



Research fellowship on: *Combining optimization metaheuristics and artificial intelligence to design quasi-real-time trading strategies* - 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: <http://www.unive.it/data/12137/> 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 *Economics* at Università Ca' Foscari Venezia invites applications for a fellowship in:

- **Title:**

Combining optimization metaheuristics and artificial intelligence to design quasi-real-time trading strategies.

- **Academic Discipline or disciplines specifically identified by the call** SEC-S/03 e SEC-S/06;
- **scientific coordinator and tutor:** Prof. Marco Corazza e Prof. Claudio Pizzi
- **duration:** 12 months

abstract:

The main objective of the project is to develop and implement a decision-making system for financial trading combining metaheuristics for optimization with Machine Learning (ML) and Deep Learning (DL) techniques.

In particular, these approaches (for example, Artificial Neural Network, LSTM-type Recurrent Neural Networks, and Decision Trees) will be used to obtain information on the best financial trading strategy to implement.

Therefore, the research project aims to use mathematical and statistical techniques introduced in different fields in order to integrate them each other to obtain a more efficient system than those present in the literature which is able to make the most of the characteristics of each of these techniques. Specifically, it means:

- 1) to analyze financial time series prices through flexible tools capable of capturing linear and non-linear structures of the data generating processes;
- 2) to forecast the future values or directions of the studied time series in order to obtain anticipatory signals of the market evolution;
- 3) to optimize the setting of the parameters of the algorithmic indicators;
- 4) to use ML and DL techniques to identify graphical and non-graphic configurations in the investigated time series of prices;



- 5) to use ML techniques to develop decision-making systems;
- 6) to implement intelligent systems for the automated financial trading.

Who can apply

Prospective candidates are expected to hold a master's degree and in the subjects of the research, 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.

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.

Favourite headlines

- Holding a PhD;
- the conclusion of a PhD course whilst awaiting the award of the title- Specialization diplomas and certificates of attendance of postgraduate courses with research topics related to the object of the grant, obtained both in Italy and abroad, the performance of documented research activities at public and private entities with contracts, scholarships or assignments both in Italy and abroad with research topics related to the object of the grant
- Specialization degrees and certificates of attendance at postgraduate specialization courses with research topics related to the subject of the check, obtained both in Italy and abroad, the development of documented research activities at public and private entities with contracts, scholarships or assignments both in Italy and abroad with research topics related to the subject of the check;.

Duration of contract: 12 months, starting on October 2021.

Stipend: The research fellowship amounts to **Euro 19.541,00.=per year**, gross to the recipient, net of the expenses to be sustained by the Provider. The amount may be subject to adjustment in the event of variations in the law.

Deadline for submission of applications: by and no later than 2021-09-20, h. 12:00 noon – local time.

If the deadline is on Saturday or on holidays, the deadline is extended to the first working day thereafter.

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. (<http://www.unive.it/pag/28830>)

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. Master's Degree or Old Master's Degree or equivalent foreign qualification;
6. If available, Doctoral degree;
7. Declaration on availability to held the interview in remote (<https://www.unive.it/pag/28830>) to be send via email at the following address: simar@unive.it:
8. (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;
9. All documents, qualifications and publications relevant for the selection procedure (please, see the notice <http://www.unive.it/data/28825/>).

All the schemes of the quoted documentation are available on the website

<http://www.unive.it/pag/28830>.

How to submit your application

Applications should be submitted by the online procedure, available on the notice webpage <http://www.unive.it/data/28825/>

Or submit here:

<https://apps.unive.it/domandeconcorso-en/accesso/dec-nuovocorapizzi-03092021>

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 **2021-09-20, h. 12:00 noon – local time.**

If the deadline is on Saturday or on holidays, the deadline is extended to the first working day thereafter.

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 an 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.



Università
Ca' Foscari
Venezia

Evaluation

Up to 100 points, specifically:

For qualifications, publications and possible tests, from 0 to 60;

For interview, from 0 to 40.

Selection procedure

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

The interview will be on **2021/09/24, at 10.00 AM**.

The short-list of the candidates admitted to the interview, or any postponement, will be published on the University's webpage on **2021/09/22** (<http://www.unive.it/data/28899/>).

Information and contacts

Candidates may find further details about the application process and the research project in the official call published on the following webpage <http://www.unive.it/data/28825/>

For further information please contact: Segreteria Amministrativa del Dipartimento di Economia, phone number: 041-2349173; e-mail: simar@unive.it