Instituto Superior Tecnico (IST), Lisbon, Portugal

Avenida Rovisco Pais, 1, 1049-001, Lisbon, Portugal
Marie Skłodowska-Curie Actions, Doctoral Candidate
Deadline for applications: June 4th, 2023
Expected starting date: November 1st, 2023

Job description:
The job is a full time position for Doctoral Candidate (DC) in the field of **Green Regeneration of urbanized waterfronts (GRUW).** The goals are to improve public health and safety, through green regeneration of coastal areas and riverfronts/delta regions challenged by rising sea levels and flooding. The expected results addressing urban, environmental, socio-economic, and landscape issues through participatory approaches and advanced scenario modelling.

Job duration: 36 months

Main research field: Urban Planning

Research subfield: Innovative Public Spaces based on NBS/GBI.

Institution description:
Instituto Superior Técnico (IST) is the largest and most reputed school of Engineering, Science and Technology in Portugal. Since its creation in 1911, IST's mission is to contribute to the development of society by providing top quality higher education, at undergraduate and postgraduate levels, as well as developing Research, Development and Innovation (RD&I) activities to allow it to provide teaching in line with the highest international standards. The structure consists of 10 departments (academic units), in the areas of Bioengineering; Civil Engineering, Architecture and Georesources; Electrical and Computer Engineering; Nuclear Sciences; Engineering and Management; Computer Science; Mechanical Engineering; Chemical Engineering; Physics and Mathematics.
IST is involved with some of the most prestigious RD&I and technology transfer institutions in Portugal, with remarkable impact internationally in many scientific and technological domains. Internationalization has been defined as a key strategic goal over the past few years with increasing number of international students and staff as well as an increasing participation in international academic networks. Through a large number of agreements with other institutions worldwide, participates in more than 25 Dual Master programmes, and joint PhD programmes with MIT, CMU, UT-Austin and EPFL, thus promoting a highly modern and culturally diverse society.
Research at IST is organised in Centres and Institutes that pursue challenging research programmes with a strong social impact in the fields of Architecture, Engineering, Science and Technology. The research centres are recognised at national and international level, working in multiple areas of scientific knowledge.

Working place
The project will take place at Laboratory of Planning, Urbanism, Architecture and Environment (GEOTPU.LAB) on the Campus da Alameda in Lisbon of the Instituto Superior Técnico of Universidade de Lisboa. The DC will have access to all the lab facilities and services as well as to the local Department administrative offices. A number of secondments in the VUB (Vrije Universiteit Brussels) with Prof. F. Canters and at the Teixeira Duarte, SA, in Oeiras with Engineer L. Esteves. The DC will understand Climate Changes impact in urban areas, and develops a Geodatabase for spatial analysis of features dataset and BIG data on 2D and 3D scenarios and test strategies to promote the regeneration of urbanized waterfronts.

This project has received funding from the European Union's Horizon Europe research and innovation programme under the Marie Skłodowska-Curie grant agreement No 101073437.

Project description

The main objective of the project is to research new solutions to conceive an integrated system of built-up and open spaces that, powered by green technologies and NBS/GBI, allows both the design and the regeneration of resilient, safe and health-promoting environments for everyone, while addressing climate change and post-pandemics challenges. Despite the growing interest in studying the ability of such green systems to reduce GHG emissions, adapt to climate change, improve air quality and reduce the heat island effect, most studies evaluate their benefits and performance only during the use phase. GreeNexUS will assess the overall environmental performance of green infrastructure and systems, in a life cycle perspective, combining modelling and simulation and Life-Cycle Thinking. By providing quantitative data on the benefits of these green systems, the project will help planners, designers and policy makers in evidence-based decision making and in targeting interventions in a more cost-effective and sustainable way. Increased sea level and frequency in flooding events related to climate change is usually addressed as an environmental problem to be faced through technological and management solutions. The project will approach such topical challenge as an opportunity to rethink urban environments, combining safety requirements with strategic urban regeneration interventions improving accessibility to high quality open spaces, integrated in the urban fabric. Providing guidelines and best practices will support local agents' decisions about how, when and where green regeneration of waterfronts should be prioritized, as well as enhance public participation, also through digital interactive platforms and geo-design tools simulating different scenarios for more resilient, green and healthy waterfronts. The construction sector is increasingly adopting low-carbon buildings and infrastructure, also integrating NBS/GBI. The project will contribute to boosting the application of green systems in the building sector by applying the innovation potential of the BIM approach to green infrastructure.

Benefitting of the complementary expertise of academic institutions and a leading construction company, the win-win scenario will allow the construction sector to become greener and more competitive and efficient, and public administrations to plan urban developments and regeneration based on more standardized expected impacts on urban quality.

The candidate research as the follow objectives: Designing climate-change transition pathways and policies for a planned adaptation of urbanized waterfronts to improve public health and safety, through green regeneration of coastal areas and riverfronts/delta regions challenged by rising sea levels and flooding. Addressing environmental, socio-economic, and landscape issues through participatory approaches and advanced scenario modelling.

The project tasks are: Task 5.1: review of literature on the socio-economic and environmental distributional impacts of sea-level rise and flooding on land/property and public infrastructures in urbanized waterfront areas and delta river regions, and consequent health and safety challenges.

Task 5.2: collect and review benchmarks on best practices adopted in green regeneration projects associated with urbanized waterfronts. Task 5.3: developing a Geodatabase for the spatial analysis of features datasets and BIG data from satellites and 2D/3D scenarios based on green design strategies to promote the regeneration of urbanized waterfronts, combining increased safety of the urban environment and new opportunities for outdoor recreation and improved quality of life, and considering the Protect, Accommodate and Retreat IPCC models.

Task 5.4: transferring the 2D/3D scenarios into digitalization opportunities within the context of public participation and policymaking practice, on European cases studies.

Marie Skłodowska-Curie Doctoral Network GreeNexUS

In our increasingly anthropised planet, many cities are facing multiple societal and environmental challenges and the link between the characteristics of the urban green contexts and people's health and safety represents an emerging topic and of urgent importance. Air pollution and urban climate, reduced contact with nature, limited access to quality green spaces, and urban fabrics and

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infrastructure that discourage sustainable&safe mobility and active lifestyles, are threatening the mental and physical well-being of an aging society and increasing its social disparities. The GreeNexUS project proposes a novel and multidisciplinary approach to promote urban greening, territorial regeneration and safety/accessibility/walkability of urban infrastructures, as key strategies to face those challenges, while addressing climate change and preventing pandemics from exacerbating inequalities in disadvantaged/vulnerable groups. The GreeNexUS participants (20 institutions from 9 European countries) are joining forces to offer a collaborative Training-through-Research programme involving universities, research centres, companies, NGOs, and local authorities that share this new vision of fostering greener, healthier and safer urban realms of Europe's cities and towns. This will drive the GreeNexUS process to train specialists, whose cutting-edge and intersectoral expertise will be developed and managed through a challenging general programme of training that combines and integrates the various fields of innovative knowledge of the GreeNexUS' participants, and also includes career planning, entrepreneurship and soft skills training. In terms of research, 10 specific and multidisciplinary topics will be addressed by 10 Doctoral Candidates, who are envisaged to spread the GreeNexUS approach beyond the project's scope and duration, under the guidance of a supervisory group of academic and non-academic experts.

Candidate profile

The candidate is required to have a master's degree in Architecture or Environmental Engineering giving access to the PhD school and NOT to hold any PhD degree. Previous research experience, (which must be no longer than 4 years), although appreciated, is not mandatory. Good oral communication skills in English is compulsory. Willingness to travel internationally for the purpose of research, training and dissemination is mandatory.

Eligibility requirements

DC appointments are full-time fixed term for 36 months. Candidates matching the required profile will be evaluated until a successful candidate is appointed. There are strict eligibility rules associated with the recruitment of Doctoral Candidates in MSCA Doctoral Networks.

Career: At the time of recruitment, the DC must hold a Master degree or equivalent degree giving access to PhD and not more than 4 years of previous research activity. A PhD degree in any field is not compatible with this DC position.

Mobility: Transnational mobility is an essential requirement of Marie Skłodowska-Curie Doctoral Networks. At the time of recruitment, the DC must not have resided in Portugal for more than 12 months in the 3 years immediately prior to the recruitment date and not have carried out in Portugal his/her main activity (work, studies, etc.). Applicants must be prepared for a secondment for a total of 4 months at VUB (Belgium), and another secondment for at least 2 month at TEIXEIRA DUARTE in Portugal.

Language: A good knowledge of spoken and written English is required and will be evaluated during the selection process.

How to apply

Applicant shall provide the documentation listed in the corresponding Application Form. The documents shall be sent by e-mail to both the following address: cesare.sangiorgi4@unibo.it (Project Coordinator) AND miguelpamado@tecnico.ulisboa.pt (Main Supervisor). A confirmation message will be sent upon submission.

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Evaluation and interview
The selection process will consist of CVs, motivation and records evaluation and an interview (additional interviews could be required). The interview to assert the skills, the motivation and the fluency in English, will take place at the host institution or, for those candidates who are not able to travel to Lisbon (Portugal), by internet connection. The candidates will be ranked according to both their records and the interview. The candidate at the highest-ranking position will be offered the position. If, for any reason, the selected candidate will decline the offer or will fail to comply with the requirements for enrolment in the position, the one following in the list will be selected. More details on the selection process could be found on https://greenexus.unibo.it/ and on https://euraxess.ec.europa.eu/.

Rights and responsibilities of researchers participating in Marie Skłodowska-Curie Actions
The European Charter for Researchers is a set of general principles and requirements, which specify the roles, responsibilities and entitlements of both researchers and the employers and/or funders of researchers. The aim of the Charter is to ensure that the nature of the relationship between researchers and employers or funders is conducive to successful performance in generating, transferring, sharing and disseminating knowledge and technological development and to the career development of the researchers. It is obligatory for applicants to read and understand the detailed information regarding the rights and responsibilities of researchers engaged in a Marie Skłodowska-Curie Doctoral Network. The European Charter for researchers can be accessed at: https://euraxess.ec.europa.eu/jobs/charter/european-charter

Employment contract and remuneration
The selected candidate will be appointed under a 36-months full-time employment contract with full social security and fiscal coverage, as foreseen by the Portuguese national legislation. The remuneration will be compliant with the rules of the MSCA-DN, as by the Marie Skłodowska-Curie Actions Work Programme 2021-22, 'European Union Contribution and Applicable Rates'. The gross amount per year of the allowances includes the salary (34'394.4 €), the mobility allowance (7'200€) and a family allowance, if eligible (7'920€). These gross amounts include all compulsory deductions under national applicable legislation (taxes depend on the country of the host institution).

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