FRANCESCA MOSCA

Architect and PhD Candidate in Architectural Technology at the Department of Architecture and Design of Genova University (Italy). Her main research interests are integration of Nature-based solutions in the urban environment to improve urban resilience and environmentally sustainable design.

EDUCATION/QUALIFICATIONS

NOVEMBER 2021 – PRESENT UNIVERSITÀ DEGLI STUDI DI GENOVA, ITALY
PhD Candidate at the Department of Architecture and Design, University of Genoa, within the EU Funded FET HORIZON 2020 project "ECOLOPES: ecological building envelopes".
Title of the thesis: *innovative approaches for the environmental assessment of nature-based building envelopes performances – a computational approach for the ECOLOPES project.*

NOVEMBER 2021 ORDER OF ARCHITECTS GENOA, ITALY
Professional qualification for architectural practice.

MARCH 2021 UNIVERSITÀ DEGLI STUDI DI GENOVA, ITALY
Title of the master's degree thesis: *"Microclimatic and perceptive effects of nature-based solutions in urban regeneration design – the case study of Genoa Cornigliano".*
Tutors: Prof. Andrea Giachetta, Katia perini, Giulia Maria Dotti Sani; Dr. Petra Hurtado.
Evaluation: 110/110 cum laude and recommendation for publication.

SEPTEMBER 2019-MARCH 2020 TECHNISCHE UNIVERSITAT WIEN, AUSTRIA
Erasmus Exchange Program, Department of Architecture. Credits achievement: 33 ECTS.

JUNE 2021 IANUA SCHOOL OF ADVANCED STUDY, GENOA, ITALY
II level Diploma on Sciences and Technologies of Sustainability (2 years).

JUNE 2019 IANUA SCHOOL OF ADVANCED STUDY, GENOA, ITALY
I level Diploma on Sciences and Technologies of Sustainability (2 years).

OCTOBER 2018 UNIVERSITÀ DEGLI STUDI DI GENOVA, ITALY
Title of the bachelor's degree thesis*: "A micro-architecture for the Ligurian Mountain Highway – territorial analysis and design proposal"*
Tutor: Prof. Andrea Giachetta, Andrea Bacigalupo.
Evaluation: 110/110 cum laude.

RESEARCH EXPERIENCE

APRIL 2024 – JULY 2024 TECHNISCHE UNIVERSITAT MUNCHEN, GERMANY - *VISITING RESEARCHER*

Professorship for Green Technologies in Landscape Architecture for ECOLOPES project research activities and teaching at the ECOLOPES Master studio open to Landscape architecture and Architecture master students.

FEBRUARY 2024 – MARCH 2024 UNIVERSITÀ DEGLI STUDI DI GENOVA, ITALY – *RESEARCH CONTRACT*

Topic: the definition of a methodology for wp7 interviews and related application for the h2020 ECOLOPES project.

FEBRUARY 2023 – PRESENT UNIVERSITÀ DEGLI STUDI DI GENOVA, ITALY – LAND SRL, *RESEARCH COLLABORATION*

Architecture and Design Department, Polytechnic School, title of the research: *"assessment of environmental performance and relative ecosystem services of NBS in the urban environment".*

MAY-OCTOBER 2021 UNIVERSITÀ DEGLI STUDI DI GENOVA, ITALY, *RESEARCH FELLOWSHIP*

Architecture and Design Department, Polytechnic School, title of the research: *"Urban regeneration and human-nature interaction in relation to microclimatic conditions, comfort and environmental sustainability"*, within the EU Funded FET HORIZON 2020 project "ECOLOPES: ecological building envelopes".

CONSULTANCY AND WORK EXPERIENCE

MAY 2024 *FREELANCE ARCHITECT*

Consultancy for microclimatic analysis of project site through CFD simulations for Climateflux GmbH.

OCTOBER 2020 – FEBRUARY 2021 UNIVERSITÀ DEGLI STUDI DI GENOVA, ITALY, *ACADEMIC TUTOR*

IANUA School of Advanced Study, University of Genoa.

2020 UNIVERSITÀ DEGLI STUDI DI GENOVA, ITALY, *EDUCATIONAL PEER TUTOR*

Architecture and Design Department, Polytechnic School.

PARTICIPATION IN RESEARCH PROJECTS

APRIL 2024 – PRESENT

BETTER POLICY: Building Environmental Tools To Empower Responsive Policies Outreaching LifeCYcle. Guidelines and protocols to enable Public Administrations-driven processes in the Italian construction sector – PRIN 2022 ON - C53D23004890006.

WP2, TASK 2.1 (criteria and indicators for decarbonisation).

DECEMBER 2023 – PRESENT

URBAN GENERATION: a design approach for climate change adaptation and mitigation. – PRIN PNRR 2022 PROGRAM - D53D2302009000.

WP3, TASK 3.1 (Collecting, listing and modeling NBS in a consistent way following the results obtained in EU-funded existing research projects) and 3.2 (Listing KPIs capitalizing EU funded projects, reports and literature reviews).

MAY 2021 – PRESENT

ECOLOPES ECOLOGICAL BUILDING ENVELOPES – FET H2020 PROJECT – GRANT AGREEMENT N. 964414.

WP7, TASK 7.1 (human thermal comfort), TASK 7.2 (building blocks exposure and analysis) and TASK 7.3 (identification of the best design outcomes).

ORGANIZATION AND PARTICIPATION IN CONFERENCES

JUNE 2024 TECHNISCHE UNIVERSITAT WIEN, AUSTRIA

Participation as a speaker at the Digital Landscape Architecture (DLA) conference 2024 at the University of Vienna, presenting the contribution "A conceptual framework for the optimization of environmentally sustainable nature-based solutions", published in the proceedings of the conference.

MAY 2024 NBS SUMMIT URBAN EDITION PORTO, PORTUGAL

Participation in the NBS summit 2024 Urban edition in Porto presenting the poster "a computational approach for the urban heat island mitigation through plant modelling".

NOVEMBER 2023 UNIVERSITÀ DEGLI STUDI DI GENOVA, ITALY

Organization of the international symposium "Designing Resilience" at the University of Genoa and member of the scientific committee and editor of the proceedings publication (under publication).

MARCH 2023 UNIVERSITÀ DEGLI STUDI DI GENOVA, ITALY

Participation as a speaker at the "call for maps" conference at the University of Genoa, presenting the contribution "Climate-related hazard: greening cities with CliMap" (under publication).

MAIN TEACHING ACTIVITIES

APRIL 2024 – JULY 2024 TECHNISCHE UNIVERSITAT MUNCHEN, GERMANY

Professorship for Green Technologies for Landscape Architecture, teaching assistant.
(Design studio: ECOLOPES, master's degree).

FEBRUARY 2024 – JUNE 2024 UNIVERSITÀ DEGLI STUDI DI GENOVA, ITALY

Architecture and Design Department, Polytechnic School, teaching support.
(Design studio: Design, Technology and Environment, master's degree), 30 hours.

NOVEMBER 2023 UNIVERSITÀ DEGLI STUDI DI GENOVA, ITALY
Architecture and Design Department, Polytechnic School, title of the seminar: “CFD simulations for outdoor thermal comfort assessment in the ECOLOPES project”.
(Course: Sustainability technology, master’s degree), 4 hours.

MAY 2023 UNIVERSITÀ DEGLI STUDI DI GENOVA, ITALY
Architecture and Design Department, Polytechnic School, title of the seminar: “Assessment of nature-based solutions performances”.
(Course: Technological design of vegetation for building, bachelor’s degree), 4 hours.

JANUARY 2023 UNIVERSITÀ DEGLI STUDI DI GENOVA, ITALY
Architecture and Design Department, Polytechnic School, title of the seminar: “environmental sustainability and impact of urban regeneration design”.
(Course: Technological design of vegetation for urban spaces, bachelor’s degree), 4 hours.

FEBRUARY 2023 – JUNE 2023 UNIVERSITÀ DEGLI STUDI DI GENOVA, ITALY
Architecture and Design Department, Polytechnic School, teaching support.
(Design studio: Design, Technology and Environment, master’s degree), 30 hours.

SEPTEMBER 2022 – FEBRUARY 2023 UNIVERSITÀ DEGLI STUDI DI GENOVA, ITALY
Architecture and Design Department, Polytechnic School, teaching support.
(Design studio: Technology of Architecture, bachelor’s degree), 30 hours.

MARCH 2022 UNIVERSITÀ DEGLI STUDI DI GENOVA, ITALY
Architecture and Design Department, Polytechnic School, title of the seminar: “the ECOLOPES project: thermal comfort and case studies”.
(Course: Technological design of vegetation for building, bachelor’s degree), 4 hours.

DECEMBER 2021 UNIVERSITÀ DEGLI STUDI DI GENOVA, ITALY
Architecture and Design Department, Polytechnic School, title of the seminar: “assessment of microclimatic and perceptive effects of vegetation for urban regeneration design”.
(Design studio: Technology of Architecture, bachelor’s degree), 4 hours.

BACKGROUND STUDIES

DECEMBER 2023 – JANUARY 2024 MCNEEL EUROPE, SPAIN
28-hours online workshop “Python in Grasshopper” Level 1 and 2.

SEPTEMBER 2023 UNIVERSITY OF GENOA, ITALY
Green innovation challenge, 1 week workshop organized within the Erasmus+ project Green Skills 4 cities by UNIGE, IAAC, ALDA, and WU Vienna.

MAY-JUNE 2023 ABITALAB, ITALY
70-hours Masterclass on “Regenerative design for climate change”.

SEPTEMBER 2022 UNDP, ONLINE
"Using spatial data for biodiversity".

FEBRUARY 2022 POLITECNICO DI MILANO, ITALY
25-hours course on "Life-cycle assessment in building construction. Environmental assessment at building and product scale".

NOVEMBER 2021 MCNEEL EUROPE, SPAIN
14-hours online workshop "Sustainable Cities– Urban analysis and simulation in times of climate change".

PUBLICATIONS

1. Mosca F., Moroni M., Dotti Sani G., Shwartz A., Perini K. 2024. Developing guidelines to support urban biodiversity through Nature-based Solutions: an interdisciplinary approach. Urban Forestry and Urban Greening, Elsevier. *Under review.*

2. Uthaya S. and Mosca F., Perini K., Gromban Y., Barath S. 2024. Resilient Green Building Envelopes A computational method for holistic sustainability assessments and interdisciplinary design decision-making. eCAADe Conference 2024 proceedings. *Under publication.*

3. Mosca F., 2024. A Conceptual Framework for the Optimization of Environmentally Sustainable Nature-based Solutions. Journal of Digital Landscape Architecture, 9-2024, pp. 173-181. ISBN 978-3-87907-752-6, ISSN 2367-4253, doi:10.14627/537752017.

4. Mosca F., Canepa M., Perini K. 2023. Strategies for adaptation to and mitigation of climate change: Key performance indicators to assess nature-based solutions performances. Urban Climate, 49. https://doi.org/10.1016/j.uclim.2023.101580.

5. Mosca F., Perini K., 2023. Verde pensile: una strategia per il cambiamento climatico. In "Nuove forme di Natura - Il verde pensile per rigenerare le città / New forms of Nature / Green roofs for regenerating cities". Genoa University Press. ISBN 978-88-3618-199-5.

6. Uthaia Selvan, S., Saroglou, T., Mosca, F., Tyc, J., Joschinski, J., Calbi, M., Vogler, V., Weisser, W., Grobman, Y. J., Barath, S., 2023. MULTI-SPECIES BUILDING ENVELOPES: DEVELOPING A MULTICRITERIA DESIGN DECISION-MAKING METHODOLOGY FOR COHABITATION. In "HUMAN-CENTRIC, Proceedings of the 28th International Conference of the Association for Computer-AidedArchitectural Design Research in Asia (CAADRIA)".

7. Mosca F., Dotti Sani, G., Giachetta A., Perini K. 2022. Perception of vegetation's benefit as a tool for urban regeneration. pp. 411-421. In "De-sign: environment landscape city 2021: Venice Biennale Resilient Communities Conference Proceedings. De-sign environmental landscape city 1. Roma: Aracne.

8. Mosca F., Perini K., 2022. Reviewing the Role of Key Performance Indicators in Architectural and Urban Design Practices. Sustainability. 14(21), 14464. https://doi.org/10.3390/su142114464.

9. Canepa, M., Mosca, F., Barath, S., Changenet, A., Hauck, T.E., 2022. Ecolopes, beyond greening. A multi-species approach for urban design. Agathòn 11 238. https://doi.org/10.19229/2464-9309/11212022doi.org/10.19229/2464-9309/11212022.

10. Perini K., Barath S., Canepa M., Hensel M., Mimet A., Mosca F., Roccotiello E., Selami T., Sunguroglu Hensel D., Tyc J., Uthaya S., Vogler V., Weisser W., 2021. ECOLOPES: A multi-species design approach to building envelope design for regenerative urban ecosystems. In "Responsive Cities: Design with Nature – Symposium proceedings" 2021. ISBN- 978-84-12-08856-4.

11. Mosca F., Perini K. 2022. Ripensare all'ambiente, in: Architettura e immagini mentali: Processi cognitivi per il progetto dello spazio costruibile nell'era della complessità. pp. 122-127. ISBN-10: 8835138299.

12. Mosca F., Dotti Sani G.M., Giachetta A., Perini K., 2021. Nature-Based Solutions: Thermal Comfort Improvement and Psychological Wellbeing, a Case Study in Genoa, Italy. Sustainability, 13(21), 11638. https://doi.org/10.3390/su132111638.

13. Perini K., Mosca F., Giachetta A., 2021. Urban regeneration: benefits of nature-based solutions. AGATHÓN – International Journal of Architecture, Art and Design, 9. ISSN: 2532-683X.

MEMBERSHIP AND ACTIVITIES IN ASSOCIATIONS

- Member of the EGU for 2024, the European Geoscience Union.
- Member of SITdA, the Italian Society of Architectural Technology.
- First prize winner for the SITdA competition "Un selfie dei territori" focused on potentiality and criticalities of the Italian territory (September 2022).

SOFTWARE SKILLS

- Autocad 2d, 3d Autodesk
- Adobe Suite
- Microsoft Suite
- 3d Studio Max
- Envi-met 5.6.1
- Sketchup
- Rhinoceros – Grasshopper (+ Ladybug Tools, Python in Grasshopper)

LANGUAGES

- Italian: native speaker;
- English: advanced level;
- German: starting level;

In compliance with EU General Data Protection Regulation (GDPR), I hereby authorize you to use and process my personal details contained in this document.

Sincerely,
Francesca Mosca