

CV of the advisor

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Related publications

- Riber, A. G. (2026, April). Generative Musical Exploration of Astronomical Catalogs. In *International Conference on Computational Intelligence in Music, Sound, Art and Design (Part of EvoStar)* (pp. 84-96). Cham: Springer Nature Switzerland. https://doi.org/10.1007/978-3-032-24350-8_6
- Ziemer, T., García Riber, A., & Ravi Kantan, P. (2026). Musical Data Sonification: Expanding the Boundaries of Data Representation. In *Systematic Musicology – Current Topics, Interdisciplinary Approaches*. IntechOpen. <https://doi.org/10.5772/intechopen.1013615>
- García Riber, Adrián (2025). *Observatorio virtual sonoro basado en Deep Learning (Deep Learning Auditory Virtual Observatory)*. Thesis (Doctoral), E.T.S.I. y Sistemas de Telecomunicación (UPM). <https://doi.org/10.20868/UPM.thesis.90828>.
- Adrián García Riber, Rubén García-Benito, Francisco Serradilla, Interactive multimodal integral field spectroscopy, *RAS Techniques and Instruments*, Volume 3, Issue 1, January 2024, Pages 748–758, <https://doi.org/10.1093/rasti/rzae049>
- Riber, A. G., & Serradilla, F. (2022). CoRoT light curve Ambisonics/Binarual sonification. *International conference on Auditory display ICAD 2024*, pp. 66-72 (Rensselaer Polytechnic Institute, Troy, NY). <https://hdl.handle.net/1853/76316>
- Garcia Riber, Adrian and Serradilla, Francisco (2024). Toward an Auditory Virtual Observatory, *Journal of the Audio Engineering Society*, vol. 72, 5, pp 341-351. <https://aes.org/publications/elibrary-page/?id=22607>
- Deep learning sonification synthesizer for the CaT stellar spectra library. AES Convention 156, 2024. Paper Number 191. <https://aes.org/publications/elibrary-page/?id=22537>
- Binaural stellar spectra sonification based on variational autoencoders. ADASS XXXIII 2023. (extended abstract [pending publication](#)). [Poster](#) In *Astronomical Society of the Pacific Conference Series*.
- Riber, A.G., Serradilla, F. (2023). Al-rmonies of the Spheres. In: Johnson, C., Rodríguez-Fernández, N., Rebelo, S.M. (eds) *Artificial Intelligence in Music, Sound, Art and Design. EvoMUSART 2023. Lecture Notes in Computer Science*, vol 13988, pp132-147. Springer, Cham. https://doi.org/10.1007/978-3-031-29956-8_9

- Riber, A. G., & Garcia, F. S. (2022, June). Sonification of TESS data validation timeseries files. In *The 27th International Conference on Auditory Display (ICAD 2022), Virtual Space* (Vol. 2), pp.69-74. <http://hdl.handle.net/1853/67391>
- Riber, A. G. (2022). FITS2OSC. A Sonification Pipeline for Lightcurve Interactive Auditory Exploration. In *Astronomical Society of the Pacific Conference Series* (Vol. 532, p. 121). https://aspbooks.org/a/volumes/article_details/?paper_id=40520
- Riber, A. G. (2019, June). Sonifigrapher: Sonified light curve synthesizer. In *Proc. 25th International Conference on Auditory Display (ICAD 2019)*(Northumbria University (pp. 62-66). <http://hdl.handle.net/1853/61548>
- Riber, A. G. (2018, June). Planthesizer: approaching exoplanet sonification. In *Proc. 24th International Conference on Auditory Display (ICAD 2018)*(Michigan Technological University (pp. 219-226). <http://hdl.handle.net/1853/60095>

Research project

The Center for Astrobiology (CAB, CSIC-INTA) is the leading national center for astronomical data. The management of scientific archives and associated services and tools is carried out through the Spanish Virtual Observatory (SVO) project (<https://svo.cab.inta-csic.es>), formed by 21 interdisciplinary researchers. The SVO is connected to the International Virtual Observatory Alliance ([IVOA](#)) and focused on enabling efficient scientific use of astronomical archives through interoperable services and tools. Project funded by MCIN/AEI/10.13039/501100011033 through grant PID2023-146210NB-I00.

The SVO project is aimed at:

- Improving performance of the [CAB Data Centre](#) and providing support to other Spanish data centers
- Fostering collaborations in VO-science
- Developing VO tools, with special emphasis on data mining and Artificial Intelligence
- Organizing educational and outreach activities, including citizen science and initiatives aimed at people with impaired vision. VO schools as a key element.
- Bringing VO capabilities closer to educators, amateur astronomers, and the general public.

Sonification in the SVO

The SVO project includes a research line focused on Sonification, which aims to provide an additional analysis dimension to astronomical data representations, to improve the accessibility of the astronomical catalogs and to foster interest and engagement in Science and Astronomy.

Sonification can support complementary multimodal analysis of patterns in complex and high-dimensional astronomical data, it can also offer powerful ways for Blind and Low-Vision (BLV) users to access sky surveys and scientific content, and can be a strong vehicle for active project-based learning in STEM, Arts, and Digital Media programs.

Dataset exploration and state of the art	■											
Prototype design and initial tests	■	■	■	■								
Prototype Optimization and alternative solutions			■	■								
Prototype design completed				■								
Development and Implementation					■	■	■	■				
Evaluation design							■	■				
Prototype implementation completed								■				
Evaluation/Validation								■	■	■	■	
Evaluation analysis									■	■	■	
Evaluation completed and results analyzed											■	
Draft EvoMusart paper									■	■	■	■
First version of EvoMusart paper completed												■

Other relevant information

Barcelona stands as one of Europe’s leading hubs for innovation, creativity, and technology. Known for its unique blend of historic charm and forward-thinking energy, the city offers an exceptional quality of life, iconic architecture, renowned gastronomy, and a vibrant activity in the cultural, digital and tech sectors.

ESMUC is located at L’Auditory building in Barcelona. It was founded in 2000 as a higher education music school with an international faculty and student body. With more than 900 students per year, it includes departments of Classical and Contemporary Music, Early Music, Jazz and Popular Music, Traditional Music, Musicology and Ethnomusicology, Theory and Composition, Music Education, Music Business, and Sonology.

Unfortunately, ESMUC and the prospective advisor won’t be able to assist the student with the accommodation. Additionally, the student will need to be covered by an international insurance policy during the stay (not provided by ESMUC).