POLITECNICO DI MILANO

PhD in DATA ANALYTICS AND DECISION SCIENCES - 38th cycle

PARTENARIATO PNRR Research Field: DATA-DRIVEN AND LEARNING-BASED DESIGN OF DIVERSITY-AWARE AND INCLUSIVE TECHNOLOGIES

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	Data-based and smart technological systems are not intrinsically neutral. Biases due to prejudices related to the social identity of individuals are becoming more and more relevant, and can undermine both their design and their usage. At the same time, especially with reference to sustainable technology solutions, their success is strongly tied to mass adoption, which may occur only if such technology is inclusive, fair and respondent to the socio-economic characteristics of its intended users. Such characteristics must be appropriately represented within an intersectional framework that defines diversity as the combination of social variables describing each individual. Making technology an active means for the enforcement of social justice and the reduction of inequalities is fundamental to meet the goals of the EU-promoted ?Just transition?, which intertwines environmental sustainability goals with social development and inclusion.The objectives of the research are to frame methods and tools to define, model and quantify fairness objectives in technological contexts and their impact on different individual diversity dimensions, with particular reference to data-driven and intelligent systems.Applications of the framework will be carried out focusing on significant and representative case-studies, with particular attention to smart mobility. •**CUP:** D43C22001410007

	•Decreto di concessione: D.D. 1055 del 23/06/2022
Methods and techniques that will be developed and used to carry out the research	A theory of human-centered and diversity-aware design of technological systems does not exist yet. To build this new vision, the research program will need to appropriately combine domain-specific competencies of the considered technological context with machine-learning and dynamic, control-oriented decision-making tools that will be combined and appropriately extended. This will be possible also thanks to the supervisory team that blends technological and quantitative competencies with humanities.
Educational objectives	The candidate will have a unique opportunity of working in a multidisciplinary team participating to the Spoke 6 of the MUSA ecosystem, blending all competencies needed to address the challenging and timely research topic presented above. This entails a growth path for the candidate that will make her/him acquire different competencies – mainly technical and technological in the disciplines mentioned in the methodology description, but also considering the socio-technical nature of the considered problem, which is key to proposing effective solutions. The research outputs will target publishing on international conferences and journals, with specific attention to all the venues of interest for the different facets of the research.
Job opportunities	Expertise in data analysis, machine-learning and dynamic decision making certainly makes all DADS PhD candidates very appealing for a wide range of high-end positions. These range from the more data-science oriented, to those more related to policy design. Thus, our candidates might apply for positions both in technical companies and in public institutions or academia.
Composition of the research group	2 Full Professors 3 Associated Professors 2 Assistant Professors 25 PhD Students
Name of the research directors	Mara Tanelli, Licia Sbattella

Contacts
The research group in which the principal advisor, Prof. Mara Tanelli works is the MoVE group (https://www.move.deib.polimi.it/) which is currently composed of 2 full professors, 3 associate 2 post-docs, 30 AdR, and 25 PhD students. **Contacts** •Prof. Mara Tanelli mara.tanelli@polimi.it Phone: +30 02 2399 3621 (Mara Tanelli) http://tanelli.faculty.polimi.it/ •Prof. Licia Sbattella https://www.deib.polimi.it/ita/personale/dettagli/359120

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
All the partners of the MUSA ecosystem can be potentially involved in the research, see •https://www.mur.gov.it/sites/default/files/2022-06/22_06_28%20Scheda_ecosistema_MUSA_PNRR_MUR.pdf 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.