ABSTRACT ONLY

RESEARCH AND DEVELOPMENT OF SONIFICATION TOOLS FOR ASTRONOMICAL AND ASTROPHYSIC DATA: THE CASE OF SONOUNO

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Data analysis in space sciences has been done exclusively visually for many years, even when there is evidence that more than one sensory style is possible (as is with sonification). Maintaining the data analysis exclusively visual not only limits the study of the unknown to the current resolution of the screens but also excludes a group of people who present different degrees of visual impairment. Considering those above and the fact that people with functional diversity experience a large number of barriers to achieving higher education and stable jobs, within the framework of my doctoral thesis, a new modality to access scientific data from the space sciences was investigated[4]. SonoUno is a product of this research that makes possible a multisensory display (use of more than one sense) of data files with two or more columns, taking into account the accessibility and inclusion of people with functional diversity from the beginning[5]. Based on the fact that multisensory perception can be a good complement to visual exploration for the understanding of complex scientific data and the exchange and feedback received from users over the past six years, sonoUno presents a framework focused on the user and is an application that can be used independently on the computer or through a web page. Additionally, the package presents different scripts for specific sonifications and use in bash. The work presented here maintains the next fundamental pillars: providing solutions and removing barriers (in education and scientific work, up to now); the use of free programming languages; and the design of infrastructure to improve inclusion.

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[4] https://arxiv.org/abs/2305.05635
[5] https://reinforce.sonouno.org.ar/