



PhD in CONSERVAZIONE DEI BENI ARCHITETTONICI / PRESERVATION OF THE ARCHITECTURAL HERITAGE - 38th cycle

INTERDISCIPLINARY Research Field: INTEGRATED HISTORIC BIM-GIS: DEFINITION OF AN INNOVATIVE MULTI-INFORMATION AND MULTI-SCALE DIGITAL ENVIRONMENT FOR THE CONSERVATION AND ENHANCEMENT OF HISTORIC SETTLEMENTS IN INNER AREAS

Monthly net income of PhDscholarship (max 36 months)
€ 1195.0
In case of a change of the welfare rates or of changes of the scholarship minimum amount from the Ministry of University and Research, during the three-year period, the amount could be modified.

Context of the research activity	
<p>Motivation and objectives of the research in this field</p>	<p>Interdisciplinary PhD Grant</p> <p>The PhD research will be carried out in collaboration with research groups of the PhD programme in "ARCHITECTURE, BUILT ENVIRONMENT AND CONSTRUCTION ENGINEERING".</p> <p>See https://www.dottorato.polimi.it/?id=422&L=1 for further information.</p>
<p>Methods and techniques that will be developed and used to carry out the research</p>	<p>The research aims at defining a method for revamping settlements in inner areas. The method must link architectural and urban heritage physical features with its potentiality of reuse and enhancement in the wider economic and social strategies for repopulation and revamping of a specific area. A novel strategy will be developed to collect information normally provided in BIM using a single geospatial and multi-scale environment typically offered by GIS.</p> <p>The process should include both information at an architectural scale (the single building and its constructive elements) and a territorial scale (main settlement and minor related settlements), also including connections and environment (mobility, accessibility, landscape, and so on).</p> <p>One of the main purposes is merging both the I</p>



	<p>(information) in both acronyms BIM and GIS.</p> <p>The research will consider a new digital environment to develop an integrated BIM-GIS model. On the other hand, the rigid structure of such new platforms and their limitations must be taken into consideration, especially for managing the complexity and the stratification of historical settlements. This will require the development of procedures and strategies to handle complex information related to cultural heritage, hence the coined term Historic BIM-GIS.</p> <p>The second purpose of the research is to integrate a significant variety of data in a single environment where information on economic and productive values of the given territory is gathered together with BIM models and GIS data. The system should harmonize different levels of information through a dialogue between existing geospatial data and new information provided by digital surveys based on innovative techniques such as LIDAR and multi-platform digital photogrammetry.</p>
<p>Educational objectives</p>	<p>In recent years, many research activities concentrated on the possibility of defining parametric models to support strategies for cultural heritage preservation.</p> <p>In the field of historical city center conservation, such kind of application is not uncommon. However, the results reveal the difficulty in managing tools and interpreting data.</p> <p>This problem is probably due to a lack of communication between the experts in the two sectors: digital modeling and cultural heritage preservation.</p> <p>The research's main educational purpose is to establish an essential dialogue and train a researcher who should define a new methodological approach that mediates the two different points of view for a common goal, i.e., the definition and management of multi-scale digital data organized and accessible in a single environment.</p> <p>Furthermore, such a kind of approach could be also extended to other issues strictly connected to historical settlements and scattered architectural heritage, such as unregulated activities, seismic and hydro-geologic risks, and so on.</p>



Job opportunities	<p>Graduates of the PhD programme have often found employment in public sector and conservation institutions, as well as in professional practices and in the business world, in specific specialized fields. PhD candidates from abroad find job in their native countries at University or in Cultural Heritage Institutions.</p> <p>As regards Italy, the relationship with Italian Ministry of Cultural Heritage (Mibact), has been definitely fruitful, especially when we consider that many among the best PhDs in Preservation of Architectural Heritage have been hired as officers and executives to the above ministry: recently many PhD from this Programme won the competitive exam to become public officers in the Ministry of Cultural Heritage and most of them are now responsible in prestigious seats.</p>
Composition of the research group	<p>11 Full Professors 13 Associated Professors 0 Assistant Professors 48 PhD Students</p>
Name of the research directors	<p>Annunziata Maria Oteri; Luigi Barazzetti</p>

Contacts

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Additional support - Financial aid per PhD student per year (gross amount)

Housing - Foreign Students	--
Housing - Out-of-town residents (more than 80Km out of Milano)	--

Scholarship Increase for a period abroad

Amount monthly	597.50 €
By number of months	6

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information

List of Universities, Companies, Agencies and/or National or International Institutions that are cooperating in the research:

- 1.National Technical University of Athens (N.T.U.A.), Greece
- 2.Departamento de Historia del Arte, Universitat de València, Spain
- 3.Department of Architectural Composition, Universidad de Castilla-La Mancha
- 4.École Nationale supérieure d'architecture de Paris-La Villette (ENSAPLV), France
- 5.Faculdade de Arquitectura da Universidade do Porto, Portugal
- 6.Université Paris I - Pantheon - Sorbonne, Parigi, France
- 7.Universidad de Sevilla, Departamento de Historia de América, Spain
- 8.ISPC-CNR Istituto di Scienza del Patrimonio Culturale (Italy)
- 9.ISCR Istituto Superiore per la conservazione e il restauro (già ICR), Roma

Educational activities (purchase of study books and material, funding for participation in courses, summer schools, workshops and conferences): financial aid per PhD student per year ("DOTE"):

1st year: max 1.624,30 euro

2nd year: max 1.624,30 euro

3rd year: max 1.624,30 euro

Teaching assistantship (availability of funding in recognition of supporting teaching activities by the PhD student)

There are various forms of financial aid supporting the teaching practice.

The PhD candidate is encouraged to take part in these activities, within the limits allowed by the regulations.

Computer availability:

In the PhD candidates room are available workstations for shared use, connected with the printer



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All the PhD students can use their own laptop with the wireless connection.
Workstations and other equipment are available in the various laboratories linked with the doctoral programme.