



PhD in DATA ANALYTICS AND DECISION SCIENCES - 40th cycle

THEMATIC Research Field: O2S2 FOR NETWORK DOMAINS

Monthly net income of PhDscholarship (max 36 months)
€ 1400.0
In case of a change of the welfare rates during the three-year period, the amount could be modified.

Context of the research activity	
Motivation and objectives of the research in this field	<p>The statistical analysis of spatial data over non-Euclidean regions poses significant challenges, especially in environmental applications where data often span complex domains like river networks, lakes, mountainous terrains, or urban areas.</p> <p>This PhD research program focuses on developing innovative statistical methods and algorithms for analyzing and predicting complex data such as functional data, distributions, and time-series data on spatial domains with network or grid structures.</p>
Methods and techniques that will be developed and used to carry out the research	<ol style="list-style-type: none"> 1. Object Oriented Spatial Statistics Spatial: Handling spatial dependencies in environmental data. 2. Geostatistics on Networks: Modeling for networked structures like river systems. 3. Non-Euclidean Spatial Models: Representing complex spatial domains. 4. Computational Algorithms: Efficiently processing large datasets. 5. Spatio-Temporal Modeling: Understanding dynamic environmental processes.
Educational objectives	<p>The doctoral student is expected to develop multidisciplinary expertise in the fields of Statistical Learning and Object Oriented Spatial Statistics. The</p>



	research will also involve scientific interactions with Polis, the institution financially supporting the fellowship, on the analysis of environmental data of Lombardy. Milano.
Job opportunities	As georeferenced complex data are becoming available and need to be analyzed by a wide range of public and private institutions, the profile of data scientist expected to be formed by this research program is expected to be of interest to different research centers both at the national and the international level.
Composition of the research group	1 Full Professors 1 Associated Professors 0 Assistant Professors 2 PhD Students
Name of the research directors	Prof. Piercesare Secchi

Contacts

Prof. Piercesare Secchi
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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	700.0 €
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:

Polis Lombardia: <https://www.polis.lombardia.it/wps/portal/site/polis>

Additional support

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:

1st year: max 1.902,38 euro per student

2nd year: max 1.902,38 euro per student

3rd year: max 1.902,38 euro per student

Teaching and lab assistantship: availability of funding in recognition of supporting teaching and lab activities by the PhD student.

Further support is available for students who engage in activities of teaching or additional lab duties coherent with their academic mission and doctoral training.

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

Computer availability:

1 st year: individual use

2 nd year: individual use

3 rd year: individual use

Desk availability:

1 st year: individual use

2 nd year: individual use

3 rd year: individual use