

## PERSONAL INFORMATION



## Federica Morandi

📍 Via Meucci 5, 40138 Bologna, Italy

☎ +39 340 8249249

✉ [federica.morandi6@unibo.it](mailto:federica.morandi6@unibo.it)

Sex F | Date of birth 19/04/1987 | Nationality Italian

## CURRENT POSITION

## Research Fellow in the field of Applied Acoustics

## EDUCATION AND TRAINING

2019 - actual

**Post Doctoral Research Fellow**

Free University of Bozen, Italy.

Advisor: Prof. A. Gasparella

- Multi-dimensional comfort in smart buildings.
- Acoustics in timber buildings.

2018

**Visiting Research Fellow**

GAUS, Université de Sherbrooke, Sherbrooke, Canada.

Supervisor: Prof. P. Masson.

- Application of optimized Non-Destructive Testing techniques for the detection of anomalous moisture content in timber structures.

2016 – 2019

**Post Doctoral Research Fellow**

University of Bologna, Italy.

Advisor: Prof. L. Barbaresi.

- Experimental analysis aimed at characterising the vibration reduction indices for a variety of junctions between CLT panels.
- Characterisation of the propagation of bending waves through the comparison of several signal processing techniques (time-of-flight and pluri-spectral analysis).

2014

**Visiting PhD Student**

Open University, Milton Keynes, United Kingdom.

Supervisors: Dr. S. Taherzadeh and Prof. K. Attenborough.

- Experimental measurements on sonic crystals and implementation of semi-analytical tools related to sound propagation in periodic media.

2012 - 2016

**PhD in Applied Acoustics**

University of Bologna, Italy.

Thesis title: Theoretical and experimental investigation into stop-band properties of sonic crystals.

Advisor: Prof. M. Garai.

- Theoretical models, numerical simulations and semi-analytical coding.
- Characterisation of sonic crystals for diffuse and normal incidence field, to test and compare the performance of sonic crystals with respect to standard, heavy-weight noise barriers.

2006 - 2012

**Master Degree in Architecture and Building Engineering (European Standard 4/S)**

University of Bologna, Italy.

Thesis title: Acoustical characterization and study of sound radiation from stages: a comparison between the theatres of Cesenatico and Longiano. Advisor: Prof. M. Garai.

- Grade: 110/110 with honors.
- Measurement campaign carried out on 12 Italian opera houses, aimed at determining the peculiar acoustic quality of such extraordinary places.
- Numerical simulations of the sound field distribution inside the theatres.
- Analysis of the contribution of the sound radiation from timber stages and on its relevance for the public and the musicians.

PERSONAL SKILLS

Mother tongue Italian

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C2
Spanish	B2	B2	B2	B2	B2

Communication skills

Good communication skills gained through joint research activities carried out with national and International Institutes and Companies.

Organisational / managerial skills

Good organisational skills developed in the management of multiple activities carried out at the same time with different responsibilities.

Job-related skills

Good attitude to team work, through the complementation of competences, and to individual research; determination in achieving the objectives; ability to involve people.

Digital skills

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem solving
Proficient User	Proficient User	Proficient User	Independent user	Proficient User

- good command of office suite (word processor, spread sheet, presentation software)
- good command of photo editing software gained in my background
- good command on audio signal processing

Driving licence B

ADDITIONAL INFORMATION

Certifications

Tecnico Competente in Acustica (2019)  
National professional practice examination in Civil and Environmental Engineering (2012)

Selected publications

- Morandi F., De Cesaris S., Garai M. and Barbaresi L. "Measurement of flanking transmission for the characterisation and classification of cross laminated timber junctions", Appl. Acoust. **141**, 312-222, 2018.
- Di Bella A., Granzotto N., Quartarulo G., Speranza A. and Morandi F. "Analysis of airborne sound reduction index of bare CLT walls", Proc. of WCTE 2018, Seoul, 2018.
- D'Orazio D., De Cesaris S., Morandi F. and Garai M. "The aesthetics of the Bayreuth Festspielhaus explained by means of acoustic measurements and simulations", J. Cul. Her. DOI: 10.1016/j.culher.2018.03.003, 2018.
- Di Bella A., Mastino C.C., Barbaresi L., Granzotto N., Baccoli R. and Morandi F. "Comparative study of prediction methods and field measurements of the acoustic performances of buildings made with CLT elements", Proc. of Internoise, Hong Kong, 2017.
- Barbaresi L., Morandi F., Belcari J. and Zucchelli A. "Optimizing the mechanical characterization of a resilient interlayer for the use in timber construction", Proc. of ICSV24, London, 2017.
- Morandi F., Marzani A., De Cesaris S., D'Orazio D., Barbaresi L. and Garai M. "Sonic crystals as tunable

- noise barriers”, *RIA* **40** (4), 1-19, 2016.
- Morandi F., Miniaci M., Marzani A., Barbaresi L. and Garai M. “Standardised acoustic characterisation of sonic crystals noise barriers: Sound insulation and reflection properties”, *Appl. Acoust.* **114**, 294-306, 2016.
- De Cesaris S., D’Orazio D., Morandi F. and Garai M. “Extraction of the envelope from impulse responses using pre-processed energy detection for early decay estimation”, *J. Acoust. Soc. Am.* **138** (4), 2513-2523, 2015.
- Garai M., Morandi F., D’Orazio D., De Cesaris S. and Loreti L. “Acoustic measurements in eleven Italian opera houses: correlations between room criteria and considerations on the local evolution of a typology”, *Build. and Environ.* **94P2**, 900-912, 2015.
- Morandi F., De Cesaris S., D’Orazio D. and Garai M. “Energy criteria in Italian historical opera houses: a survey over 11 theatres”, *Proc. Auditorium Acoustics*, Paris, 2015.

#### Conferences

Conferences attended over the past 5 years:

- World Conference on Timber Engineering, Seoul, Korea, 2018.
- Euronoise Conference, Crete, 2018.
- AIA National Conference, Aosta, 2018.
- 8<sup>th</sup> International Symposium on Temporal Design, Bologna, 2017.
- AIA National Conference, Pavia, 2017.
- International Congress on Acoustics, Buenos Aires, 2016.
- AIA National Conference, Alghero, 2016.
- Auditorium Acoustics Conference, Paris, 2015.
- Euronoise Conference, Maastricht, 2015.

#### Seminars

Guest speaker at the seminars:

- “La acústica en los edificios de madera: desafíos, soluciones y interacción con el cálculo estructural”, Montevideo, 2019.
- “Proyectar, manufacturar y construir de forma sustentable con sistema de madera contralaminada”, Concepción, Chile, 2018.
- “Acoustics in timber buildings”, ARIA, Fano, 2017.
- “Acoustics in the rehabilitation of buildings and in urban regeneration”, AIA, Ascoli Piceno, 2017.
- “Edificación en madera – tendencias”, Concepción, Chile, 2017.
- International Symposium on Advanced Research in Timber Construction: Acoustic Quality, Environment and Safety, AIA-ICA, Bolzano, 2017.
- “Acoustic design of timber buildings: theoretical models and technical solutions”, Cortaccia (BZ), 2016.
- “Noise barriers: regulation, technological innovation and testing”, AIA, Bologna, 2016.

#### Honours and awards

- ICA-ASA-DEGA Young Scientist Conference Attendance Grant (Aachen, 2019).
- Best paper award at the 6<sup>th</sup> International Conference on Building Physics (Turin, 2015).
- Co-winner of the 1<sup>st</sup> edition of the UNIBO LaunchPad Program, the first Italian incubator of entrepreneurial ideas deriving from academic research (2015).

#### Memberships

- Member of the scientific committee of the *Congreso Latinoamericano de Estructuras de Madera (CLEM)* 2019, Montevideo (UY).
- Member of the organization committee of the 8<sup>th</sup> International Symposium on Temporal Design (Bologna, 2017).
- Reviewer for *Building and Environment*, *Journal of Architectural Engineering*, *Sensors*, *Building Acoustics*.

#### Teaching activity

- Guest teacher at the Postgraduate Diploma in “Diseño, cálculo y construcción de estructuras en madera” in the subject “Building Science and Envelope design”, Universidad ORT, Montevideo, Uruguay, June 2019.
- Guest teacher at the Master in Timber Construction, Universidad del Bío-Bío, Concepción, Chile, 2017.
- Rothschooll professional courses on acoustics in timber buildings, Cortaccia (BZ), 2016-actual.

Ai sensi del ai sensi del Decreto Legislativo n.196 del 30/06/2003 e s.m.i. e ex art.13 Regolamento UE 2016/679 il sottoscritto autorizza al trattamento dei propri dati personali ai fini dell’organizzazione e la gestione dei corsi di formazione e per le attività amministrative connesse.

Bozen, June 24<sup>th</sup> 2019

