

Politecnico di Milano

PhD in Mathematical Models and Methods in Engineering

Research Title: Statistical computing for massive data management and analysis

Research Field: Data Science / Applied Statistics

Scholarships and Financial support	
Monthly net income of PhD scholarship (max 36 months)	€. 1.400,00 / month (In case of a change of the welfare rates during the three-year period, the amount could be slightly modified)
Number of scholarships	1
Beginning of PhD	February 2018
Deadline for application	05 December 2017
Context of the research activity	
Motivations and objectives of the research in this field	Life sciences create a huge amount of data and information stored in different data warehouses, with immense potential for statistical learning. If properly exploited, managed, and integrated, this information and data may drive the evolution of epidemiology, clinical studies, and personalized medicine. The collection of heterogeneous datasets for integrated analysis is increasingly necessary to answer large-scale questions concerning, for example, citizen wellbeing and disease progression. Since data sources are characterized by different space and time distributions, efficient data platform methods are needed to integrate and query such widely varying data warehouses.
Methods and techniques that will be developed and used to carry out the research	The project will develop statistical computational methods aimed at handling both the multidimensional nature of outcomes of interest and the multiscale structure of integrated data.
Educational objectives	The PhD track associated with this grant will be carried out in close collaboration with the <i>Data Science</i> programme in Bologna. In particular, the main part of the doctoral courses will be organized at the Fondazione Golinelli, Bologna. After successful completion of the PhD career at Politecnico di Milano, candidates will be offered a 1-year grant to complete their PhD path with a fourth year at the Università di Bologna, after which they can obtain a second PhD diploma in <i>Data Science</i>. The present research will be carried in collaboration with the team of applied statisticians working in the Center for Analysis Decision and Society of the Human Technopole infrastructure. Within this lively and stimulating academic and research environment, the doctoral student will be educated to become a skilful data scientist exposed to theoretical and applied statistical problems that are moving the frontier of the discipline.

Job opportunities	As Data Sciences are increasingly adopted by all companies in all industrial sectors, the demand for data scientists and analytics experts continues to outpace supply and dominates both the US and the European job market.
Composition of the research group	Web-page of the research group: https://statistics.mox.polimi.it Number of Full Professors: 1 Number of Associated Professors: 3 Number of Assistant Professors: 2 Number of Post-Docs: 2 Number of PhD students: 10 Number of contracted researchers: 0
Names of the research directors	Piercesare Secchi
E-mail address, phone number and web-page	e-mail: piercesare.secchi@polimi.it phone: +390223994592 web-page: https://www.mate.polimi.it/?view=pp&id=85&lq=it
List of Universities, Companies, Agencies and/or National or International Institutions that are cooperating in the research	1. Università degli Studi di Bologna 2. Fondazione Golinelli, Bologna 3. Consorzio Universitario CINECA 4. Istituto Italiano di Tecnologia
Additional support	
<u>Housing:</u> financial aid per PhD student per year (gross amount)	<u>Foreign students* inserire solo se rilevante</u> 1 st year: 1500 euros per student (max number of financial aids available 3, given in order of merit)
<u>Funding for educational activities</u> (purchase of study books and material, funding for participation to courses, summer schools, workshops and conferences): funding per PhD student per year	<i>A minimum endowment of € 2.740,00 is granted to cover the expenses of research activities of PhD candidates during their career.</i>
<u>Teaching assistantship:</u> availability of funding in recognition of support to teaching activities by the PhD student	There are various forms of financial aid for activities of support to the teaching practice. The PhD student is encouraged to take part in these activities, within the limits allowed by the regulations.
<u>Computer availability:</u>	1 st year: <i>individual use</i> 2 nd year: <i>individual use</i> 3 rd year: <i>individual use</i>
<u>Desk availability:</u>	1 st year: <i>individual use</i> 2 nd year: <i>individual use</i> 3 rd year: <i>individual use</i>