1. Supervisor

Supervisor:

Roberta Cocci Grifoni – School of Architecture and Design (SAAD), University of Camerino

Section: Technologies for Architecture (CEAR 08/C)

Webpage: https://docenti.unicam.it/pdett.aspx?ids=N&tv=d&UteId=601 ,

https://www.researchgate.net/profile/Roberta-Cocci-Grifoni, https://orcid.org/0000-0002-7092-6293]

Roberta Cocci Grifoni is an Associate Professor in Technologies for Architecture at the School of Architecture and Design, University of Camerino. She holds a MSc degree in Physics from Sapienza University of Rome and a PhD in Applied Physics from the Polytechnic University of Marche, with more than 30 years of experience in environmental applied physics and urban climate analysis. Her research focuses on outdoor environmental quality, energy efficiency in buildings, urban heat island (UHI) assessment and mitigation, nature based solutions for thermal comfort, and data driven approaches for climate adaptation in cities and territories. She has participated in numerous national and European projects (INTERREG, LIFE, PRIN, PNRR, Erasmus+) on climate change adaptation, urban resilience, sustainable landscapes, and climate health interactions. Her work increasingly integrates GIS, CFD simulation, open data, machine learning and AI to support climate sensitive urban and territorial planning. She was a member of international research groups, such as the Bioclimatic Architecture in Sustainable Environments Research Group (ABIO) at the Polytechnic University of Madrid, and of interdisciplinary platforms such as SUSTAINSCAPES. She is a member of the Scientific Council of CIRIAF, the Inter University Research Centre on Pollution and the Environment at the University of Perugia. She also has extensive experience in transdisciplinary teaching and training activities addressing climate change, urban health and equity, and sustainable design.

Total number of publications

Over 120 publications in international and national journals, books and conference proceedings.

Five most significant/recent publications

Naboni E., Marchesani G.E, Cocci Grifoni R. (2026), 3D Façade Geometry as a Dual Passive Control in Hot Urban Canyons: Reducing Street MRT and Cooling Loads,*Building and Environment*, 2026, 114479, ISSN 0360-1323, https://doi.org/10.1016/j.buildenv.2026.114479.

Cocci Grifoni R. , Bernabei M. S., D'Onofrio, R., Marchesani G. E., Khodaparast M., (2025), Local Climate Zone Mapping In Historical Cities: A High-Resolution Tool For Urban Climate Resilience, WIT Transactions on Ecology and the Environment, 2025, DOI: 10.2495/SC250031

Kyprianou, I., Cocci Grifoni, R., et al. (2023). Mitigation and adaptation strategies to offset the impacts of climate change on urban health: A European perspective. *Building and Environment*, Volume 238, 2023, 110226, ISSN 0360-1323, https://doi.org/10.1016/j.buildenv.2023.110226

Cocci Grifoni R., Caprari G., Marchesani G. E. (2022), "Combinative Study of Urban Heat Island in Ascoli Piceno City with Remote Sensing and CFD Simulation – CCUHRE Project", *Sustainability*, 14(2), 688.

Cocci Grifoni R., D'Onofrio R., Sargolini M. (2018), "Quality of Life in Urban Landscapes. In Search of a Decision Support System", *The Urban Book Series, Springer*.

Funded projects and awards (short selection)

Scientific Responsible, INTERREG VI-A Italy–Croatia "CRESCO Adria – Climate RESiliEnt COastal planning in Adriatic", 2024–ongoing.

Scientific Responsible, LIFE AGreeNet "Climate Change Adaptation – Middle Adriatic Green Infrastructure Network", 2021–ongoing.

Scientific Coordinator, PRIN 2022 "MATCHRES – Multidimensional Analysis To Connect Housing Retrofit with Energy Sharing awareness", 2025–ongoing.

Scientific Coordinator for UNICAM, PNRR Ecosystem VITALITY – Task 1.3 "Optimal Scenarios of Indoor–Outdoor Context", 2022–2026

Scientific Responsible in several national and regional projects on climate change, urban health, resilience and sustainable landscapes (CCUHRE, Urban GenHome, VAUTERECO, I-MESH COOL FACADE, etc.).

Awards: Fellow of the Wessex Institute of Great Britain, "Premio Adriatico 2025" for contributions in Architecture and Design and major European projects on climate

Contacts

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2. Research Group and Facilities

Laboratory & Facilities: The School of Architecture and Design (SAAD) offers a solid experimental and data driven environment for MSCA fellows. SaadLab Energy – Environmental and Energy Control Technologies is a laboratory dedicated to assessing indoor and outdoor environmental quality and building performance. It supports research on the thermophysical properties of materials and components, and on environmental control and comfort diagnostics, through a wide range of instruments, including infrared thermographic cameras, heat flux and transmittance meters, thermo hygrometers, microclimatic stations, comfort index meters, luxmeters, acoustic analysers, and CO_2 sensors. The lab is located in Sant'Angelo Magno, Ascoli Piceno, in direct connection with design studios and research spaces. New facilities are being set up within the QuAbit Laboratory, with the ADA Data Observatory as a core infrastructure for urban and territorial data analysis and simulation. ADA will provide a centralised, virtualised environment equipped with high performance servers, GPU resources, and SAN storage, enabling advanced modelling, microclimate and energy simulations, and the development of digital twin like tools for cities and territories. In parallel, ADA Climate Change and Environmental Risk Protection – Cities and Landscapes will integrate web based GIS platforms, climatic databases, monitoring devices and multi surface visualisation technologies to analyse climate hazards and support the design of adaptation and mitigation strategies for small and medium sized cities.

Research Network: The research group around Prof. Cocci Grifoni is embedded in several national and international networks on climate change, urban resilience and sustainable architecture. At UNICAM, she co coordinates the Integrated Research Laboratory, a transdisciplinary platform focusing on urban quality of life, health and climate change adaptation, involving researchers from architecture, environmental sciences,

engineering and health sciences. She is a member of the SUSTAINSCAPES platform (Sustainable Landscapes and Quality of Life), which connects Italian and European universities and research centres working on landscape quality, ecosystem services and territorial resilience. Internationally, she collaborates with universities and institutions in Spain, Portugal, Croatia, and other European countries through projects such as LIFE AgreeNet+, JointSECAP, CRESCO Adria, and Cli CC.HE. She also works closely with public administrations and agencies (e.g. municipalities in the Middle Adriatic area, CIIP S.p.A., and regional authorities) through long term partnerships aimed at developing climate adaptation plans, urban green infrastructure, and digital tools for data driven planning. These networks provide an excellent environment for MSCA fellows, with secondments, co supervision, and exposure to real policy and planning processes.

3. Research Thematic Area/Project Idea

Title of the project:

Climate-Responsive Urban Environments: Data-Driven Adaptation Strategies for Small and Medium-Sized Cities

Macroarea: MSCA Panel: ST – Social Sciences and Humanities / EN – Environmental and Geosciences

Keywords: urban climate adaptation; urban heat island; thermal comfort; nature-based solutions; climate-health nexus; digital twin; urban data observatory; microclimate monitoring; small and medium-sized cities; heritage cities; climate-resilient planning

Project Overview: brief description about the project and its aims
The research targets climate-responsive strategies for small- and medium-sized Mediterranean cities, centring on the preservation and adaptation of historical urban areas. Leveraging UNICAM projects and infrastructure, the MSCA fellow will study how urban form, microclimate, and building performance affect heat exposure and related stressors. Methods include on-site monitoring, numerical simulations, and data analysis through the ADA Data Observatory. The main goal is to test adaptation and mitigation scenarios—such as nature-based solutions, energy retrofits, and digital twin tools—and to create evidence-based guidelines for municipalities and stakeholders. The project blends quantitative modelling with participatory design to support European climate policy and climate-resilient urban planning

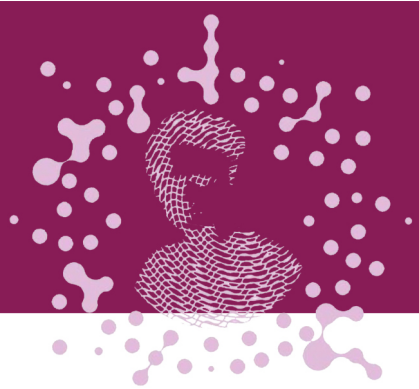
4. Candidate and Career Plan

Expected background of the candidate

The ideal candidate holds a PhD in Architecture, Urban Planning, Environmental Engineering, Applied Physics, or related fields, with demonstrated experience in at least one of the following areas: urban climate analysis, building energy performance, environmental monitoring, GIS and spatial analysis, microclimate or CFD modelling, nature based solutions, or climate change adaptation and mitigation in urban contexts. Experience with quantitative methods, simulation tools (e.g. CFD, energy simulation, microclimate models), and/or data science (open data, big data, machine learning, AI for urban applications) is highly valued. A strong publication record relative to career stage, good command of English, and motivation to work in transdisciplinary and international environments are required.

Competences and knowledge to be developed by the candidate

During the fellowship, the candidate will:



•deepen their expertise in multi scale environmental analysis, combining field measurements, numerical simulation and data analytics for urban climate and building performance;

•acquire advanced skills in the use of virtualised high performance computing environments and data observatories for climate sensitive urban and territorial planning;

•strengthen competencies in designing and assessing nature based solutions and integrated adaptation strategies that link microclimate, energy efficiency, health and social vulnerabilities;

•gain experience in working with local authorities, utilities and stakeholders, translating scientific results into decision support tools, planning guidelines and co designed scenarios;

•develop transferable skills in project management, proposal writing, supervision, communication and dissemination, benefiting from UNICAM's training offer and the networks connected to ongoing European and national projects