POLITECNICO DI MILANO

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

Research Area n. 1 - Computer Science and Engineering

PNRR 118 INTERDISC Research Field: PROCESS MINING FOR THE JUDICIARY

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 aim of the research is to develop innovative process mining techniques to identify the main factors that lead to lengthening of civil judicial proceedings, as a premise for defining methods and policy proposals aimed at reorganizing the work of judicial offices (appeal courts and courts) and the improvement of the justice service for citizens. The domain of interest is in the context of the conduct of civil proceedings at the Court of Milan and the Court of Appeal of Milan.
Methods and techniques that will be developed and used to carry out the research	The methods and techniques to be developed will combine new advanced process mining techniques, aimed at identifying critical events, their classification and the development of new predictive techniques, considering both the available event logs and the analyses based on interviews and data statistics taken into consideration in the field of work organisation. The doctoral research will be mainly aimed at identifying the delaying factors in the context of work processes (both for the part of the chancelleries and for the phases managed by the magistrates) and at proposing various types of solutions in digitised processes that can be applied in a semi - automatic to a wide range of processes.
Educational objectives	The research will develop research skills in the areas of process mining, data analysis, prediction techniques

	based on machine learning. In addition, transversal skills will include complex project management, ability to interact and discuss results within academia and with stakeholders, decision making and team work.
Job opportunities	The competences acquired during the thesis provide the basis to work both in public administration and private organisations, providing highly requested skills in information management, data analysis, and machine learning, as well as to continue research in academic institutions.
Composition of the research group	1 Full Professors 1 Associated Professors 0 Assistant Professors 0 PhD Students
Name of the research directors	Pernici Barbara

Contacts
E-mail: barbara.pernici@polimi.it Tel: 3526 https://pernici.faculty.polimi.it/

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

National Operational Program for Research and Innovation	
Company where the candidate will attend the stage (name and brief description)	Corte d'Appello di Milano
By number of months at the company	6
Institution or company where the candidate will spend the period abroad (name and brief description)	Università di Tartu, Estonia
By number of months abroad	6

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information
The length of trials has a significant impact on society and on many economic activities. The

research goal is to investigate about the causes impacting trials durations in courts, starting from an in depth analysis of trials data available from process registries and investigating about the work organization, measuring indicators based on process mining techniques and developing prediction techniques, with the aim to propose possible improvements.

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
5.707,20 Euro per student

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.