

# Daniele Torreggiani

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## Curriculum Vitae

Daniele Torreggiani, Environmental Engineer and Ph.D. in Agricultural Engineering, is associate professor at the Department of Agricultural and Food Sciences of the University of Bologna in the Agricultural and biosystems Engineering field - Rural Buildings and Agro-forest Land Planning.

Since 2015 he is the coordinator of the degree course in Ornamental plants and landscape protection.

His main research activities deal with the resilience and sustainability of territorial systems and green systems, GIS, multi-criteria analysis of rural territory and landscape and enhancement of landscape systems, smart farming systems and precision livestock farming, innovative lighting systems in protected crops, analysis and design of agricultural and agro-industrial buildings, traditional rural building and landscape integration of the rural built system and infrastructure in rural areas.

He is the scientific responsible for the University of Bologna of the following international projects:

- PRIMA Project (Partnership for Research and Innovation in the Mediterranean Area - Euro-Mediterranean cooperation joint programme) "Self-sufficient Integrated Multi-Trophic AquaPonic systems for improving food production sustainability and brackish water use and recycling (SIMTAP)" (2019-2022)
- Climate KIC pathfinder Project (Knowledge and Innovation Community - Europe's leading climate innovation initiative) "AELCLIC: Adaptation of European Landscapes to Climate Change" (2019).

He is member of the research team of various international research projects: Horizon 2020-EU "RES<sub>4</sub>LIVE -Energy Smart Livestock Farming towards Zero Fossil Fuel Consumption"; Horizon 2020-EU "LEAP-RE - Long-Term Joint EU-AU Research and Innovation Partnership on Renewable Energy"; ERA-HDHL - Knowledge Hub on Food and Nutrition Security "An integrated approach to the challenge of sustainable food systems: adaptive and mitigatory strategies to address climate change and malnutrition (SYSTEMIC)"; EIT FOOD project "Big data and advanced analytics for sustainable management of the dairy cattle sector".

He is member of the research team of the University of Bologna in the PRIN 2017 research project "Smart dairy farming: innovative solutions to improve herd productivity". He has taken part in many other research projects (including national research projects funded by the Italian Ministry of Research and University, such as the PRIN 2001 research project "Technological innovation of livestock farming", the PRIN 2003 research project "Landscape changes between protection and innovation in rural and periurban systems in Italy", the PRIN 2005 research project "Rural landscape changes: driving forces and future scenarios", and the PRIN 2009 research project "Integrated analysis and design criteria in the food processing industry".

He has coordinated and participated in many national research activities, also in collaboration with public and private bodies, to experiment and implement solutions aimed at enhancing the rural and peri-urban territory and the sustainability of the rural built system. He conducts research in collaboration with various national and international bodies and institutions. He is member of the research team of the PSR project "Haly.Bio - Indagini operative per l'implementazione del controllo biologico dell'invasiva *Halyomorpha halys* in Emilia-Romagna").

He is member of the Scientific Committee of the PhD program in Agricultural, Environmental and Food Sciences and Technologies of the University of Bologna.

He teaches in undergraduate and graduate degree programs of the Department of Agri-Food Sciences of the University of Bologna: Precise and Sustainable Agriculture (international master program), Ornamental Plants and Landscape Protection/ Sciences and Technologies for Green and

Landscape (Bachelor), Agricultural Sciences and Technologies (Master program), Planning and management of agro-territorial, forest and landscape (Master program). He also holds courses in English in the PhD course in Agricultural, Environmental and Food Sciences and Technologies and in the PhD course in Health, Safety and Green Systems of the University of Bologna.

He presented articles and has been invited speaker and chairman in several national and international conferences. He is member of the organizing committee of several conferences. He is author of several publications on national and international journals and conferences proceedings, and published various papers on ISI WoS and Scopus Journals, and editor of books. He is Guest editor of the Special issue "Landscape Analysis, Planning and Regional Development" of the international journal "Sustainability". He is referee for various international scientific journals.

He supervises several degree theses and student training activities and is supervisor and co-supervisor of various PhD students. He is member of the Italian Association of Agricultural Engineering/Associazione Italiana di Ingegneria Agraria (AIIA), European Society of Agricultural Engineers (EurAgEng), and International Commission of Agricultural Engineering (CIGR). He is part of the working group of the University of Bologna within the European Network of Universities for the implementation of the European Landscape Convention UNISCAPE and of the working group "Rural buildings and landscape" of the European Society of Agricultural Engineers. He is associated chair of the international Working Group "Rural Landscape structures and infrastructure planning and valorization" of the 2<sup>nd</sup> section of CIGR (Structures and environment). He is member of the Executive Board of the European network of Universities UNISCAPE. He is member of the scientific committee of the "G. Goidanich" Library of the University of Bologna.

## Main scientific publications

1. Tassinari Patrizia, Bovo Marco, Benni Stefano, Franzoni Simone, Poggi Matteo, Mammi Ludovica Maria Eugenia, Mattoccia Stefano, Di Stefano Luigi, Bonora Filippo, Barbaresi Alberto, Santolini Enrica, Torreggiani Daniele (2021). A computer vision approach based on deep learning for the detection of dairy cows in free stall barn. *COMPUTERS AND ELECTRONICS IN AGRICULTURE*, vol. 182, p. 1-15, ISSN: 0168-1699, doi: 10.1016/j.compag.2021.106030
2. Gholami M., Barbaresi A., Tassinari P., Bovo M., Torreggiani D. (2020). A comparison of energy and thermal performance of rooftop greenhouses and green roofs in Mediterranean climate: A hygrothermal assessment in WuFi. *ENERGIES*, vol. 13, p. 1-15, ISSN: 1996-1073, doi: 10.3390/en13082030
3. Benni S., Pastell M., Bonora F., Tassinari P., Torreggiani D. (2020). A generalised additive model to characterise dairy cows' responses to heat stress. *ANIMAL*, vol. 14, p. 418-424, ISSN: 1751-7311, doi: 10.1017/S1751731119001721
4. Barbaresi A., Maioli V., Bovo M., Tinti F., Torreggiani D., Tassinari P. (2020). Application of basket geothermal heat exchangers for sustainable greenhouse cultivation. *RENEWABLE & SUSTAINABLE ENERGY REVIEWS*, vol. 129, p. 1-20, ISSN: 1364-0321, doi: 10.1016/j.rser.2020.109928
5. Strpic Kristina, Barbaresi A., Tinti F., Bovo M., Benni S., Torreggiani D., Macini P., Tassinari P. (2020). Application of ground heat exchangers in cow barns to enhance milk cooling and water heating and storage. *ENERGY AND BUILDINGS*, vol. 224, p. 1-17, ISSN: 0378-7788, doi: 10.1016/j.enbuild.2020.110213
6. Bovo M., Barbaresi A., Torreggiani D., Tassinari P. (2020). Collapse and damage to vernacular buildings induced by 2012 Emilia earthquakes. *BULLETIN OF EARTHQUAKE ENGINEERING*, vol. 18, p. 1049-1080, ISSN: 1570-761X, doi: 10.1007/s10518-019-00737-7
7. Bovo M., Barbaresi A., Torreggiani D. (2020). Definition of seismic performances and fragility curves of unanchored cylindrical steel legged tanks used in wine making and storage. *BULLETIN OF EARTHQUAKE ENGINEERING*, vol. 18, p. 3711-3745, ISSN: 1570-761X, doi: 10.1007/s10518-020-00841-z
8. Alberto Barbaresi, Marco Bovo, Enrica Santolini, Luca Barbaresi, Daniele Torreggiani, Patrizia Tassinari (2020). Development of a low-cost movable hot box for a preliminary definition of the thermal conductance of building envelopes. *BUILDING AND ENVIRONMENT*, vol. 180, p. 1-14, ISSN: 0360-1323, doi: 10.1016/j.buildenv.2020.107034
9. Barbaresi A., Santolini E., Agrusti M., Bovo M., Accorsi M., Torreggiani D., Tassinari P. (2020). Microventilation system improves the ageing conditions in existent wine cellars. *AUSTRALIAN*

JOURNAL OF GRAPE AND WINE RESEARCH, vol. 26, p. 417-426, ISSN: 1322-7130, doi: 10.1111/ajgw.12452

10. Barbaresi A., Bovo M., Torreggiani D. (2020). The dual influence of the envelope on the thermal performance of conditioned and unconditioned buildings. *SUSTAINABLE CITIES AND SOCIETY*, vol. 61, p. 1-20, ISSN: 2210-6707, doi: 10.1016/j.scs.2020.102298
11. Gholami M., Barbaresi A., Torreggiani D., Tassinari P. (2020). Upscaling of spatial energy planning, phases, methods, and techniques: A systematic review through meta-analysis. *RENEWABLE & SUSTAINABLE ENERGY REVIEWS*, vol. 132, p. 1-20, ISSN: 1364-0321, doi: 10.1016/j.rser.2020.110036
12. Pourkhorshidi S., Sangiorgi C., Torreggiani D., Tassinari P. (2020). Using recycled aggregates from construction and demolition waste in unbound layers of pavements. *SUSTAINABILITY*, vol. 12, p. 1-19, ISSN: 2071-1050, doi: 10.3390/su12229386
13. Santolini E., Barbaresi A., Torreggiani D., Tassinari P. (2019). Numerical simulations for the optimisation of ventilation system designed for wine cellars. *JOURNAL OF AGRICULTURAL ENGINEERING*, vol. 50, p. 180-190, ISSN: 1974-7071, doi: 10.4081/jae.2019.95
14. Novel methodologies for the characterization of airflow properties of shading screens by means of wind-tunnel experiments and CFD numerical modeling Santolini, E., Pulvirenti, B., Torreggiani, D., Tassinari, P. 2019. *Computers and Electronics in Agriculture*, 163, 104800.
15. Multidimensional measurement of the level of consistency of farm buildings with rural heritage: A methodology tested on an Italian case study. Open Access. Benni, S., Carfagna, E., Torreggiani, D., (...), Bovo, M., Tassinari, P. 2019. *Sustainability (Switzerland)*, 11(15), 4242.
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17. A methodology for daily analysis of AMS data providing herd characterisation and segmentation. Benni, S., Bonora, F., Tassinari, P., Torreggiani, D. 2019. *Precision Livestock Farming 2019 - Papers Presented at the 9th European Conference on Precision Livestock Farming, ECPLF 2019*, pp. 53-59.
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19. Green Mobility Infrastructures. A landscape approach for roundabouts' gardens applied to an Italian case study Dall'Ara, E., Maino, E., Gatta, G., Torreggiani, D., Tassinari, P. 2019. *Urban Forestry and Urban Greening*. 37, pp. 109-125.
20. Numerical study of wind-driven natural ventilation in a greenhouse with screens Santolini, E., Pulvirenti, B., Benni, S., (...), Torreggiani, D., Tassinari, P. 2018. *Computers and Electronics in Agriculture*, 149, pp. 41-53.
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23. Evaluation of efficiency of hybrid geothermal basket/air heat pump on a case study winery based on experimental data. Tinti, F., Barbaresi, A., Torreggiani, D., (...), Tassinari, P., Bruno, R. 2017. *Energy and Buildings*, 151, pp. 365-380.
24. Efficacy of greenhouse natural ventilation: Environmental monitoring and CFD simulations of a study case. Benni, S., Tassinari, P., Bonora, F., Barbaresi, A., Torreggiani, D. 2016. *Energy and Buildings*, 125, pp. 276-286.
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