Università Ca'Foscari Venezia

Dipartimento di Scienze Ambientali, Informatica e Statistica

Dipartimento di Scienze Ambientali, Informatica e Statistica
Università Ca' Foscari Venezia
Campus Scientifico – Via Torino 155, 30170 Mestre (VE)
P.IVA 00816350276 - CF 80007720271
www.unive.it/dais

Research fellowship - Università Ca' Foscari Venezia (Italian law 30 December 2010, n.240, art. 22)

The present document in English is to be considered as a mere summary of the main provisions of the notice of competition which is available in Italian at the following (link). The text in Italian is the official text of the notice of competition for all legal intents and purposes and, in the event of non-conformity with the present document, it shall prevail.

Description
The Department of Environmental Sciences, Informatics and Statistics at Università Ca' Foscari Venezia invites applications for fellowship in:

TITLE: Efficient queries in compressed temporal graph databases
SSD: INF/01
Tutor: Prof. Claudio Silvestri
Duration: 12 months

Abstract: One of the most adopted data models in graph databases is the property graph data model, in which both edges and nodes are labeled with multiple key-value pairs. Since time is a relevant dimension in most real-world problems, recent research works started considering time a first-class citizen in the property graph model, proposing the Temporal Property Graph model and a corresponding language, T-GQL, that can represent the graph's structure and label evolution along time and express temporal queries. For example, we may be interested in matching patterns or, more in general, regular expressions along the time dimension considering different parts of the history of the graph, that could represent a starting point for evaluating the reachability of nodes along temporal paths in which edges intervals of existence are consecutive. This research aims to improve the efficiency of property graph databases and temporal property graph databases using compressed graph representations and graph pattern matching/regular path query algorithms for the computation of T-GQL queries along graph paths defined by patterns and regular expressions.

The research may be carried out in English. The fellowship is intended to provide the successful candidate with the opportunity to pursue his/her own research while benefiting from the range of expertise at Università Ca' Foscari Venezia.

Who can apply

Prospective candidates are expected to hold a master's degree in Computer Science or equivalent degree**, or related areas** or equivalent foreign qualification or related disciplines.

Ca' Foscari encourages applications from researchers with positive evaluation in all the criteria in individual proposals such as Marie Skłodowska Curie Actions - Individual Fellowships/ERC Starting Grants/FIRB (Italian Fund for basic research investments)/SIR (Scientific Young Independence Research) or similar.

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Researchers having successfully completed Marie Skłodowska Curie Actions - Individual Fellowships/ERC Starting Grants/FIRB (Italian Fund for basic research investments)/SIR (Scientific Young Independence Research) or similar funded projects are warmly encouraged to apply.

Duration of contract: 12 months, approximately starting: **February 2023**
Stipend: The research fellowship **amounts to 23.367,00 Euros per year**, including taxes and social charges.

Deadline for submission of applications: 27/12/2022 at 12.00 noon.

How to apply:

Candidates should submit:
1. The application form;
2. A motivation letter (max 1 page) along with their CV in European format, duly dated and signed, both to enclosed as a one single.pdf file. (link)
3. A copy of a valid identity document (either Identity Card or Passport);
4. (If available) Evaluation Summary Reports of Marie Skłodowska Curie Actions - Individual Fellowships/ ERC Starting Grants/FIRB (Italian Fund for basic research investments)/SIR (Scientific Young Independence Research) individual proposals having passed all the evaluation thresholds;
5. (If available) Details of Marie Skłodowska Curie Actions - Individual Fellowships, ERC Starting Grants, FIRB (Italian Fund for basic research investments)/ SIR Scientific Young Independence Research funded projects;
6. Declaration on availability to held the interview in remote (Link) to be send via email at the following address: segreteria.dais@unive.it with the object: **Efficient queries in compressed temporal graph databases – Prof Claudio Silvestri**
7. All documents, qualifications and publications relevant for the selection procedure (please, see the notice link).
All the schemes of the quoted documentation are available on the website (link).

How to submit your application

Applications should be submitted by the online procedure, available on the notice webpage (link)

Or submit here:
Link: https://apps.unive.it/domandeconcorso-en/accesso/dais2022-silvestri-cofin

The candidate, after the uploading, will receive a submission number and an e-mail acknowledging receipt of his/her application.
The candidate, if necessary, could access the procedures for updating any data and materials by the link provided by the e-mail, in any case any updates must be made no later than the deadline **27/12/2022** **12.00 noon**.

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Please note that the University can be contacted for any support needs by the candidate until 24 hours prior to the deadline.

Please note that in case of a high number of applications and / or weight of the materials loaded by the candidates the system might become slower. Therefore, it is suggested not to start the process close to the deadline.

NB: The University does not take on responsibility for wrong or late communication of addresses, nor for any communication problem not depending on the University.

Evaluation

Up to 100 points, specifically:
For qualifications, publications and possible tests, from 0 to 60;
For interview, from 0 to 40.

Candidates are admitted to the interview if assessment of the qualifications in a score equal to or greater than 42/60

Selection procedure

Short-listed candidates will be invited for interview on 24/01/2023 at 10.00 Italian time

The interview will be held in remote only. Further details on how to connect online will be published alongside the convocation notice.

The list of candidates admitted to the interview or any postponement will be announced whitin **23/01/2023** by notice that will be published on the website of this university ([link](#)) and on the web pages foreseen by current legislation.

This communication constitutes to all intents and purposes an official call and candidates will not receive any call or home communication. Therefore, candidates are required to present themselves, at the online interview, with a valid identification document, without prior notice, on the days and times indicated here. Any postponements will be made known on the day by means of a notice which will be published on the website of this university ([link](#)) and on the web pages envisaged by current legislation.

The interview:

The interview questions will cover:
- Databases
- Algorithms
- Data structures
- C, C++, Rust programming (not mandatory)
- Good knowledge of English

Information

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The grant holder must express acceptance within 7 days from receiving the communication and must sign the relevant contract at the competent office. The grant holder will be sign the relevant contract by affixing remote digital signature (https://www.agid.gov.it/it/piattaforme/firma-elettronica-qualificata/ottenere-firma-elettronica). In the impossibility of acquiring the digital signature remotely, it will be possible to proceed with the acquisition of the signature by correspondence (1) or in presence at the secretariat of The Department of Environmental Sciences, Informatics and Statistics.

(1) The contract will be considered completed and fully effective between the parties, after the acquisition of all the signatures and the repertory of the deed.

- The contractor must attach a photocopy of the identity card.

Information and contacts

Candidates may find further details about the application process and the research project in the official call published on the following (link)
For further information please contact Prof Claudio Silvestri - silvestri@unive.it

Venice,

The head of the Department of
Scienze Ambientali, Informatica e Statistica
Prof. Salvatore Orlando

Digitally signed