EUROPEAN DOCTORAL NETWORK

CALL FOR RECRUITMENT

RESEARCH FIELD: Statistics

RECRUITING ORGANISATIONS: The MSCA Digital Finance brings together a diverse network of academic institutions, research centers, and industry partners across Europe. This collaboration ensures a multidisciplinary approach and allows for a wide array of research topics within digital finance. For more details about DIGITAL's partners, please check About Us | MSCA Digital (digital-finance-msca.com)

All recruiting research and academic organization are fully equipped with human resources, administrative, research, technical and academic staff essential for supporting the recruited PhDs during their career development.

OVERVIEW OF THE RESEARCH AND TRAINING OBJECTIVES. DIGITAL will specifically train young researchers in R&D topics that cover the multiple disciplines required in the rapidly evolving field of Digital Finance substantially going beyond the traditional Finance PhD education in a wide range of inter-sectoral applications: data quality, Artificial Intelligence (AI) and Machine Learning (ML), Explainability of AI (XAI), Blockchain applications and Sustainable Finance.

MSCA Digital Finance aims to integrate advanced research and training in the field of digital finance. The primary goal is to foster the development of next-generation researchers and professionals who can contribute significantly to the digital finance sector. This initiative is designed to bridge the gap between academia and industry, ensuring that PhD candidates are well-equipped with both theoretical knowledge and practical skills relevant to the rapidly evolving digital finance landscape.

The program receives substantial funding from the European Horizon framework, underscoring the EU's commitment to advancing research and innovation in digital finance. This financial support is instrumental in facilitating collaborative research, offering scholarships, and providing state-of-the-

art resources and opportunities for participants. The program is designed to produce a significant impact on both the academic and industrial sectors in digital finance. Graduates of MSCA Digital Finance are expected to emerge as leaders and innovators, driving forward the digital transformation in the financial industry, enhancing the competitiveness of the European digital finance sector on a global scale.

For more information, please visit the page: https://www.digital-finance-msca.com/.

OFFER DESCRIPTION. For this position we are looking for a highly motivated and creative Ph.D. candidate interested in advanced statistical modelling with application in AI-based systems in finance. From a methodological point of view, the candidate will have to deal with statistical models capable of processing complex data systems. In particular models for categorical longitudinal and multilevel data. From an application perspective, financial decision-makers and AI model builders do not understand the capabilities of XAI or the impact of ESG on society and the economy. This project promotes dialogue and knowledge transfer between these fields. It facilitates innovation and collaboration between AI, sustainable finance and ESG technologies. During the project, the candidate will closely collaborate with industry and a doctoral training network spread throughout Europe, including extended research stays abroad.
The successful applicant will join the Dep. of Political Science, University of Naples Federico II.

This Ph.D. position is the one of the two positions at the University of Naples Federico II and one of 19 in the context of the international Marie Skłodowska-Curie Actions project DIGITAL. For the general description of the other Ph.D. positions, please check https://www.digital-finance-msca.com/.

THE CHALLENGE. Within this IRP, the candidate will explain the inner workings of algorithms and their interpretation is entirely dependent on the target audience. The existing literature fails to match the growing number of explainable AI (XAI) methods with the varying explainability requirements of stakeholders. To promote the widespread adoption of AI-based systems in finance, additional research is required to map the requirements of explainable systems across the various stakeholders in the finance industry

Among the expected results, we mention the development of advanced statistical models that can solve part of the research questions promoted by public sector and the private sector (banks and FinTechs companies).

The description here focuses on the specific position " Towards Explainable and Fair AI-Generated Decisions **(IRP 9)" (mainly included in objective 1 – WP3 Explainable and fair AI), outlining the project's key take aways and desired skillset of prospective candidates.**

BENEFITS. As a PhD student, you will have the opportunity to work in a diverse environment, strongly connected to the business sector. Your main benefits:

- very attractive salary plus an allowances package in accordance with the Marie Skłodowska-Curie Actions (MSCA) rules and the personal circumstances of the applicant.

- Get the PhD diploma in the oldest, largest and most performant Italian university.

- This PhD position includes two research stays at industrial partners: Swedbank AB (SWE), and Fraunhofer Institute (FRA), as described here: https://www.digital-finance-msca.com/audience-dependent-explanations

DOCTORAL CANDIDATES' ELIGIBILITY CRITERIA. The Call for recruitment is open to Doctoral Candidates (DC) of any nationality, age and gender that respect all the following eligibility rules at the date of the Call deadline:

MSCA Eligibility requirements	Applicants must satisfy the MSCA definition of Doctoral Candidates (DC): "All researchers to be recruited must be doctoral candidates and have not been awarded a doctoral degree at the time of the Call deadline (i.e. not already in possession of a doctoral degree)". Researchers who have successfully defended their doctoral thesis but who have not yet formally been awarded the doctoral degree will not be considered eligible.
MSCA Mobility requirements	Applicants must not have lived or carried out their main activity (e.g. study, work, research) in their main PhD host school and recruiting country/organisation for more than 12 months in the past 3 years immediately prior to the Call deadline. Compulsory national service and/or short stays such as holidays are not taken into account. Less restrictive mobility rule: The time spent in applying for refugee status or found refuge in Europe in accordance with the 1951 Geneva Convention and the 1967 Protocol and career breaks for compulsory military service and vacation leave will not be taken into account.
DIGITAL Academic qualifications and skills	- Master's degree in Statistics, Business, Economics, Engineering, Information Technology, Computational Science or related fields; - A strong passion and outstanding skills in data science and experience working with programming languages and statistical software such as Python, R, Stata or SAS; - Knowledge on quantitative modelling of financial markets or in economics, econometric techniques, machine learning or quantitative empirical research methods; - The ability to work on real-world problems in an interdisciplinary and internationally oriented environment; - Good programming skills. Experience with machine learning libraries (e.g., TensorFlow, PyTorch, Jax) is helpful. - A sound statistics background. - Good Finance knowledge.
DIGITAL Proof of English	Excellent command of English.

CALL PLANNING:

Activity	Dates
Call opening	14.05.2024
Call closing	20.06.2024
Eligibility check and evaluation of candidates	21.06.2024 – 22.07.2024
Interview	04.09.2024 – 13.09.2024.
Final ranking list	September
Offer of contract /Enrolment of successful candidates in a doctoral course/ starting of the fellowships	From 01.11.2024
Duration of each fellowship	36 months (with a full-time employment contract)

HOW TO APPLY. Applications should be submitted via email to leonese@unina.it, with a cc to ludovicamariafrancesca.danna@unina.it, and the subject line should read "APPLICATION MSCA DIGITAL IRP 9", by the given deadline. In order to be eligible, the online application form must be submitted together with a set of due application documents, each using the templates provided at the same link of this notice.

Furthermore, you must send an academic record with scan of the degree qualifications (Documents proving your educational level and field of study) and a copy of your passport/ID.

ABOUT THE DEPARTMENT. The Department of Political Sciences promotes research methodologies able to emphasize an interdisciplinary approach, experimenting its potentials with respect to a variety of themes that are well suited to be studied by historians, geographers, economists, statisticians, psychologists, demographers, sociologists, jurists, philosophers and linguists with the help of the experts on the languages. Among these issues we particularly remark the insights concerning the methodologies of: data investigation, welfare and its recent transformations, local development, sustainability, market regulation, the role of macroeconomic and monetary policies, migration, identity and cooperation, explanatory and predictive models of economic and social behavior, evolution of national, European and international relations and institutions, crime dynamics.

ABOUT THE ORGANIZATION. The University of Naples Federico II was founded in 1224 by an Imperial Charter from Frederick II Hohenstaufen, King of Sicily and Holy Roman Emperor, making it Europe's first publicly funded university. Today, it offers 155 graduate-level degrees across all academic disciplines, with research facilities supporting these programs. The university has nearly 86,000 students and 2532 academic staff members. It consists of three Schools and 26 Departments, each contributing to teaching and research. Additionally, it includes fourteen specialized Museums, two botanical gardens, and a central library connected to division and school libraries. Seventeen inter-departmental research centers and twenty-one service and study centers

further enrich the academic environment. The university fosters a vibrant student community through over fifty active student associations, promoting diverse cultural and social initiatives.

FURTHER INFORMATION AND CONTACT.

Please visit DIGITAL website at https://www.digital-finance-msca.com/

Additional information can be acquired via email from the PhD supervisor Prof. Maria Iannario (maria.iannario@unina.it) with a cc to Prof. Jorg R. Osterrieder (jorg.osterrieder@utwente.nl).