Università degli Studi di Ferrara
Department of Engineering Ferrara

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3-year PhD position in the fields of indoor soundscape and classroom acoustics

(Department of Engineering, University of Ferrara, Ferrara, Italy)

A three-year PhD position at the University of Ferrara, Department of Engineering is published with selection by September 2024 and start in November 2024. The fellowship is part of the project "SOUNDkids" (Dr. Chiara Visentin and Dr. Simone Torresin), funded by the Head-Genuit Foundation. The call for application is published at the following link:
Call for applications for the admission to the 40th Cycle — Dottorati di ricerca (unife.it)

For further information please contact:

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Description
Research on indoor environments using a soundscape approach is emerging as a topic to be addressed in view of the acoustic design of supportive, healthier, and more comfortable spaces (Aletta and Kang, 2019). Only a few studies so far have addressed the context of educational buildings, and all of them focused on learning spaces in high-schools and universities (Visentin et al., 2023). No study used a soundscape perspective to examine learning spaces used by younger students, despite the greater importance of the acoustic environment of learning spaces for them compared to older students and young adults. In addition, whereas perceptual dimensions and standardized tools for assessing outdoor (and indoor) soundscapes have been developed and primarily used with adults, these instruments are not available when evaluating soundscapes from a child's perspective. A further limitation of the current classroom acoustic practice is the limited use of psychoacoustical measures, despite their potential benefit in complementing level-based parameters when characterizing the acoustic of learning spaces (Loh et al., 2022; Engel et al., 2021).
In this context, the activities of the PhD candidate will be devoted to exploring a novel approach to the acoustic design of classroom acoustics, moving beyond the current noise-control practice, and striving toward a purposeful management of the sound environment to foster a positive school climate.

Specific **objectives and expected outcomes** are:

- Conducting a scoping review on the soundscape of learning environment, with specific reference to methodologies used with children to communicate emotional states as reactions to sensory stimuli;
- Conducting and analysing experiments to define children's perceptual dimensions;
- Developing of statistical models to derive prediction tools;
- Validating the new approach in real-world case studies.

The **profile of the ideal candidate** includes:

- master's degree in engineering, architecture, physics. Other scientific degrees could be also acceptable after evaluation.
- background in architectural and/or environmental acoustics
- knowledge of psychoacoustics and statistics is a plus but not mandatory for this position

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References

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- Loh, K., Yadav, M., Persson Waye, K., Klatte, M., & Fels, J. (2022). Toward child-appropriate acoustic measurement methods in primary schools and daycare centers. Frontiers in Built Environment, 8, 688847. https://doi.org/10.3389/fbuil.2022.688847

- Visentin, C., Torresin, S., Pellegatti, M., & Prodi, N. (2023). Indoor soundscape in primary school classrooms. The Journal of the Acoustical Society of America, 154(3), 1813-1826. https://doi.org/10.1121/10.0020833

What is funded

The Research Doctorate program at UniFe spans three years and will start on November 1st, 2024.

- The annual gross stipend for the scholarship is € 16.243,00 encompassing National Insurance Contributions (INPS). Fiscal considerations related to scholarships are regulated by article 4 of Law 13.08.1984, n. 476. Scholarship disbursements are made monthly (12 x annually).
- An additional 50% increase in the scholarship amount is applicable for any period spent abroad, up to a maximum of 12 months. This is an opportunity to undertake a research period with an international partner within the academic network of the University of Ferrara
- Furthermore, within the financial resources existing in the budget, the PhD student is guaranteed research funding, for research activity in Italy and abroad, amounting to 10% of the total scholarship.

Host institution

The University of Ferrara (UniFe), located in the North-East of Italy, is one of the oldest universities in the world. Founded in 1391, now it counts more than 25,000 students, with 68 bachelor's and master's degree courses. The University of Ferrara carries out its research activity through thirteen Departments located in prestigious historical buildings across the city. All the Departments regularly take part in competitive calls for research activities at the local, regional, national, European, and international levels. The Department of Physics and Earth Sciences and the Department of Engineering are particularly successful at the European and international levels, accounting for about half the projects realised from 2014 to the present. In addition, nine Departments have achieved an excellent ranking in the Ministry's selection of Departments of Excellence (Law no. 232 of 2016) thanks to the quality of research produced.

The Department of Engineering of UniFe perform research in the areas of Civil, Industrial, and Information Engineering. The seventy staff members (professors, researchers, technicians, and administrative personnel) and about one hundred PhD students, post-docs, and other fellows employed by the Department work hard to push forward the state of the art in many engineering related scientific disciplines with competitive and leading-edge research projects and to implement a dynamic and stimulating learning environment.