



PhD in INGEGNERIA GESTIONALE / MANAGEMENT ENGINEERING - 39th cycle

**PNRR 117 Research Field: ARTIFICIAL INTELLIGENCE METHODS FOR DATA-DRIVEN
POLICY MAKING**

Monthly net income of PhDscholarship (max 36 months)

€ 1450.0

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**

The huge amount of structured and unstructured data calls for the development of effective automatic tools based on artificial intelligence (AI) for their analysis and the extraction of useful knowledge in a variety of fields. AI-based algorithms have been used in a variety of applications, including product design optimization, products or services demand forecasting, employee productivity or customer satisfaction improvement. But AI could be used also for the public good: in a fast and ever more complicated world, AI algorithms could play a positive role in improving the quality of public policy by providing real time analysis of complex socio-economic phenomena with both structured and unstructured data, helping decision makers to make sense of the overwhelming quantity of information and data now available. This research, in collaboration with The European House - Ambrosetti, will be aimed at investigating the opportunity of developing and applying AI-based tools for the categorization of textual data to produce useful knowledge for policy makers and business leaders, collecting structured and unstructured data from a variety of sources, including publicly available databases (national and international institute of Statistics, international organizations, central banks, NGOs, ...), relevant academic literature, reports from major international institutions, blog posts and other relevant sources, both private and public. The results of the text classification activity will be combined with the analysis of



	structured data to offer an enhanced data-driven decision-making process to policy makers in a variety of domains, including analysis of macroeconomic phenomena, technology trends, sustainability issues, and societal challenges. Such tools and the knowledge produced could also help the private sector, particularly risk managers and strategy functions, to rapidly adapt and react to a continuously shifting global competitive landscape.
Methods and techniques that will be developed and used to carry out the research	The research will be focused on the development and the application of artificial intelligence algorithms and methods for the analysis of texts and structured data. Specifically, the project is aimed at designing and implementing AI-based tools to enable and support data-driven decision-making. This goal will be pursued through the development of algorithms for the automatic collection of textual and structured data from different sources, such as, publicly available databases, journals, blogs; the design of AI-based methods for text classification; the use of data visualization tools able to offer integrated views between the collected data and the results of the textual categorization task.
Educational objectives	The present research has, among others, two prominent educational objectives. At a general level, the candidate will learn how to design and carry out a solid research project leading all the phases, from the literature review to the development and the validation of novel techniques. More specifically, the candidate will acquire strong skills in the context of data science and artificial intelligence, by investigating state-of-the-art methods for text analysis and classification and eventually improving their effectiveness for the application domain at hand. Data visualization capabilities will be also developed.
Job opportunities	The research project will provide the candidate with advanced skills in the context of data science and artificial intelligence, which nowadays are among the most requested competences by private and public companies and organizations, as well as by universities.
Composition of the research group	0 Full Professors



	1 Associated Professors 0 Assistant Professors 1 PhD Students
Name of the research directors	Carlotta Orsenigo

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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	725.0 €
By number of months	6

National Operational Program for Research and Innovation	
Company where the candidate will attend the stage (name and brief description)	The European House – Ambrosetti S.p.a.
By number of months at the company	6
Institution or company where the candidate will spend the period abroad (name and brief description)	
By number of months abroad	6

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information
The candidate will have access to a working space at the Department of Management, Economics and Industrial Engineering and will attend all the educational activities and the PhD Courses offered by the PhD Program in Management Engineering.