

Melissa De Iuliis

EDUCATION

Ph.D. candidate, Civil and Environmental Engineering

11/2018-10/2021

Politecnico di Torino, Torino, Italy

- Project: Joint Research Project between Politecnico di Torino and Swiss Federal Institute of Technology (ETH) of Zurich
- Project title: "Resilience-based design of buildings and infrastructure networks under multiple hazards"
- Thesis title: "Expert-based systems to assess the Downtime and Resilience of Physical Infrastructure Systems of Communities"
- Advisor: Prof. Gian Paolo Cimellaro
- Selected courses: Seismic Design and Retrofitting of Cultural Heritage, Reliability and Seismic Strength of Isolated Structures with Friction Devices (FPS), Heuristics and metaheuristics for problem solving new trends and software tools, Crowd Dynamics: Applications in Engineering and Architecture

MSc in Building Engineering

2015-2018

Politecnico di Torino, Torino, Italy

- Thesis title: "Fuzzy-based model to evaluate the Downtime and the Resilience of building structures following an earthquake"
- Advisor: Prof. Gian Paolo Cimellaro, Prof. Tesfamariam Solomon (UBC)
- Selected courses: Testing of materials, models and structures, Earthquake Engineering, Foundation/Structural Engineering, Earth Mechanics, Science and Technology of materials

BSc in Construction Engineering

2011-2014

Università degli studi "G. d'Annunzio", Chieti – Pescara, Italy

- Thesis title: "Urban Renewal Area "Ex Aquila d'Oro"
- Advisor: Prof. Arch. Antonio Alberto Clemente
- Selected courses: Interdisciplinary workshop on construction, Interdisciplinary course of building science (statics for buildings and mechanics of structures), Building techniques, building site organization and security, Technical geology)

ACADEMIC EXPERIENCES

Tutoring assistant – Morphology and concept of structures

03/2021-07/2021

1st Degree and Bachelor-level in Architecture, Politecnico di Torino, Torino, Italy

- Activity: On-line tutoring of elements of Statics of structures: forces and moments; equilibrium assessment in plane and space; constraints and reactions; concept of the beam; internal forces, truss girders and systems of beams

Visiting Researcher, Civil, Environmental and Geomatic Engineering Department

09/2019-06/2020

Swiss Federal Institute of Technology (ETH), Zurich, Switzerland

- Advisor: Prof. Bozidar Stojadinovic
- Research topic: Resilience-based assessment of buildings and infrastructure networks in developed and developing countries

Part-time on-campus job

01/2017-05/2017

Project “Scuola dei compiti”

Secondary school “Leonardo da Vinci”, Torino, Italy

- Activity: Part-time mathematic teaching (75 h)

Internship – Architectural Company: Arch. Luca Daniele

02/2014-04/2014

Teramo, Italy

- Activities (180 h): Creation of 3D Models (Rhinoceros, Autocad); Visit of yards in Teramo. Study of security plans; Study of building permits; Participation in historical building architectural restoration

SKILLS

- **Computing and Programming:** skilled in programming with Matlab and Python
- **Computer:** experienced with AutoCAD, Revit, Adobe, Sap, proficient in Microsoft Office (Word, Excel, and PowerPoint)
- **Communication:** constant interaction with laboratory personnel including undergraduate assistants, along with faculty and numerous visiting students and scholars from abroad during Ph.D studies.
- **Leadership:** supervised scholars in the Disaster Resilience Simulation Laboratory at Politecnico di Torino
- **Soft skills:** Public speaking, Communication, Research integrity, Responsible research and innovation, the impact on social changes, Writing Scientific Papers in English.

LANGUAGES

- **English:** Fluent in spoken and written (B2)
- **Italian:** Mother tongue

PUBLICATIONS

1. Lorusso P., **De Iuliis, M.**, Marasco, S., Domaneschi, M., Cimellaro, G. P., Villa, V., “Emergency evacuation using Advanced Technologies”, Journal of Building Performance Simulation, under review.
2. Khanghanpour-Shahrezaee, R., **De Iuliis, M.**, Cimellaro, G. P., “A survey-based approach to estimating the downtime of buildings damaged by flood in developing countries”, Handbook of Flood Risk Management in Developing Countries, accepted
3. **De Iuliis, M.**, Kammouh, O., Cimellaro G.P., Tesfamariam, S., “Quantifying restoration time of pipelines after earthquakes: Comparison of Bayesian belief networks and fuzzy models”, Structural Safety, 2021
4. Cimellaro, G. P., **De Iuliis, M.**, Marasco, S., “Neodeterministic method to assess the seismic performance of water distribution networks”, Earthquake and Sustainable Infrastructure, 2021
5. **De Iuliis, M.**, Kammouh, O., Cimellaro G.P., Tesfamariam, S., “Quantifying restoration time of power and telecommunication lifelines after earthquakes using Bayesian belief network model”, Reliability Engineering & System Safety, 2020
6. **De Iuliis, M.**, Kammouh, O., Cimellaro, G. P., Tesfamariam, S., “Resilience of the built environment: a methodology to estimate the downtime of building structures using Fuzzy Logic”, Resilient Structures and Infrastructures, Springer 2019
7. **De Iuliis, M.**, Kammouh, O., and Cimellaro G.P., “Resilience assessment at the state level using the Sendai framework”, Book chapter, 2021 Handbook of Disaster Risk Reduction for Resilience, under review
8. Domaneschi, M., Cimellaro, G. P., **De Iuliis, M.**, “VR platform to improve fire emergency evacuation”, 16th International Conference on Civil, Structural & Environmental Engineering Computing, Riva del Garda, Italy, 2019

9. Cimellaro, G. P., Domaneschi, M., **De Iuliis, M.**, Villa, V., Caldera, C., Cardoni, A., "Fire emergency evacuation in a school building through VR", 7th International Conference on Computational Methods in Structural Dynamics and Earthquake Engineering (COMPDYN), Crete, Greece, 2019
10. **De Iuliis, M.**, Kammouh, O., Cimellaro, G. P., Tesfamariam, S., "Downtime estimation of building structures using Fuzzy Logic", International Journal of Disaster Risk Reduction, 2018; 10.1016
11. **De Iuliis, M.**, Kammouh, O., Cimellaro, G. P., Tesfamariam, S., "Downtime estimation of building structures using Fuzzy Logic", 20th International Conference on Seismic Resilient Cities, 2018

SEMINARS AND CONFERENCES

1. 10th International Conference on Bridge Maintenance, Safety and Management (IABMAS 2020), presenter of the article "Laboratory Investigation of Digital Image Correlation Techniques for Structural Assessment", online, April 11-18, 2021.
2. 17th World Conference on Earthquake Engineering (17WCEE), Sendai, Japan (Hybrid Conference), presenter of the article "Downtime estimation of buildings using Fuzzy Logic", September 27-October 2, 2021.
3. Winter School 5th International course on Seismic Analysis of Structures using Open SEES, Politecnico di Torino, January 2020.
4. Seminar: Monitoraggio strutturale per migliorare la resilienza delle infrastrutture", Politecnico di Torino, Turin, Italy, November 2019.
5. Conference: XVIII ANIDIS 2019, presenter of the article "A methodology to estimate the downtime of building structures using Fuzzy Logic", Ascoli Piceno, Italy, September 2019.
6. Workshop: Theory and Practice of Bayesian Hypothesis Testing: A JASP Workshop, University of Amsterdam, Amsterdam, Netherlands, August 2019.
7. Seminar: Monitoraggio strutturale per migliorare la resilienza delle infrastrutture", Politecnico di Torino, Torino, Italy, November 2018.

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