Research statement

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Vision & Mission

I envision pushing the boundaries of **technology**, **design**, and **experience** towards more collaborative, democratic and sustainable spaces, what I term tangible music computing. My mission is to do interdisciplinary research that embraces techniques and research methods from engineering, social sciences, and the arts for creating a new generation of interactive music systems.

Foci of research

This research contributes to the fields of **HCI** and **sound & music computing**.

My research has **three foci**:

1. **Technology**: using cutting-edge technology in real-time interactive musical systems and creative algorithms borrowed from MIR and machine learning that can be useful for real-time performance and musical improvisation e.g. live coding or algorithmic music.
2. **Design**: exploring novel aesthetics for real-time interactive musical systems e.g. tangible interfaces or wearable computing.
3. **Experience**: bringing more democratic, collaborative and participatory experiences to the fore e.g. multichannel experiences, participatory performances, DIY workshops.

Related publications

Technology

- Xambó, A., Lerch, A., Freeman, J. (2016). Learning to code through MIR. In *Extended abstracts for the Late-Breaking Demo Session of the 17th International Society for Music Information Retrieval Conference (ISMIR 2016)*. New York.
- Xambó, A., Freeman, J., Magerko, B., Shah, P. (2016). Challenges and new directions for collaborative live coding in the classroom. In *ICLI 2016*. Brighton, UK.
- Xambó, A. (2015). *Tabletop Tangible Interfaces for Music Performance: Design and Evaluation*. Thesis. The Open University.
- Xambó, A., Roma, G., Laney, R., Dobbyn, C. and Jordà, S. (2014). "SoundXY4: supporting tabletop collaboration and awareness with ambisonics spatialisation". In Proceedings of the International Conference on New Interfaces for Musical Expression 2014 (NIME '14). London. pp. 249–252.
- Roma, G. and Xambó, A. (2008). "A tabletop waveform editor for live performance". In Proceedings of the International Conference on New Interfaces for Musical Expression (NIME '08). Genoa, Italy.
- Xambó, A. (2008). *Interfaces for Sketching Musical Compositions*. Unpublished master's thesis. UPF.

Design

- Xambó, A. (forthcoming), "Embodied music interaction: creative design synergies between music performance and HCI". In Price, S. and Broadhurst, S. eds. Digital Bodies: Creativity and Technology in the Arts and Humanities. Palgrave Macmillan, London.
- Xambó, A. (2015). *Tabletop Tangible Interfaces for Music Performance: Design and Evaluation.* Thesis. The Open University.
- Xambó, A., Jewitt, C., and Price, S. (2014). "Towards an integrated methodological framework for understanding embodiment in HCI". In Proceedings of the Extended Abstracts on Human Factors in Computing Systems (CHI '14). Toronto. pp. 1411–1416.
- Xambó, A., Roma, G., Laney, R., Dobbyn, C. and Jordà, S. (2014). "SoundXY4: supporting tabletop collaboration and awareness with ambisonics spatialisation". In Proceedings of the International Conference on New Interfaces for Musical Expression 2014 (NIME '14). London. pp. 249–252.
- Xambó, A., Laney, R., Dobbyn, C. and Jordà, S. (2011). "Multi-touch interaction principles for collaborative real-time music activities: towards a pattern language". In Proceedings of the International Computer Music Conference (ICMC '11). Huddersffeld, UK. pp. 403–406.
- Roma, G. and Xambó, A. (2008). "A tabletop waveform editor for live performance". In Proceedings of the International Conference on New Interfaces for Musical Expression (NIME '08). Genoa, Italy.

Experience

- Xambó, A., Drozda, B., Weisling, A., Magerko, B., Huet, M., Gasque, T., Freeman, J. (2017) "Experience and ownership with a tangible computational music installation for informal learning". In Proceedings of the Tangible, Embedded, and Embodied Interaction Conference (TEI '17). Yokohama, Japan.
- Bogdanov, D., Haro, M., Fuhrmann, F., Xambó, A., Gómez, E. and Herrera, P. (2013). Semantic audio content-based music recommendation and visualization based on user preference examples. *Information Processing & Management*, 49(1), pp. 13-33.
- Freeman, J., Magerko, B., Edwards, D., Moore, R., McKlin, T., Xambó, A. (2015). *EarSketch: a STEAM approach to broadening participation in computer science principles.* In Proceedings of the IEEE Research in Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT '15). Charlotte, NC. pp. 109-110.
- Xambó, A. (2015). *Tabletop Tangible Interfaces for Music Performance: Design and Evaluation.* Thesis. The Open University.
- Xambó, A., Roma, G., Laney, R., Dobbyn, C. and Jordà, S. (2014). SoundXY4: supporting tabletop collaboration and awareness with ambisonics spatialisation. In *Proceedings of the International Conference on New Interfaces for Musical Expression 2014 (NIME '14).* London. pp. 249–252.
- Haro, M.; Xambó, A.; Fuhrmann, F.; Bogdanov, D.; Gómez, E. and Herrera, P. (2010). The Musical Avatar: a visualization of musical preferences by means of audio content description. In *Proceedings of the 5th Audio Mostly Conference (AM '10).* Piteå, Sweden.