



DISCLAIMER: The English version is a translation of the original in Italian for information purposes only. In case of a discrepancy, the Italian original will prevail.

Subject: Public selection procedure for the award of a postdoctoral assignment pursuant to article 22-bis of Law No. 240 of December 30, 2010, PR Veneto FESR 2021-2027, Azione 1.4.1. -ID 251382_008120-CUP H73C25001330002 - “Hydrological and Hydraulic Modeling using Machine Learning”- GSD: 08/CEAR-01, 01/MATH-05- SSD: CEAR 01/B, MATH-05/A, Tutor: Prof. Enrico Bertuzzo e prof. Gabriele Santin

THE DIRECTOR OF THE DEPARTMENT

Having regard to the Regulations for the award of a postdoctoral assignment pursuant to article 22-bis of Law No. 240 of December 30, 2010 ;

Having regard to the resolution of the Department of Environmental Sciences, Computer Science, and Statistics which approved the activation of the selection procedure and the specifics of the call;

Having ascertained the financial coverage provided by PR Veneto FESR 2021-2027. Obiettivo Specifico 1.4 “Sviluppare le competenze per la specializzazione intelligente, la transizione industriale e l’imprenditorialità”, Azione 1.4.1. “Supporto allo sviluppo di competenze per la specializzazione intelligente e la transizione industriale” della DGR n 1382 del 04-11-2025. “Bando per la valorizzazione e il trasferimento di competenze coerenti con le priorità individuate dalla S3 regionale e derivanti da attività di ricerca svolte nell’ambito degli Ecosistemi dell’Innovazione regionale”- domanda di sostegno ID 251382_008120, titolo Progetto SLIMM: SoLuzioni Intelligenti per il Monitoraggio e la Modellazione ambientale, referente UNIVE Prof. A. Gambaro (DAIS) CUP H73C25001330002;

Having acknowledged the proposing structure has certified this call’s compliance with Italian Law and University Regulations.

DECREES

Article 1 Public Selection Procedure Announcement

The following public selection procedure is announced for the award of a **postdoctoral assignment with a duration of 12 months** pursuant to Article 22-bis of Law No. 240 of December 30, 2010, academic recruitment field 08/CEAR-01 (Hydraulics, Hydrology, Hydraulic and Maritime Construction), 01/MATH-05 (Numerical Analysis) - Academic discipline CEAR 01/B (Hydraulic and Maritime Construction and Hydrology), 01/MATH-05 (Numerical Analysis)

-TITLE: Hydrological and Hydraulic Modeling using Machine Learning

-Research Project: This research position is part of the project SLIMM. The SLIMM project aims to develop solutions based on artificial intelligence, machine learning,



and advanced statistical methods for the sustainable and resilient management of smart cities in the Veneto region, with particular focus on mountainous areas.

The specific objectives of SLIMM are: (i) to optimize air quality monitoring, spatial modeling of atmospheric pollutants, and the assessment of impacts on public health; (ii) to identify chemical markers or their transformation products that enable the identification and quantification of the contribution of industrial and productive activities to environmental contamination; (iii) to enhance the prediction and prevention of hydrological risk.

The post-doctoral position focuses on objective (iii) of the SLIMM project, aimed at improving the prediction and prevention of hydrological risk in complex environments, with particular reference to mountain catchments.

The research activity involves the development and application of advanced predictive models for flood simulation, based on the integration of hydrological, meteorological, and spatial data from public sources (e.g., ARPAV, Copernicus, satellite datasets, and climate reanalysis).

In particular, the researcher will be involved in the development of innovative models based on machine learning techniques that integrate physical knowledge of hydrological processes, such as:

-Specific functions, including those related to collaboration in teaching activities and third mission initiatives (if applicable), that the person holding the position will be required to carry out:

- Physically Informed Neural Networks (PINNs), capable of embedding physical equations into machine learning models;
- Surrogate models, aimed at reproducing the behavior of complex hydrological-hydraulic models while reducing computational costs.

The goal is to develop reliable and scalable tools for real-time flood prediction, improving the understanding of runoff processes and supporting hydrological risk management within a climate and territorial resilience framework.

The selected candidate will be responsible for the following activities:

- Collection, integration, and pre-processing of hydrological, meteorological, and geospatial datasets from heterogeneous sources (ARPAV, Copernicus, in situ and satellite data);
- Development, implementation, and validation of machine learning-based predictive models, with particular focus on PINNs and/or surrogate models;
- Comparison between data-driven models and traditional physics-based models, including performance evaluation and predictive reliability assessment;
- Application of models to real case studies and validation against observed flood events;
- Collaboration with the SLIMM project team;
- Preparation of technical reports and scientific publications, and participation in project dissemination activities.

-Main workplace: Campus Scientifico Via Torino 155-Mestre/Venezia

-Maximum number of publications to be submitted, including the PhD dissertation: 10

-Scientific Supervisor: prof. Enrico Bertuzzo, prof. Gabriele Santin

Academic recruitment field: 08/CEAR-01 (Hydraulics, Hydrology, Hydraulic and Maritime Construction), 01/MATH-05 (Numerical Analysis)



Academic discipline: CEAR 01/B (Hydraulic and Maritime Construction and Hydrology), 01/MATH-05 (Numerical Analysis)

-Date on which the list of people admitted to the oral exam will be announced with the respective results of the preliminary assessment: May 6th 2026

-Date of the oral exam: May 11th 2026

Article 2 Admission Requirements for the Selection Procedure

Persons, Italian or not, in possession, on the date of the deadline for submission of applications, of a **doctoral degree** or a degree obtained abroad evaluated as equivalent, for the sole purpose of the award of the contract, by the Selection Committee, are eligible to participate in the selection procedure.

The following are excluded:

- a) tenured staff, hired on a permanent basis, of universities, public research organizations and institutions whose postgraduate scientific degree has been recognized as equivalent to the title of doctor of research in accordance with Article 74, fourth paragraph, of Presidential Decree No. 382 of July 11, 1980;
- b) those who have been employed under contracts covered by Article 24 of this law, as amended following the entry into force of Decree-Law No. 36 of April 30, 2022, converted into Law No. 79 of June 29, 2022 (RTT);
- c) anyone who, at the time of submitting the application, has a degree of kinship or affinity, up to and including the fourth degree, with a professor pertaining to the Department proposing the activation of the contract or with the Rector, the Director General or a member of the Board of Directors of the University.

In any case, the following may not participate in the selective procedures:

- persons excluded from the enjoyment of civil and political rights;
- persons dismissed or dismissed from employment with a Public Administration for persistent inadequate performance;
- persons who have been declared disqualified from other state employment, pursuant to Article 127, letter d) of Presidential Decree No. 3 of 10/1/1957.

The prescribed requirements must be met by the deadline for submitting applications.

Candidates are admitted to the selection conditionally. Exclusion from the selection for lack of prescribed requirements may be ordered at any time, even after the oral exam have been carried out, by reasoned decree of the Director of the Department.

This Administration guarantees equality and equal opportunity between men and women in access to employment and treatment at work.

This Administration guarantees fairness and equal opportunity to men and women in access in to employment and employment conditions.



Article 3 Application Submission Procedures

Those who intend to participate in the selection procedure must submit their application using exclusively the specific procedure made available via the web at the address

<https://apps.unive.it/domandeconcorso-en/accesso/dais2026-postdoc-bertuzzo-fesr>

by the peremptory deadline of 1:00 PM CET (Central European Time) on the (at least) fifteenth day following the date of publication of the notice of this call on the University register. Beyond this deadline, the link will be deactivated, and it will no longer be possible to complete or edit the application.

You can access the platform using your Italian Tax Identification Code (Codice Fiscale). Foreigners with no Italian Tax Identification Code may generate it, for the sole purpose of the procedure, using the link in the bottom right corner of the online application form (click on "Calculate Italian Tax Identification Code").

The following personal data are required to generate the tax identification code: Name; Surname; Gender; Date of birth (dd/mm/yyyy); Place of birth.

Please note that:

1 – As your place of birth you should indicate your country of birth, which must be written in Italian and in capital letters (e.g.: STATI UNITI, SPAGNA, REGNO UNITO) and selected from the scroll-down menu.

The tax identification code must have 16 characters.

The procedure does not allow saving in draft mode. The application shall be completed in all its required

fields and then submitted. A unique alphanumeric code will then be generated and sent to the e-mail address entered in the application; the code may be used to edit the application and replace the attached files, within the deadline.

No other form of submission of the application is allowed.

It is advisable to start the application procedure well in advance of the deadline.

The candidates shall declare under their own responsibility:

Personal data:

1. Surname and first name
2. Date and place of birth
3. Email address and phone number
4. Residence and domicile address

General declarations:

5. Citizenship
6. If with disabilities specify if they require any support in order to attend the interview

7. that they have not been convicted of a criminal offence, and are not aware of any criminal proceeding pending against them; if not, indicate any previous convictions (the date and the judicial authority that issued it) and pending criminal proceedings
8. Whether they are employees of a public administration
9. That they have not been dismissed or removed from employment in a public administration for persistent insufficient performance
10. That they have not been declared disqualified from other state employment, pursuant to Article 127, letter d) of the Presidential Decree of January 10, 1957, No. 3.
11. That they are aware that all communications will be made through publication on the website and that it has the value of notification for all purposes.
12. (if Italian) that they are registered in electoral rolls, motivating, if applicable, the reason for non-registration or cancellation from them; that they have fulfilled their military obligations (to be specified by candidates born before 1985 only)

(if foreign) that they exercise civil and political rights in their country or give the reasons for failure to do so and that they have adequate knowledge of the Italian language
13. That they have not benefited from, or have benefited from, periods of voluntary leave from research activities, with particular reference to parental functions, indicating the periods
14. That they are physically fit for the employment to which the selection refers

Specific declarations

15. That they already hold a PhD obtained in Italy or abroad
16. That they are not tenured staff, hired on a permanent basis, of universities, public research organizations and institutions whose postgraduate scientific degree has been recognized as equivalent to the title of doctor of research in accordance with Article 74, fourth paragraph, of Presidential Decree No. 382 of July 11, 1980;
17. That they have not already benefited from fixed-term researcher contracts pursuant to Article 24 of Law No. 240/2010 (RTT);
18. That they do not have any family relationship or affinity, up to the fourth degree, with professors belonging to the recruiting Department, nor with the Rector, the General Director, or any member of the Board of Governors
19. That they have not benefited from contracts pursuant to Article 22, 22-bis, 22-ter of Law No. 240/2010 as amended by Law No. 79/2022 for a period that, combined with the duration provided by the contract announced, exceeds a total of 11 years, even if not continuous.
20. That they are aware that that this postdoctoral assignment is not compatible: - with any other employment relationship, whether with public or



private entities, as well as with holding research fellowships, and entails unpaid leave for those who are employed in public administrations;

- with scholarships or research grants, except for those exclusively aimed at international mobility for research purposes;
- with enrollment in undergraduate, graduate, master's, PhD, or medical specialization programs, in Italy or abroad, without prejudice to the provisions of Article 22-ter, paragraph 9, of Law No. 240/2010;
- with holding positions referred to in Articles 22, 22-bis, and 22-ter, and contracts under Article 24 of Law No. 240/2010;
- with the exercise of freelance or self-employed professional activities carried out under a VAT regime;
- with the performance of any other activities prohibited by law or other regulatory sources, or that may conflict with the institutional duties of the University.

The University Administration assumes no responsibility for the dispersion of communications due to incorrect indication of the contact details.

PDF copies of the following shall be attached to the application:

- A valid identity document;
- A scientific and professional curriculum detailing overall research productivity and scientific activities, as well as (where applicable) participation in teaching duties and third mission or public engagement activities conducted in collaboration with public and private entities, written in Italian or English, signed with an autograph or digital signature and with the explicit indication that everything declared therein corresponds to the truth pursuant to Articles 46 and 47 of Presidential Decree 445/2000. In line with the actions provided by the university within the framework of the "Human Resources Strategy For Researchers" (HRS4R), it is recommended to precede the CV with a motivation letter.
- A numbered list of the publications to be submitted (within the limit of Article 1 of this call) signed with an autograph or digital signature
- Scientific publications and other documentable research products, with particular reference to their relevance to the research project content (see Article 4)

European Union citizens may:

- submit scanned certified copies of their qualifications (certified by a self-declaration affidavit as provided in Art. 19 and 47 of Pres. Decree 445, 28 December 2000 - Attachment A). Candidates must provide an Italian translation of the documents, and the translation must be certified by an embassy or an official translator.

or



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- declare that they meet the requirements using a self-executed certificate or self-declaration affidavit (Attachment A). This document is compulsory if the qualifications are issued by other Public Administrations.

Non-EU citizens with a valid residence permit may submit scanned certified copies of their qualifications. The affidavits must be used in accordance with the procedure laid down for EU citizens whenever it is necessary to provide proof of status, facts or personal qualities certifiable or confirmable by Italian public agencies or if the production of self-executed certificates takes place under international agreements between Italy and the applicant's country of origin.

Non-EU citizens without a regular residence permit may submit scanned copies of qualifications, authenticated or true certified copies of the original. Certificates issued by the relevant authorities of the applicant's Country of origin must be submitted together with a translation into Italian authenticated by the Italian consular authority certifying conformity with the original.

The Department may carry out a verification process on the contents of self-declarations contained in the curriculum vitae.

For any clarifications and information on the procedure, and in the event of difficulties in filling in the application form, please contact Administrative Secretariat of the Department of Environmental Sciences, Computer Science, and Statistics tel. 041 234 8526, 041 234 8531, e-mail: segreteria.dais@unive.it

Article 4 Publications

All required publications must be uploaded in pdf, dividing them into the appropriate four fields of the online procedure with a capacity of 50 MB each (Please note that you can upload more than one publication in each field, zipped in one folder. It is recommended that the file names inserted in the compressed folder do not exceed 20 characters).

Only publications uploaded with the application will be considered by the examining board

It is not allowed to submit publications in the form of links to files residing on online storage/file sharing services or web pages.

Should the number of publications exceed the maximum number indicated in the call, the Board will evaluate the works in the order listed by the candidate, up to the limit provided.

Only published works, texts accepted for publication, essays in anthologies and articles published in hard copy or digital format magazines in accordance with the current law will be assessed, such as internal notes or departmental reports unless they have an international ISSN or ISBN code, and other documentable research products listed among the evaluable products in the latest ANVUR evaluation of research quality available at the time of publication of the call.

Texts or articles accepted for publication within the deadline of this call must be submitted with the acceptance letter by the publisher.

For joint-authored publications the candidates may include a statement declaring the incidence of their contribution. Otherwise, joint-authored publications may be evaluated provided it is possible to identify the individual contribution of the candidate on the basis of its coherence with their overall academic activity.



The Examining Board will have access to the publications in digital format only for purposes connected to this call, in consideration of the existing legislation concerning publishing and copyright.

Article 5 Exclusion from the Selection Procedure

Candidates are conditionally admitted to the selection procedure and may be excluded from it at any time for failure to meet the requirements. The exclusion is ordered by a motivated decree signed by the Director and notified to the candidate concerned using the email address listed in the application.

Article 6 Composition of the Examining board

The examining board is composed of three members chosen from professors and researchers with research experience on the topics covered by the call, internal or external or of equivalent rank in the case of members from abroad, identified in compliance with the principle of gender equality, where possible. It may be supplemented by additional external experts on the research topic covered by the call, if appropriate. The Committee may be supplemented, where appropriate, by additional external experts from outside the University who have expertise in the research topic specified in the call. Members of the Evaluation Committee may include recipients of grants from highly qualified research programmes funded by the European Union, by Italian or foreign public or private institutions, or by the Ministry, who hold a postdoctoral assignment or a research contract, and who are themselves responsible for other research projects.

The Examining board is appointed by decree of the Director of the Department, published on the Official University register and online on the University website

For the appointment, the rules of Article 10 of the Regulation for the award of research contracts pursuant to Article 22 of Law No. 240/2010 are observed.

The Examining board conducts its work in the presence of all members, makes its determinations by absolute majority, and may use telematic tools for collegial work at all stages of the procedure.

The Board shall conclude its activities within 90 days after the date of the appointment decree, unless otherwise specified therein. The deadline may be postponed due to proven and exceptional circumstances indicated by the Chair of the Board. Should the Board fail to complete the activities within the set deadline, the Director shall issue a decree concerning the replacement of members responsible for the delay as well as fixing a new closing date for the completion of activities.

Article 7 Works of the Examining Board

For the purposes of admission to the procedure, the Committee verifies the possession of the participation requirements. Candidates must hold a doctoral degree, obtained in Italy or abroad, by the deadline for submitting applications for the selection.

The evaluation is carried out according to the provisions of Annex 2 to the Regulation for the award of research contracts pursuant to Article 22 of Law No. 240/2010. The Examining board may award up to 100 points, as follows:



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- Up to 60 points for the evaluation of: the scientific-professional curriculum, including overall scientific productivity and research activities carried out at public and private institutions (if applicable); scientific publications and other verifiable research outputs, with particular reference to their relevance to the research project, as well as contributions to teaching activities and third-mission activities (if applicable). The Committee will pay particular attention to the relevance to the research project, as well as to collaboration in teaching and third-mission activities.;
- Up to 40 points for the assessment of the oral examination, aimed at evaluating aptitude for research, collaboration, teaching activities, and third-mission activities (activities aimed at societal engagement and knowledge transfer) (if applicable), as well as any required verification of foreign language skills specified in the call..

The evaluation procedure takes place in two stages:

Preliminary assessment:

The Commission determines the criteria for evaluating the CV, publications, and oral exam. The adopted criteria and the content of the oral exam are published on the Official University Register and online on the University website.

Only after defining the criteria, they may review the applications and, they proceed with the comparative evaluation of candidates based on the CV and publications, having verified the absence of incompatibility and conflict of interest by each member.

By May 6th 2026, the results of the evaluation are communicated online on the University webpage about the call, indicating the candidates who have exceeded the minimum threshold of 42 points and are therefore admitted to the oral exam on May 11th 2026.

Candidates admitted are required to attend the meeting, without prior notice, on the day, time, and according to the modalities provided in the notice. Failure to appear will be considered as an explicit and definitive withdrawal from the selection.

Oral Exam:

The second stage consists of the oral exam.

Admitted candidates are required to attend the meeting with a valid identification document.

The oral exam is deemed passed if the minimum threshold of 28 points is reached.

The Commission places the candidates with a final score above the minimum threshold of 70/100 in a merit list and declares the comparatively best candidate the winner

In case of tie, priority will be given according to the following criteria:

- **Candidate with significant experience in hydrological modeling or machine learning**



Article 8 Validity of the proceedings

The proceedings of the Board are attested in the minutes of the meetings with attached evaluation forms as per Annex 2 of the Regulation. They are transmitted to the Director of the Department by the Chair or Secretary of the Board within 7 days from the conclusion of the works for verification and approval.

The approval decree of the Director is published on the Official University register and online on the University website.

In accordance with the regulations on access to acts and as provided by Law No. 4 of January 9, 2004, requests for access to acts may be sent to the Research Office of the Department of Environmental Sciences, Computer Science, and Statistics via email segreteria.dais@unive.it or via PEC at the address (protocollo@pec.unive.it) or according to the indications available at <https://www.unive.it/pag/11143>.

Article 9 Conclusion of the contract

The recruitment of the holder of the research contract is effected through the conclusion of a fixed-term employment contract. When concluding the contract, the successful candidate may be asked to sign either by handwritten signature on a paper document or by digital signature on an electronic document.

The candidates are therefore invited to verify whether they already have the necessary device for digital signatures in line with AGID-Agenzia per l'Italia Digitale – Digital Italy Agency

(<https://www.agid.gov.it/it/piattaforme/firma-elettronica-qualificata/prestatori-di-servizifiduciari-attivi-in-italia>).

In case they do not have it, they are invited to set up this device in time for the stipulation of the contract.

The contract holder may sign the contract only after obtaining the PhD degree. The selected candidate who doesn't obtain the degree within six months from the publication of this call will lose the right to the research contract and the merit ranking.

In case of non-EU citizenship, for employment, the selected candidate must have a valid residence permit for work purposes in Italy.

The research contract is concluded for the sole purpose of carrying out the research activity described in article 1 and does not entitle the holder to tenured positions.

The employment contract must be stipulated within the term set forth in the letter of convocation to stipulate the contract, normally not less than 10 days. Failure on the part of the person concerned to conclude the contract by the deadline shall be considered as renunciation of employment and shall result in the forfeiture of the ranking list, without prejudice to a possible extension of the deadline for the signing of the contract assessed by the Director of the Structure upon justified request of the person concerned.

If circumstances preventing employment arise, whether normative, organizational, or financial, this University reserves the right not to proceed with employment or to defer it.

Article 10 Employment

The employment is governed by Article 22 of Law No. 240/2010, by the Regulation for the award of research contracts pursuant to Article 22 of Law No. 240/2010, and by the individual employment contract. Regarding social security and insurance treatment, reference is made to what is provided for the income of dependent employees.



The holder is entitled, for the entire duration of the contract, to an annual gross comprehensive economic treatment of € 28.573,47.

The annual gross remuneration is not subject to indexing or revaluation.

The University also provides insurance coverage against work accidents, occupational diseases and civil liability.

Article 11 Intellectual property

The possible realization of an invention, susceptible to patenting, made by the research contract holder in the performance of their duties, is regulated in accordance with the current legislation, the specific University Regulation, and the clauses of the contract.

Article 12 Incompatibilities

The employment relationship established under this call is not compatible:

- a) with any other subordinate employment relationship with public or private entities, as well as with the holding of research grants, and entails placement on unpaid leave for employees serving in public administrations;
- b) with scholarships or research grants of any kind awarded by national or foreign institutions, except for those exclusively aimed at international mobility for research purposes;
- c) with attendance of undergraduate, graduate, or master's degree courses, PhD programs, or medical specialization programs, in Italy or abroad, without prejudice to the provisions of Article 22-ter, paragraph 9 of Law No. 240 of 2010;
- d) with holding the positions referred to in Articles 22, 22-bis, 22-ter, and contracts referred to in Article 24 (RTT) of Law 240/2010;
- e) with engaging in freelance or self-employment activities under a VAT number;
- f) with performing any additional activities prohibited by laws or other regulatory sources or that may conflict with the institutional duties of the University.

The performance of extra-institutional assignments may occur with prior authorization from the Department Board, based on the motivated advice of the scientific supervisor or the Director of the Department, after verifying that such activity does not involve a conflict of interest with the activities of the Department and does not prejudice the regular carrying out of the research.

The research contract holder in service at public administrations must be placed on unpaid leave for the duration of the contract, since the date of starting of activities.

For matters not provided for in this article, reference is made to Article 53 of Legislative Decree No. 165/2001, as applicable.

Article 13 Information about the processing of personal data

The processing of personal data provided by candidates or otherwise acquired by the University is aimed only for the purposes of the selection procedure and will be managed in compliance with national and EU legislation (Legislative Decree 196/2003 and EU Regulation 2016/679). The provision of data is necessary to evaluate candidates' requirements and qualifications.

See the "Information on the Processing of Personal Data" attachment for further details.



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The Data Controller is Ca' Foscari University Venice, with head office in Dorsoduro n. 3246, 30123 Venice - PEC protocollo@pec.unive.it.

Article 14 Supervisor of the procedure

Supervisor of the procedure: dott.ssa Federica Fasolato, Secretary of the Department of Environmental Sciences, Computer Science, and Statistics (for information Administrative Secretariat: 041/2348531, - 041 234 8526, e-mail: segreteria.dais@unive.it)

For all matters not provided for in this call and insofar as they are compatible, the current university regulations and those on access to employment in the public administration apply.

THE DIRECTOR OF THE DEPARTMENT
OF ENVIRONMENTAL SCIENCES, COMPUTER SCIENCE
Prof. Salvatore Orlando

The Supervisor of the procedure
Dott.ssa Federica Fasolato