €

***Music Information Gathering, Structuring and Processing for Semantic Audio Applications (MINGUS)***

Funding agency: Ministerio de Economía y Competitividad

Partners: Universitat Pompeu Fabra

Principal Investigator: Xavier Serra

Reference: TIN2015-69935-P MINECO/FEDER

Duration: 01/01/2016 to 31/12/2018

Funding: 37.873 €

***Audio Commons: An Ecosystem for Creative Reuse of Audio Content***

Funding agency: EC-ICT

Partners: Universitat Pompeu Fabra (Coordinator), Queen Mary University of London (UK), University of Surrey (UK), Jamendo SA (Luxemburg), AudioGaming (France), Waves Audio LTD (Israel)

Principal Investigator: Xavier Serra

Reference: H2020 – 6888382  
Duration: 01/02/2016 to 31/01/2019  
Funding: 765.000 €

***Culture Aware Music Technologies (CAMUT)***

Funding agency: European Research Council, PoC  
Partners: Universitat Pompeu Fabra  
Principal Investigator: Xavier Serra  
Reference: H2020 – 680608  
Duration: 02/11/2015 to 01/05/2017  
Funding: 150.000 €

***Musical Building Blocks for Digital Makers and Content Creators (MusicBricks)***

Funding agency: EC-ICT  
Partners: Sigma Orionis SA (France) (Coordinator), Stromatolite Design Lab (UK), Universitat Pompeu Fabra (Spain), Technische Universitaet Wien (Austria), Institut de Recherche et Coordination Acoustique/Musique (France), Fraunhofer-Gesellschaft zur Foerderung der Angewandten Forschung E.V. (Germany)  
Principal Investigator at UPF: Xavier Serra  
Reference: H2020 - 644871  
Duration: 01/01/2015 to 30/06/2016  
Funding: 143.125 €

***SGR-Cat***

Funding Agency: Generalitat de Catalunya – Departament de Recerca i Universitats  
Partners: Music Technology Group - Universitat Pompeu Fabra  
Principal Investigator at UPF: Xavier Serra  
Duration: 01/01/2014 to 31/12/2016  
Funding: 50.000 €

***Auditory-motor patterning in Music performance via Multimodal Analysis of Playing technique (MUSMAP)***

Funding agency: EC-ICT  
Partners: Universitat Pompeu Fabra  
Principal Investigator: Xavier Serra  
Reference: H2020 – 331270  
Duration: 01/04/2014 to 31/03/2017  
Funding: 221.191 €

***Mapas sonoros de la naturaleza***

Funding agency: Agencia Española para la Ciencia y la Tecnología (FECYT)  
Partners: Universitat Pompeu Fabra  
Principal Investigator: Xavier Serra  
Reference: FCT-13-7411  
Duration: 01/09/2013 to 31/08/2014  
Funding: 20.000 €

***Análisis de Señal para el Descubrimiento de Repertorios de Música Tradicional (SIGMUS)***

Funding agency: Ministerio de Economía y Competitividad  
Partners: Universitat Pompeu Fabra  
Principal Investigator: Xavier Serra  
Reference: TIN2012-36650  
Duration: 01/01/2013 to 31/12/2015  
Funding: 103.428 €

***Computational models for the discovery of the world's music (CompMusic)***

Funding agency: European Research Council, AdG

Partners: Universitat Pompeu Fabra  
Principal Investigator: Xavier Serra  
Reference: FP7-267583  
Duration: 01/07/2011 to 30/06/2017  
Funding: 2.443.200 €

***Roadmap for Music Information Research (MIReS)***

Funding agency: EC-ICT  
Partners: Stromatolite Design Lab (UK), Universitat Pompeu Fabra (Spain) (Coordinator), Österreichische Studiengesellschaft für Kybernetik (Austria), Institut de Recherche et Coordination Acoustique/Musique (France), Instituto de Engenharia de Sistemas e Computadores do Porto (Portugal), Queen Mary, University of London (UK), Barcelona Music and Audio Technology (Spain)  
Principal Investigator at UPF: Xavier Serra  
Reference: FP7-287711  
Duration: from 01/10/2011 to 31/03/2013  
Funding: 105.359 €

***Social Interaction and Entrainment using Music Performance Experimentation (SIEMPRE)***

Funding agency: EC-ICT  
Partners: Università degli Studi di Genova (Italy) (Coordinator), Universitat Pompeu Fabra (Spain), Queen's University Belfast (UK), University de Geneva (Switzerland), Doundazione Instituto Italiano di Tecnologia (Italy)  
Principal Investigator at UPF: Xavier Serra  
Reference: FP7-250026  
Duration: 01/05/2010 to 30/06/2013  
Funding: 296.982 €

***Descripción y Recuperación de Información Musical y Sonora (DRIMS)***

Funding agency: Ministerio de Ciencia e Innovación  
Partners: Universitat Pompeu Fabra (Coordinator), Universidad de Alicante  
Principal Investigator: Xavier Serra  
Reference: TIN2009-14247-C02-01  
Duration: 01/01/2010 to 31/12/2012  
Funding: 190.575 €

***Classical Planet***

Funding agency: Plan Avanza del Ministerio de Industria  
Partners: Fundación Isaac Albéniz (Coordinator), Fundación Instituto de Música de Cámara de Madrid, Universitat Pompeu Fabra  
Principal Investigator at UPF: Xavier Serra  
Reference: TSI-070100-2009-407  
Duration: from 01/07/2009 to 31/01/2012  
Funding: 51.400 €

***Música 3.0: Creación, Interacción, Socialización***

Funding agency: Plan Avanza del Ministerio de Industria  
Partners: Universitat Pompeu Fabra (Coordinator), Barcelona Music and Audio Technologies  
Principal Investigator: Xavier Serra  
Reference: TSI-070100-2008-318  
Duration: 01/01/2008 to 30/06/2011  
Funding: 442.756 €

***Estándares globales entre el mundo real y los mundos virtuales (Metaverse 1)***

Funding agency: Ministerio de Industria, Turismo y Comercio  
Partners: Industrial partners: Philips (Coordinator), Alcatel-Lucent, OrangeLabs, Technicolor, others; Research

partners: UPF, INRIA, Utrecht Uni., others  
Principal Investigator at UPF: Xavier Serra  
Reference: TSI-020400-2008-98  
Duration: 01/01/2008 to 31/12/2009  
Funding: 207.622 €

***Sound and Music for Everyone Everyday Everywhere Every way (SAME)***

Funding agency: EC-IST  
Partners: Università degli Studi di Genova (Italy) (Coordinator), Nokia Research Center (Finland), Kungliga Tekniska Högskolan (Sweden), Universitat Pompeu Fabra (Spain), Helsinki University of Technology (Finland), Institut de Recherche et Coordination Acoustique/Musique (France)  
Principal Investigator at UPF: Xavier Serra  
Reference: FP6-215749  
Duration: 01/01/2008 to 31/12/2010  
Funding: 315.000 €

***Platform for search of Audiovisual Resources across Online Spaces (PHAROS)***

Funding agency: EC-IST  
Partners: Engineering – Ingegneria Informatica (Italy) (Coordinator), France Telecom (France), Fast Search & Transfer (FAST) (Norway), L3S Research Center (Germany), Fraunhofer IDMT (Germany), Ecole Polytechnique Fédérale de Lausanne (Switzerland), The Knowledge Media Institute, Open University (U.K.), Universitat Pompeu Fabra (Spain), VTT Technical Research Centre (Finland), Circom Regional - France, Metaware (Italy), Web Models (Italy), SAIL LABS Technology (Austria)  
Principal Investigator at UPF: Xavier Serra  
Reference: FP6-45035  
Duration: 01/01/2007 to 31/12/2009  
Funding: 468.440 €

***Procesamiento Semántico de Música Digital (PROSEMUS)***

Funding agency: Ministerio de Educación y Ciencia  
Partners: Universitat Pompeu Fabra (Coordinator), Universidad de Alicante  
Principal Investigator: Xavier Serra  
Reference: TIN2006-14932-C02-01  
Duration: 26/12/2006 to 25/12/2009  
Funding: 157.300 €

***Collaborative Authoring of Localized Cultural Heritage Contents over the Next Generation of Mashup Web Services (Variazioni)***

Funding agency: EC – eContentPlus  
Partners: Fundación Isaac Albéniz (Coordinator), Germinus XXI, University of Florence, Rigel Engineering, Universitat Pompeu Fabra, Lithuanian Academy of Music and Theatre, Koninklijk Conservatorium Brussel, Escola Superior de Música e das Artes do Espectáculo do Porto, Sibelius Academy, Association Européenne des Conservatoires, Exitech  
Principal Investigator at UPF: Xavier Serra  
Reference: ECP- 2005 - CULT- 038264  
Duration: 01/09/2006 to 31/03/2009  
Funding: 261.210 €

***Sistemas de Trabajo en Red con Conciencia de Contenido enfocados hacia la Asistencia Avanzada y Adaptada (CANTATA)***

Funding agency: Ministerio de Industrial, Turismo y Comercio  
Partners: Bosch Security Systems, Philips Electronics Netherlands, Philips Medical Systems, Philips Consumer Electronics, TU/e, Multitel, ACIC, Barco, Traficon, IBBT, VTT, Solid, Antro, Capacity Networks, I&IMS, Telefónica, VICOMTech, Universitat Pompeu Fabra, CRP Henri Tudor, Codasystem, Kingston University, University of Cork, INRIA

Principal Investigator at UPF: Xavier Serra  
Reference: FIT-350200-2006-33  
Duration: 01/07/2006 to 30/06/2009  
Funding: 312.000 €

***The Platform for Search of Audiovisual Resources Across Online Spaces (SALERO)***

Funding agency: EC – IST  
Partners: Joanneum Research (Coordinator), NXN Software GMBH, TVC Netmedia Audiovisual S.L., Cinesite (Europe) Ltd, Fundació Barcelona Media Universitat Pompeu Fabra, Universitat Ramon Llull, Dublin Institute of Technology, Taideteollinen Korkeakoulu, The University of Glasgow, Leopold-Franzens Universität Innsbruck  
Principal Investigator at UPF: Xavier Serra  
Reference: FP6-45035  
Duration: 01/01/2007 to 31/12/2009  
Funding: 468.440 €

***Music Open Distance Exchange Model (MODEM)***

Funding agency: EC – Leonardo  
Partners: I.T.C.G. “Atilio Deffenu” di Olbia (Coordinator), Universitat Pompeu Fabra, Steinberg France, Istituto di Scienze e Tecnologie de l’Informazione di Pisa, MIDIware (Roma, Scinter /Bologna), Sintagma (Roma), MI-7 (Malmo), Brighton Art Ltd (Brighton)  
Principal Investigator at UPF: Xavier Serra  
Reference: I/05/B/F/PP-154059  
Duration: 01/10/2005 to 30/09/2007  
Funding: 50.000 €

***Emergent music cognition in natural and artificial interactive systems (EmCAP)***

Funding agency: EC – IST  
Partners: University of Plymouth (Coordinator), Universitat Pompeu Fabra, Magyar Tudományos Akadémia Pszichológiai Kutatóintézet, Universiteit van Amsterdam  
Principal Investigator at UPF: Xavier Serra  
Reference: FP6-013123  
Duration: 01/10/2005 to 30/09/2008  
Funding: 275.106 €

***Processing Music (PROMUSIC)***

Funding agency: Ministerio de Ciencia y Tecnología  
Partners: Universitat Pompeu Fabra (Coordinator), IIIA-CSIC  
Principal Investigator: Xavier Serra  
Reference: TIC 2003-07776-C02  
Duration: 01/12/2003 to 31/11/2006  
Funding: 160.800 €

***Semantic Interaction with Musical Audio Content (SIMAC)***

Funding agency: EC – IST  
Partners: Universitat Pompeu Fabra (Coordinator), Matrix Data; ÖFAI-Austrian Research Institute for Artificial Intelligence, Philips Research Eindhoven, QMUL - Queen Mary University of London.  
Principal Investigator: Xavier Serra  
Reference: FP6-507142  
Duration: 01/01/2004 to 31/04/2006  
Funding: 584.944 €

***Browsing, Listening, Interacting, Performing, Sharing on Future HiFi Systems (Semantic-HIFI)***

Funding agency: EC – IST  
Partners: Institut de Recherche et Coordination Acoustique/ Musique (F) (Coordinator), Fraunhofer Gesellschaft, Institute for Digital Media Technology/Institute for Integrated Circuits (D), Sony France (F), Universitat Pompeu



Fabra (SP), Ben Gurion University (IS), Native Instruments (D), Sony NSC Europe (B), Sony Deutschland (D)  
Principal Investigator at UPF: Xavier Serra  
Reference: FP6-507913  
Duration: 01/12/2003 to 31/11/2006  
Funding: 217.280 €

***European Multilingual Digital Data Collection for Multimedia Content in Music Heritage (HARMOS)***

Funding agency: EC- eContent  
Partners: Fundació Isaac Albéniz (FIA) (Spain) (Coordinador), Universitat Pompeu Fabra (Spain), OrbiTeam (DE), Association of European Conservatoires (AEC), Lituianian Academy of Music (LI), Koninklijk Conservatorium Brussel, Hochschule für Musik Köln (DE), Royal College of Music (UK), The Higher School of Music of Catalonia, ESMuC (Spain); Escola Superior de Música e Artes do Espectáculo del Instituto Politécnico do Porto (Portugal)  
Principal Investigator at UPF: Xavier Serra  
Reference: EDC 11189-HARMOS/2877  
Duration: 01/04/2004 to 31/03/2006  
Funding: 211.765 €

***Sound to Sense, Sense to Sound (S2S^2)***

Funding agency: EC – IST  
Partners: Media Innovation Unit - Firenze Tecnologia (Italy) (Coordinator); Kungl Tekniska Högskolan (Sweden); CSC DEI, Università di Padova (Italy); DI-VIPS, Università di Verona (Italy); DIST, Università di Genova (Italy); Helsinki University of Technology (Finland); PECA DEC, Ecole Normale Supérieure, (France); IPEM (Belgium); LEAD (France); Universitat Pompeu Fabra (Spain); OFAI Austrian Research Institute for Artificial Intelligence (Austria)  
Principal Investigator at UPF: Xavier Serra  
Reference: FP6-003773  
Duration: from 01/06/2004 to 31/05/2007  
Funding: 106.380 €

***Entorno de programación para el procesamiento del contenido musical (AUDIOCLAS)***

Funding agency: Ministerio de Ciencia y Tecnología - PROFIT  
Partners: Universitat Pompeu Fabra (España) (Coordinator), Tape Gallery (Inglaterra), Duy S.A. (España)  
Principal Investigator: Xavier Serra  
Reference: TIC2003-07776-CO2  
Duration: 01/12/2003 to 30/11/2006  
Funding: 184.920 €

***Xarxa de Centres de Suport a la Unnivació Tecnològica***

Funding company: CIDEM, Departament d'Indústria, Comerç i Turisme de la Generalitat de Catalunya  
Principal Investigator: Xavier Serra  
Reference: XIT/2002  
Duration: 30/12/2001 to 31/12/2002  
Funding: 60.101 €

***A GNU/Linux Audio distribution (AGNULA)***

Funding agency: EC - IST  
Partners: IRCAM (Institut de Recherche et Coordination Acoustique/Musique), Kung Tekniska Högskolan (KTH), Music Acoustics Group, Stockholm, Free Software Foundation Europe, Red Hat France, Universitat Pompeu Fabra.  
Principal Investigator at UPF: Xavier Serra  
Reference: IST-2001-34879  
Duration: from 01/04/2002 to 31/03/2004  
Funding: 270.632 €

***Xarxa de Centres de Suport a la Unnivació Tecnologica***

Funding company: CIDEM, Departament d'Indústria, Comerç i Turisme de la Generalitat de Catalunya  
Principal Investigator: Xavier Serra  
Duration: 29/12/2000 to 28/12/2001  
Funding: 60.101 €

***The Digital Heritage of Opera in the Open Network Environment (OPENDRAMA)***

Funding agency: EC – IST  
Partners: Space (SPACE) (Coordinator), Teatro del maggio Musicale Fiorentino - Fondazione (COMUNALE), English Opera North (EON), Ministero per i Beni e le Attività Culturali - Discoteca di Stato (DDS), Dynamic S.r.l. (DYNAMIC), Politecnico di Milano - HOC Hypermedia Open Center (POLIMI) The University of Glasgow - Centre for Music Technology (U.GLASGOW), Europe Online S.A. (EOL), System Simulation Ltd. (SSL), Universitat Pompeu Fabra.  
Principal Investigator at UPF: Xavier Serra  
Reference: IST-2000-28197  
Duration: from 01/11/2001 to 31/10/2003  
Funding: 196.782 €

***Transformación de Audio basado en Contenido (TABASCO)***

Funding agency: Ministerio de Ciencia y Tecnología  
Partners: Universitat Pompeu Fabra (Coordinator), IIIA-CSIC  
Principal Investigator: Xavier Serra  
Reference: TIC-2000-1094-C02-01  
Duration: from 01/01/2001 to 31/12/2003  
Funding: 82.639 €

***Music Orchestration Systems in Algorithmic Research and Technology (MOSART)***

Funding agency: EC-Human Potential Programme  
Partners: University of Copenhagen (Coordinator), Norwegian University of Science and Technology, Royal Institute of Technology, University of Aarhus, Danish Technical University, University of Sheffield, University of Nijmegen, Austrian Research Institute for Artificial Intelligence, Università' degli Studi di Padova, University of Genova, Centro Nazionale Universitario di Calcolo Elettronico, Centre Nationale de la Recherche Scientifique, Universitat Pompeu Fabra.  
Principal Investigator at UPF: Xavier Serra  
Reference: HPRN-CT-2000-00115  
Duration: from 01/09/2000 to 31/08/2003  
Funding: 100.198 €

***Content-based Unified Interfaces and Descriptors for Audio & Music (CUIDADO)***

Funding agency: EC-IST  
Partners: IRCAM (Coordinator), Sony CSL, Oracle, CreamWare, Ben Gurion University, Universitat Pompeu Fabra, Artspages International AS.  
Principal Investigator at UPF: Xavier Serra  
Reference: IST-1999-20194  
Duration: from 01/01/2001 to 31/12/2003  
Funding: 394.319 €

***Recognition and Analysis of Audio (RAA)***

Funding agency: EC-IST  
Partners: JOANNEUM RESEARCH (Austria) (Coordinator), HS-ART Digital, Nederlands Omroepproductie Bedrijf, Academy of Athens, Taurus Media Technik, Filmkunst-Musikverlags-und Produktions-gesellschaft, Universitat Pompeu Fabra  
Principal Investigator at UPF: Xavier Serra  
Reference: IST-1999-12585  
Duration: from 01/02/2000 to 31/07/2002

Funding: 355.478 €

***Content-based Unified Interfaces for Digital Audio/music Description/processing (CUIDAD)***

Funding agency: EC-Esprit

Partners: IRCAM (Paris) (Coordinator), York Music Technology Group (England), SONY CSL (Paris), SIM (Berlin), INA – GRM (Paris), Nokia Research Center (Finland), Universitat Pompeu Fabra.

Principal Investigator at UPF: Xavier Serra

Reference: Esprit-28793

Duration: 1/09/1998 to 01/03/2000

Funding: 6.000 €

***First Cost-G6 Workshop on digital audio effects DAFX98***

Funding agency: EC-Cost

Partners: Universitat Pompeu Fabra

PI: Xavier Serra

Duration: 19/11/1998 to 21/11/1998

Reference: COST-MSC-98-2069

Funding: 11.900 €

***First Cost-G6 Workshop on digital audio effects DAFX98***

Funding agency: Dirección General de Enseñanza Superior

Partners: Universitat Pompeu Fabra

Principal Investigator: Xavier Serra

Reference: CO97-0555

Duration: 01/01/1998 to 31/12/1998

Funding: 9.015 €

***Digital Audio Effects, COST-G6***

Funding agency: EC-Cost

Partners: España, Francia, Alemania, Italia, Irlanda, Gran Bretaña, Suiza, Belgica

Spanish delegate: Xavier Serra

Duration: from 01/09/1997 to 31/08/2001

***Audio Morphing***

Funding agency: CIDEM, Generalitat de Catalunya

Partners: DUY S.A., Universitat Pompeu Fabra (Coordinator)

Principal Investigator: Xavier Serra

Duration: from 01/04/1996 to 31/03/1997

***Estudio Integrado***

Funding agency: CIRIT, Generalitat de Catalunya

Partners: DUY S.A., Universitat Pompeu Fabra (Coordinator)

Principal Investigator: Xavier Serra

Duration: from 01/09/1994 to 31/12/1995

**RELEVANT FUNDED INDUSTRIAL PROJECTS**

***Research contract***

Funding company: Motmo, Spain

Partners: Universitat Pompeu Fabra

Principal Investigator: Xavier Serra

Duration: from 01/12/2023 to 30/11/2024

Funding: 73.170 €

***Research contract***

Funding company: Odisei, Spain

Partners: Universitat Pompeu Fabra  
Principal Investigator: Xavier Serra  
Duration: from 02/06/2023 to 01/06/2024  
Funding: 60.000 €

**Research contract**

Funding company: Moises, Brasil  
Partners: Universitat Pompeu Fabra  
Principal Investigator: Xavier Serra  
Duration: from 04/05/2023 to 03/02/2024  
Funding: 27.000 €

**Research contract**

Funding company: VoctroLabs, Spain  
Partners: Universitat Pompeu Fabra  
Principal Investigator: Xavier Serra  
Duration: from 01/04/2023 to 31/12/2024  
Funding: 40.000 €

**Research contract**

Funding company: Yamaha, Japan  
Partners: Universitat Pompeu Fabra  
Principal Investigator: Xavier Serra  
Duration: from 01/04/2023 to 31/03/2024  
Funding: 35.000 €

**Research contract**

Funding company: Trinity College, UK  
Partners: Universitat Pompeu Fabra  
Principal Investigator: Xavier Serra  
Duration: from 05/11/2022 to 04/10/2023  
Funding: 85.000 €

**Research contract**

Funding company: Trinity College, UK  
Partners: Universitat Pompeu Fabra  
Principal Investigator: Xavier Serra  
Duration: from 05/05/2022 to 04/11/2022  
Funding: 42.500 €

**Research contract**

Funding company: Sony, Japan  
Partners: Universitat Pompeu Fabra  
Principal Investigator: Xavier Serra  
Duration: from 01/04/2022 to 31/03/2026  
Funding: 240.000 €

**Research contract**

Funding company: Yamaha, Japan  
Partners: Universitat Pompeu Fabra  
Principal Investigator: Xavier Serra  
Duration: from 1/4/2022 to 31/3/2023  
Funding: 128.700 €

**Research contract**

Funding company: Trinity College, UK  
Partners: Universitat Pompeu Fabra  
Principal Investigator: Xavier Serra  
Duration: from 1/4/2021 to 30/03/2022  
Funding: 85.000 €

**Research contract**

Funding company: Yamaha, Japan  
Partners: Universitat Pompeu Fabra  
Principal Investigator: Xavier Serra  
Duration: from 1/4/2021 to 31/3/2022  
Funding: 128.700 €

**Research contract**

Funding company: Kakao, Korea  
Partners: Universitat Pompeu Fabra  
Principal Investigator: Xavier Serra  
Duration: from 01/3/2021 to 31/2/2022  
Funding: 99.000 €

**Research contract**

Funding company: Heardis!, Germany  
Partners: Universitat Pompeu Fabra  
Principal Investigator: Xavier Serra  
Duration: from 01/12/2020 to 31/12/2022  
Funding: 99.680 €

**Research contract**

Funding company: Trinity College London, UK  
Partners: Universitat Pompeu Fabra  
Principal Investigator: Xavier Serra  
Duration: from 01/04/2020 to 31/03/2021  
Funding: 92.000 €

**Research contract**

Funding company: Kakao, Korea  
Partners: Universitat Pompeu Fabra  
Principal Investigator: Xavier Serra  
Duration: from 13/01/2020 to 12/01/2021  
Funding: 97.000 €

**Research contract**

Funding company: Huawei, Germany  
Partners: Universitat Pompeu Fabra  
Principal Investigator: Xavier Serra  
Duration: from 01/10/2019 to 31/03/2021  
Funding: 217.000 €

**Research contract**

Funding company: Kakao, Korea  
Partners: Universitat Pompeu Fabra  
Principal Investigator: Xavier Serra  
Duration: from 09/01/2019 to 08/01/2020  
Funding: 95.000 €

**Research contract**

Funding company: Flits, Germany  
Partners: Universitat Pompeu Fabra  
Principal Investigator: Xavier Serra  
Duration: from 01/7/2018 to 31/12/2019  
Funding: 106.000 €

**Research contract**

Funding company: Kakao, Korea  
Partners: Universitat Pompeu Fabra  
Principal Investigator: Xavier Serra  
Duration: from 09/01/2018 to 08/01/2019

Funding: 83.000 €

**Research contract**

Funding company: La Cúpula, Spain  
Partners: Universitat Pompeu Fabra  
Principal Investigator: Xavier Serra  
Duration: from 01/05/2018 to 30/04/2019  
Funding: 100.000 €

**Pablo2**

Funding company: Korg, Japan  
Partners: Universitat Pompeu Fabra  
Principal Investigator: Xavier Serra  
Duration: from 01/10/2015 to 31/09/2016  
Funding: 105.000 €

**Good-sounds**

Funding company: Korg, Japan  
Partners: Universitat Pompeu Fabra  
Principal Investigator: Xavier Serra  
Duration: from 01/2/2015 to 31/01/2016  
Funding: 20.000 €

**Pablo2**

Funding company: Korg, Japan  
Partners: Universitat Pompeu Fabra  
Principal Investigator: Xavier Serra  
Duration: from 01/10/2014 to 31/09/2015  
Funding: 100.000 €

**Pablo1**

Funding company: Korg, Japan  
Partners: Universitat Pompeu Fabra  
Principal Investigator: Xavier Serra  
Duration: from 01/10/2013 to 31/09/2014  
Funding: 100.000 €

**ROMA**

Funding company: Yamaha Corporation Japan  
Partners: Universitat Pompeu Fabra  
Principal Investigator: Xavier Serra  
Duration: from 01/04/2013 to 31/03/2014  
Funding: 138.000 €

**Monet**

Funding company: Yamaha Corporation Japan  
Partners: Universitat Pompeu Fabra  
Principal Investigator: Xavier Serra  
Duration: from 06/04/2010 to 30/09/2012  
Funding: 350.000 €

**Vocaloid4**

Funding company: Yamaha Corporation Japan  
Partners: Universitat Pompeu Fabra  
Principal Investigator: Xavier Serra  
Duration: from 06/04/2010 to 31/03/2011

Funding: 118.800 €

***Vocaloid3***

Funding company: Yamaha Corporation Japan

Partners: Universitat Pompeu Fabra

Principal Investigator: Xavier Serra

Duration: from 01/04/2009 to 31/12/2009

Funding: 132.000 €

***MinusOne***

Funding company: Yamaha Corporation Japan

Principal Investigator: Xavier Serra

Duration: from 28/04/2009 to 27/04/2010

Funding: 112.000 €

***Vocaloid2***

Funding company: Yamaha Corporation Japan

Partners: Universitat Pompeu Fabra

Principal Investigator: Xavier Serra

Duration: from 11/04/2008 to 31/03/2009

Funding: 132.000 €

***PhononDip***

Funding company: Yamaha Corporation Japan

Principal Investigator: Xavier Serra

Duration: from 17/03/2008 to 17/09/2008

Funding: 66.000 €

***Playable Audio 2***

Funding company: Yamaha Corporation Japan

Principal Investigator: Xavier Serra

Duration: from 01/12/2007 to 31/03/2008

Funding: 27.395 €

***Playable Audio 1***

Funding company: Yamaha Corporation Japan

Principal Investigator: Xavier Serra

Duration: from 26/09/2006 to 25/09/2007

Funding: 150.300 €

***Violin Performer 2: Improving the algorithm of "Performance Modeling" for professional quality violin synthesis***

Funding company: Yamaha Corporation Japan

Principal Investigator: Xavier Serra

Duration: from 01/2007 to 01/10/2008

Funding: 106.843 €

***Violin Performer 1: Improving the algorithm of "Performance Modeling" for professional quality violin synthesis***

Funding company: Yamaha Corporation Japan

Principal Investigator: Xavier Serra

Duration: from 26/09/2006 to 25/09/2007

Funding: 84.537 €

***Daisy 4***

Funding company: Yamaha Corporation Japan  
Principal Investigator: Xavier Serra  
Duration: from 01/03/2004 to 31/08/2005  
Funding: 161.020 €

***ESPR-ESSO***

Funding company: Yamaha Corporation Japan  
Principal Investigator: Xavier Serra  
Duration: from 01/10/2003 to 28/02/2005  
Funding: 232.363 €

***Análisis y Identificación de Audio (AIDA)***

Funding company: Sociedad Digital de Autores y Editores (SDAE)  
Principal Investigator: Xavier Serra  
Duration: from 01/07/2001 to 31/06/2004  
Funding: 706.294 €

***Daisy 2: Research in the area of digital sound processing and application software development technologies***

Funding company: Yamaha Corporation Japan  
Principal Investigator: Xavier Serra  
Duration: 04/03/2001 to 04/03/2002  
Funding: 377.779 €

***Daisy 1: develop and establish a synthesis technology for vocal sound***

Funding company: Yamaha Corporation Japan  
Principal Investigator: Xavier Serra  
Duration: 04/03/2000 to 04/03/2001  
Funding: 221.834 €

***Elvis: develop and establish a morphing technology for singer's voice***

Funding company: Yamaha Corporation Japan  
Principal Investigator: Xavier Serra  
Duration: 04/11/1997 to 10/03/2000  
Funding: 334.075 €

**SUPERVISED PHD THESIS**

Title: ‘Interpretable Deep-learning Models for Sound Event Detection and Classification’  
Student: Pablo Zinemanas  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: November 2023

Title: ‘Automatic Characterization and Generation of Music Loops and Instrument Samples for Electronic Music Production’  
Student: Antonio Ramires  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: February 2023

Title: ‘Exploration of Music Collections with Audio Embeddings’  
Student: Philip Tovstogan  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: July 2022



Title: 'Representation Learning for Music Classification and Retrieval: Bridging the Gap between Natural Language and Music Semantics'

Student: Minz Won

University: Universitat Pompeu Fabra

Department: Department in Information and Communication Technologies

Date: July 2022

Title: 'Training sound event classifiers using different types of supervision'

Student: Eduardo Fonseca

University: Universitat Pompeu Fabra

Department: Department in Information and Communication Technologies

Date: November 2021

Title: 'Music recommender systems: taking into account the artists' perspective'

Student: Andrés Ferraro

University: Universitat Pompeu Fabra

Department: Department in Information and Communication Technologies

Date: September 2021

Title: 'Improving sound retrieval in large collaborative collections'

Student: Xavier Favory

University: Universitat Pompeu Fabra

Department: Department in Information and Communication Technologies

Date: February 2021

Title: 'Deep Neural Networks for Music and Audio Tagging'

Student: Jordi Pons

University: Universitat Pompeu Fabra

Department: Department in Information and Communication Technologies

Date: November 2019

Title: 'The musical dimension of Chinese traditional theatre: An analysis from computer aided musicology'

Student: Rafael Caro Repetto

University: Universitat Pompeu Fabra

Department: Department d'Humanitats

Date: December 2018

Title: 'MIRages: an account of music audio extractors, semantic description and context-awareness, in the three ages of MIR'

Student: Perfecto Herrera Boyer

University: Universitat Pompeu Fabra

Department: Department in Information and Communication Technologies

Date: December 2018

Title: 'Automatic assessment of singing voice pronunciation: a case study with jingju music'

Student: Rong Gong

University: Universitat Pompeu Fabra

Department: Department in Information and Communication Technologies

Date: December 2018

Title: 'Knowledge Extraction and Representation Learning for Music Recommendation and Classification'

Student: Sergio Oramas

University: Universitat Pompeu Fabra

Department: Department in Information and Communication Technologies

Date: December 2017

Title: 'Knowledge-based Probabilistic Modeling for Tracking Lyrics in Music Audio Signals'

Student: Georgi Dzhambazov  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: December 2016

Title: 'Computational Analysis of Audio Recordings and Music Scores for the Description and Discovery of Ottoman-Turkish Makam Music'  
Student: Sertan Sentürk  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: December 2016

Title: 'Towards a multimodal knowledge base for Indian art music: A case study with melodic intonation'  
Student: Gopala Krishna Koduri  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: December 2016

Title: 'A Data-driven Bayesian Approach to Automatic Rhythm Analysis of Indian Art Music'  
Student: Ajay Srinivasamurthy  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: October 2016

Title: 'Computational Approaches for Melodic Description in Indian Art Music Corpora'  
Student: Sankalp Gulati  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: October 2016

Title: 'Descriptor Control of Sound Transformations and Mosaicing Synthesis'  
Student: Graham Coleman  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: February 2016

Title: 'Expression Control of Singing Voice Synthesis: Modeling Pitch and Dynamics with Unit Selection and Statistical Approaches'  
Student: Martí Umbert  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: January 2016

Title: 'Tag Recommendation using Folksonomy Information for Online Sharing Platforms'  
Student: Frederic Font Corbera  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: 11/06/2015

Title: 'Algorithms and representations for supporting online music creation with large-scale audio databases'  
Student: Gerard Roma Trepas  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: 5/6/2015

Title: 'Statistical modelling and resynthesis of environmental texture sounds'  
Student: Stefan Kersten

University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: 5/6/2015

Title: 'Computational Analysis of Expressivity in Classical Guitar Performances'  
Student: Tan Özaslan  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: 11/29/2013

Title: 'Statistical Distribution of Common Audio Features'  
Student: Martin Haro  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: 22/11/2013

Title: 'Melody Extraction from Polyphonic Music Signals'  
Student: Justin Salamon  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: September 2013

Title: 'Non-stationary sinusoidal analysis'  
Student: Saso Musevic  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: 10/09/2013

Title: 'Audio Source Separation for Music in Low-latency and High-latency Scenarios'  
Student: Ricard Marxer  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: 9/09/2013

Title: 'From music similarity to music recommendation: Computational approaches based on audio and metadata analysis'  
Student: Dmitry Bogdanov  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: September 2013

Title: 'Exploring interactions between music and language during the early development of music cognition. A computational modelling approach'  
Student: Ines Salselas  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: 26/04/2013

Title: 'Automatic Musical Instrument Recognition from Polyphonic Music Audio Signals'  
Student: Ferdinand Fuhrmann  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: 25/04/2012

Title: 'Semantic Annotation of Music Collections: A Computational Approach'

Student: Mohamed Sordo  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: 27/02/2012

Title: 'Automatic Classification of Musical Mood by Content Based Analysis'  
Student: Cyril Laurier  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: 19/10/2011

Title: 'Identification of Versions of the Same Musical Composition by Processing Audio Descriptions'  
Student: Joan Serrà  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: 23/03/2011

Title: 'Musical expectation modelling from audio: a causal mid-level approach to predictive representation and learning of spectro-temporal events'  
Student: Amaury Hazan  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: 16/07/2010

Title: 'Enhancing Spectral Synthesis Techniques with Performance Gestures using the Violin as a Case Study'  
Student: Alfonso Perez  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: 13/11/2009

Title: 'Modeling instrumental gestures: an analysis/synthesis framework for violin bowing'  
Student: Esteban Maestre  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: 12/11/2009

Title: 'Audio content processing for automatic music genre classification: descriptors, databases, and classifiers'  
Student: Enric Guaus  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: 21/09/2009

Title: 'Voice Processing and Synthesis by Performance Sampling and Spectral Models'  
Student: Jordi Bonada  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: December 2008

Title: 'Music Recommendation and Discovery in the Long Tail'  
Student: Oscar Celma  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: December 2008

Title: 'Singing-Driven Interfaces for Sound Synthesizers'

Student: Jordi Janer  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: 14/03/2008

Title: 'Music Complexity: a multi-faceted description of audio content'  
Student: Sebastian Streich  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: 21/02/2007

Title: 'Structural Analysis and Segmentation of Music Signals'  
Student: Bee Suan Ong  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: 21/02/2007

Title: 'Content-Based Audio Search from Fingerprinting to Semantic Audio Retrieval'  
Student: Pedro Cano  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: 27/04/2007

Title: 'Spectral Processing of The Singing Voice'  
Student: Alex Loscos  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: 02/05/2007

Title: 'Tonal Description of music audio signals'  
Student: Emilia Gomez  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: 25/07/2006

Title: 'Computer Supported Cooperative Work for Music Applications'  
Student: Alvaro Barbosa  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: 03/07/2006

Title: 'A computational approach to rhythm description --- Audio features for the computation of rhythm periodicity functions and their use in tempo induction and music content processing'  
Student: Fabien Gouyon  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: 30/11/2005

Title: 'Digital Lutherie: Crafting musical computers for new musics' performance and improvisation'  
Student: Sergi Jordà  
University: Universitat Pompeu Fabra  
Department: Department in Information and Communication Technologies  
Date: 21/06/2005

Title: 'An Object-Oriented Metamodel for Digital Signal Processing with a focus on Audio and Music'

Student: Xavier Amatriain  
 University: Universitat Pompeu Fabra  
 Department: Department in Information and Communication Technologies  
 Date: 27/01/2005

## PUBLICATIONS

- Ramoneda P, Jeong D, Eremenko V, Tamer NC, Miron M, Serra X. Combining piano performance dimensions for score difficulty classification. *Expert Systems with Applications* 2024; 238(PartB): 1-15.
- Fuentes M, Plaja-Roglans G, Cortès-Sebastià G, Khandelwal T, Miron M, Serra X, Bello JP, Salamon J. Soundata: Reproducible use of audio datasets. *Journal of Open Source Software* 2024; 9(98): 1-5.
- Morsi A, Zhang H, Maezawa A, Dixon S, Serra X. Simulating piano performance mistakes for music learning. In: AA. VV.. 21st Sound and Music Computing Conference SMC 2024. ESMAE; 2024. p. 1-8.
- Battle-Roca R, Tyman D, Meléndez-Catalán B, Molina E, Serra X, Herrera-Boyer P. The elusive nature of inattentive deafness: assessing the influence of visual attention on background music perception in TV programmes. In: AA. VV.. 21st Sound and Music Computing Conference SMC 2024. ESMAE; 2024. p. 1-7.
- Alonso-Jiménez P, Pepino L, Battle-Roca R, Zinemanas P, Bogdanov D, Serra X, Rocamora M. Leveraging pre-trained autoencoders for interpretable prototype learning of music audio. In: AA. VV.. ICASSP Workshop on Explainable AI for Speech and Audio (XAI-SA). Seoul: IEEE Signal Processing Society; 2024. p. 1-5.
- Weck B, Kirchhoff H, Grosche P, Serra X. WikiMuTe: A Web-Sourced Dataset of Semantic Descriptions for Music Audio. In: Rudinac S (ed.). *International Conference on Multimedia Modeling (MMM 2024)*. Springer Cham; 2024. p. 42-56.
- Nuttall T, Serra X, Pearson L. Svara-forms and coarticulation in carnatic music: an investigation using deep clustering. In: Weigl DM (ed.). *Proceedings of the 11th International Conference on Digital Libraries for Musicology (DLfM '24)*. ACM Association for Computer Machinery; 2024. p. 15-22.
- Narang J, De La Vega V, Lizarraga X, Mayor O, Parra H, Janer J, Serra X. ChoralSynth: Synthetic Dataset of Choral Singing. *arxiv.org*; 2023.
- Valero-Mas JJ, Gallego AJ, Alonso-Jimenez P, Serra X. Multilabel Prototype Generation for data reduction in K-Nearest Neighbour classification. *Pattern Recognition* 2023; 135.
- Plaja-Roglans G, Nuttall T, Pearson L, Serra X, Miron M. Repertoire-Specific Vocal Pitch Data Generation for Improved Melodic Analysis of Carnatic Music. *Transactions of the International Society for Music Information Retrieval* 2023; 6(1): 13-26.
- Battle-Roca R, Herrera-Boyer P, Melendez-Catalan B, Molina E, Serra X. Towards a characterization of background music audibility in broadcasted TV. *International Journal of Environmental Research and Public Health* 2023; 20(1): 1-15.
- Srinivasamurthy A, Gulati S, Caro Repetto R, Serra X. Getting started on computational musicology and music information research: an indian art music perspective. In: Rao P.; Murthy H. A.; Prasann S. R. M.. *Indian art music: a computational perspective*. Sriranga Digital Software Technologies Pvt. Ltd., 2023; 2023. p. 3-38.
- Narang J, Miron M, Lizarraga X, Serra X. Analysis of Musical Dynamics in Vocal Performances. In: Aramaki M, Kronland-Martinet R, Ystad S, Hirata K, Kitahara T. *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*. Springer Science, Business Media Deutschland GmbH; 2023.
- Nuttall T, Plaja-Roglans G, Pearson L, Serra X. The Matrix Profile for Motif Discovery in Audio - An Example Application in Carnatic Music. In: Aramaki M, Kronland-Martinet R, Ystad S, Hirata K, Kitahara T. *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*. Springer Science, Business Media Deutschland GmbH; 2023. p. 228-237.
- Kim H, Serra X. DiffVel: note-level MIDI velocity estimation for piano performance by a double conditioned diffusion model. In: AA. VV.. CMMR2023, the 16th International Symposium on Computer Music Multidisciplinary Research. Tokio: Springer; 2023. p. 1-12.
- Gusó E, Luberadzka J, Baig M, Sayin Saraç U, Serra X. An objective evaluation of Hearing Aids and DNN-based speech enhancement in complex acoustic scenes. In: AA. VV.. *IEEE Workshop on Applications of Signal Processing to Audio and Acoustics ( WASPAA 2023 )*. New Paltz (New York): IEEE; 2023. p. 1-5.
- Alonso-Jiménez P, Favory X, Foughmand H, Bourdalas G, Serra X, Lidy T, Bogdanov D. Pre-Training Strategies Using Contrastive Learning and Playlist Information for Music Classification and Similarity. In: AA.

- VV.. Proceedings 2023 IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP 2023). Island of Rhodes: IEEE Signal Processing Society; 2023. p. 1-5.
- Tamer NC, Özer Y, Müller M, Serra X. TAPE: An End-to-End Timbre-Aware Pitch Estimator. In: AA. VV.. Proceedings 2023 IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP 2023). Island of Rhodes: IEEE Signal Processing Society; 2023. p. 1-5.
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## PATENTS

Inventors: Tokuda, H.; Hariya, W.; Oishi, K.; Parra, H.; Dabiri, D.; Serra, X.

Title: Musical tone evaluation device and program

Application number: JP2014-216990

Priority country: Japan

Priority date: 24/10/2014

Assignee: Korg

Companies exploiting it: Korg

Inventors: Yasuo Yoshioka, Hamamatsu (JP); Hiraku Kayama, Hamamatsu (JP); Xavier Serra, Barcelona (ES); Jordi Bonada, Barcelona (ES)

Title: Voice Converter with Extraction and Modification of Attribute Data

United States Patent number: US 7,149,682 B2

Date of Patent: Dec. 12, 2006

Filed: Oct. 29, 2002

Assignee: Yamaha Corporation (Hamamatsu, JP); Pompeu Fabra University (Barcelona, ES)

Companies exploiting it: Yamaha Corporation

Inventors: Hideki Kenmochi, Shimizu (JP); Xavier Serra, Barcelona (ES); Jordi Bonada, Barcelona (ES)

Title: Singing Voice Synthesizing Apparatus, Singing Voice Synthesizing Method, and Program for Realizing Singing Voice Synthesizing Method

United States Patent number: US 7,016,841 B2

Date of Patent: Mar. 21, 2006

Filed: Dec. 27, 2001

Assignee: Yamaha Corporation (Hamamatsu, JP)

Companies exploiting it: Yamaha Corporation

Inventors: Kawashima; Takahiro (Hamamatsu, JP), Yoshioka; Yasuo (Hamamatsu, JP), Cano; Pedro (Barcelona, ES), Loscos; Alex (Barcelona, ES), Serra; Xavier (Barcelona, ES), Schiementz; Mark (Barcelona, ES), Bonada; Jordi (Barcelona, ES)

Title: Voice converter for assimilation by frame synthesis with temporal alignment

United States Patent number: US 6,836,761 B1

Date of Patent: Dec. 28, 2004

Filed: October 20, 2000

Assignee: Yamaha Corporation (Hamamatsu, JP); Pompeu Fabra University (Barcelona, ES)

Companies exploiting it: Yamaha Corporation

Inventors: Yasuo Yoshioka, Hamamatsu (JP); Xavier Serra, Barcelona (ES)

Title: Converting Apparatus of Voice Signal by Modulation of Frequencies and Amplitudes of Sinusoidal Wave Components

United States Patent number: US 7,117,154 B2

Date of Patent: Oct. 3, 2006

Filed: Oct. 27, 1998

Assignee: Yamaha Corporation (Hamamatsu, JP); Pompeu Fabra University (Barcelona, ES)

Companies exploiting it: Yamaha Corporation

Inventors: Xavier Serra, Barcelona, Spain; Chris Williams, San Rafael, Calif.; Robert Gross, Raleigh, N.C.; Erling Wold, El Cerrito, Calif.

Title: Method of an Apparatus for Analyzing and Synthesizing a Sound by Extracting and Controlling a Sound Parameter

United States Patent number: 5.536.902

Date of Patent: Jul. 16, 1996



Filed: Apr. 14, 1993  
Assignee: Yamaha Corporation, Japan  
Countries extended to: Europe, Asia  
Companies exploiting it: Yamaha Corporation

Inventors: Xavier Serra; Julius O. Smith  
Title: Musical Synthesizer Combining Deterministic and Stochastic Waveforms  
United States Patent number: 5.029.509  
Date of Patent: Jul. 9, 1991  
Filed: Nov. 3, 1989  
Assignee: Stanford University, Stanford, Calif.  
Countries extended to: Europe, Asia  
Companies exploiting it: Yamaha Corporation