POLITECNICO DI MILANO

PhD in INGEGNERIA DELL'INFORMAZIONE / INFORMATION TECHNOLOGY - 39th cycle

Research Area n. 1 - Computer Science and Engineering

THEMATIC Research Field: DEVELOPMENT OF IT METHODS AND TOOLS TO IDENTIFY AND REDUCE DISCRIMINATION IN DECISIONS BASED ON DATA ANALYSIS

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	The increasing use of data-driven decision support systems, in industry and government, is accompanied by the discovery of a plethora of inequality and discrimination issues in the outcomes of these systems.To date, most of modern technology is based on data and, in order for it to be considered reliable and profitable, the data on which Data Mining and Machine Learning algorithms are applied must meet quality requirements. Among the dimensions of data quality, the ethical dimension is also of fundamental importance, represented by fairness and the absence of prejudices.
Methods and techniques that will be developed and used to carry out the research	The PhD student's activity will focus on the design of a framework, both theoretical and practical, to be made available to Data Analysts, which can identify disparities (e.g., wages) in the data relating to citizens.
Educational objectives	The PhD student will become an expert of the "pipeline" (sequence of operations) that starts from data collection, performs all the pre-processing activities necessary to increase Data Quality, then by means of Data Mining and Machine Learning techniques identifies ethical problems.
Job opportunities	Nowadays. many decisions are based on data, and the PhD graduate will have acquired significant skills and

	experience of data analysis techniques in the fields of Statistics, Data Mining and Machine Learning, as well as knowledge of control and problem solving of quality and ethics of data useful in the pre-processing phase.
Composition of the research group	2 Full Professors 0 Associated Professors 0 Assistant Professors 3 PhD Students
Name of the research directors	Letizia Tanca, Francesco Amigoni

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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
EDUCATIONAL ACTIVITIES (purchase of study books and material, including computers, funding for participation in courses, summer schools, workshops and conferences): financial aid per PhD student 5.095,96 Euro TEACHING ASSISTANTSHIP: (availability of funding in recognition of supporting 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. COMPUTER AVAILABILITY: individual use DESK AVAILABILITY: individual use

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