



AMMINISTRAZIONE GENERALE
AREA DEL PERSONALE
SETTORE DIDATTICA E CONTRATTI
UFFICIO RICERCATORI A TEMPO DETERMINATO

THE DIRECTOR

WITH REFERENCE TO the rules referred to in Article 14 of the present call for application

ORDERS

Art. 1 – Purpose

A procedure of comparative evaluation by qualifications and public discussion is called for the recruitment of 2 researchers with a fixed-term employment contract full-time for the three-year - pursuant to art. 24 paragraph 3 letter a) (junior) of Law no. 240/2010 -. Sector competition reference 09/E3 - Electronics, Scientific sector ING-INF/01 - Electronic Engineering.

The jobs are activated for the needs of research and study of the Department of Electrical, Electronic, and Information Engineering "Guglielmo Marconi" - DEI of the Alma Mater Studiorum - Università di Bologna. Serving primarily service at the Department Electrical, Electronic, and Information Engineering "Guglielmo Marconi" - DEI, in Bologna.

Each contract shall last three years. An annual gross total amount equal to € 35.733,00. The annual increase in this amount will be calculated according to the existing procedure for non-contracted personnel.

Art. 2 – Activities to be performed

The contract includes 350 hours of supplementary teaching and assistance to students, for each academic year covered by the contract. The contract shall schedule 60 hours of teaching on annual basis.

Concerning the provisions of art. 10 regarding fixed term researchers, issued by Rectoral Decree no. 344 of 29/03/2011 and amendments, the researcher's activities must be linked to the development of one of the 2 projects indicated below:

- Project 1: "Design and optimization of low power embedded systems for human-machine interaction based on artificial intelligence techniques".

The activity targets the analysis and design of electronic systems for advanced human-machine interaction, based on Artificial Intelligence algorithms. In particular, the research will explore the design of wearable devices based on energy efficient parallel digital architectures, to study the implementation of novel algorithms for the analysis of biopotentials time series (e.g. EEG, EMG, PPG). This activity will enable new-generation devices, for medical-rehabilitation scenarios, such as the analysis of neural correlates in people affected by neural diseases (e.g. autism, epilepsy, sleep disorders) as well as to develop bidirectional interaction in advanced human machine interfaces (e.g. drone control, augmented reality, biorobotics). The work will cover theoretical analyses as well as prototype development and characterization in embedded edge-computing scenarios.

The Research activity aims at producing new knowledge for human-machine interfaces and for embedded systems in the area of next-generation wearable devices, enabling execution of artificial intelligence algorithms with real-time constraints. The research achievements will be assessed through the following key performance indicators: - Number of papers in scientific journals relevant to the target field, with a minimum of four papers; - number of peer reviewed papers in international



scientific conferences, with presentation at the conference, with a minimum of eight; -invitations to present the researcher activity in conferences, research institutes and private companies.

- Project 2: "Processing of signals and data from sensor on railway power lines for the detection of catastrophic events and predictive algorithms for the estimation of catenary wear".

The research involves the contribution to the design of the sensing device to be attached to the structure supporting a railway power line. Low-level programming of the procedures for reading, pre-conditioning and concentration of the data on a single processing node. Conceiving and development of algorithms that, starting from the acquired signal and from the knowledge of the sensorized system allow to

- Detect catastrophic events such as power line breaking
- Classify detected catastrophic events into classes corresponding to post-mortem system analysis (critical wear, out-of-range external stimulation, etc.)
- Long-term monitoring of quantities related to the physical conditions of the power line and of the structure supporting it
- Estimate the need for maintenance

Implement the above algorithms and test them on real data, let them be already available or coming from field acquisitions.

In the three-year term, the researcher will have to contribute to the publication of at least three papers on international journals specialized in the field of sensors / signal processing / structural monitoring.

Art. 3 - Admission requirements

The selection is open to:

applicants, including those who come from non-EU countries, in possession of:

- PhD or equivalent qualification obtained in Italy or abroad.

Applicants must be in possession of said qualification at the date of the deadline for the submission of applications to the present selection.

In case of PhD obtained abroad, please include a statement of equipollence with the Italian PhD title pursuant to art. 74 of D.P.R. 382/1980 or the statement of equivalence with the Italian PhD title pursuant to art. 38 of Legislative Decree. N. 165/2001. Pending the release of the only result of equivalence by the designated offices, it is possible to produce the delivery receipt of the request instance of the same (for the release procedure, see page: <http://www.cimea.it/it/servizi/procedure-di-riconoscimento-dei-titoli/riconoscimento-non-accademico.aspx>).

In any case the proof of the equivalence of the foreign qualification must be produced to the administration within 90 days from the publication of the approval decree of the procedure on the official university bulletin, otherwise the exclusion from the ranking occurs.

Applications from professors, associate professors, or researchers with tenure will not be accepted, even if the applicant is not in service.

The selection is not open to any persons who are related by blood up to the fourth degree, to a professor or full-time researcher working in the Department of Electrical, Electronic, and Information Engineering "Guglielmo Marconi" - DEI, or to the Rector, Director General or a member of the Board of Governors of the University.

Furthermore the selection is not open to anyone who has had research fellowship or fixed-term researcher contracts at the University of Bologna or any other state-funded, private-funded or distance-learning Italian university pursuant to articles 22 and 24 of Italian Law 240/2010, or with any other body listed in paragraph 1 of Art. 22 of Italian Law 240/2010 for a period which, summed to the foreseen duration of this contract, exceeds a total of 12 years, even if not consecutive. For the purposes of the duration of the above-described periods, in compliance with the laws in force any periods of maternity or sick leave shall not be calculated.

State employees may on unpaid leave for the entire duration of the contract, thus occupying a non-tenure position without pay or social security contributions, in cases where such a position is allowed by the structure of origin, likewise without pay or social security contributions.

Art. 4 – Application procedure



The submission of the application for participation in the selection must be made exclusively via electronic procedure by accessing the following link:

<https://concorsi.unibo.it>

Call deadline: 1st December at 12:00 (noon) (Central European Time CET)

The application must be submitted at the same time with the insertion of all the attached documentation required.

The following documents shall be enclosed to the electronic application form (preferably files: PDF, other supported files: JPG, BMP, PNG):

1. identification document scanned (10MB max);
2. curriculum vitae with indication of the scientific-professional activity(10MB max);
3. reference letters, if any. Letters can be submitted directly by the candidate uploading it during the application, in case of possession (10MB max), or can be submitted by the referee. In this case candidates should provide the referee email address. The system will send an automatic request to the referee, referring to the candidate and the procedure. The referee must submit his letter through the link into the email. At this address he/she will upload his/her letter by the application deadline in order to be considered as part of the candidate's application.
4. scientific publications (max 12: other supported files are TIFF and PS, 20MB max each document) which are already printed at the date of the call of application deadline, or scientific publications accepted for printed, together with the editor acceptance letter. While uploading each document will be asked to indicate the title, the authors' names, the editor, the year of publication. Optional information are the month, the ISBN code, the DOI code, the booklet number.

Pursuant to Ministerial Decree 243/11, the PhD thesis is considered a publication, and thus if presented by the candidate it shall be included in the maximum number indicated (12).

While applying, applicants shall declare under their own responsibility:

1. surname and name;
2. place and date of birth;
3. citizenship;
4. residence address;
5. (if Italian citizens) registration to electoral rolls. If any, the reasons why he/she is not registered or cancelled from them;
6. that there have not been any criminal proceeding against them or current criminal proceedings; otherwise, applicants shall specify the proceedings against them (in addition, specify if, remission, pardon or expungement etc. were granted) and pending penal proceedings;
7. to have or not to have benefited of non-voluntary leave periods due to maternity/paternity compulsory abstention or for serious health reasons, indicating the periods in case
8. possession of the qualification required pursuant to Art. 3 of this call for application and the mark obtained, if any;
9. to be fit to the employment the selection refers to;
10. that they are not, nor have been, professors, associate professors or researchers with tenure, even if not in service;
11. That they are not related by blood up to the fourth degree, to any professor or full-time researcher working in the Department of Electrical, Electronic, and Information Engineering "Guglielmo Marconi" - DEI or the structure proposing the activation of the contract, or to the Rector, Director General or a member of the Board of Governors of the University of Bologna.
12. elected e-mail address for the purpose of the participation in this contest;



13. Foreign citizens shall also declare to have a proper knowledge of Italian and to enjoy civil and political rights also in their origin countries or the reasons for loss of enjoyment.

Any modification shall be timely communicated to the Ufficio Ricercatori a tempo determinato. In case of technical problems, contact the support: assistenza.cesia@unibo.it.

Art. 5 – Applicants' obligations

The penalty of exclusion from the selection shall apply in the following cases:

- Non compliance with the terms established for posting the application form;
- Lack of the requirement pursuant to art. 3 of the present call for application (qualification).

All applicants shall be admitted to the contest and the Administration reserves the right to check that they actually are in possession of the requirements necessary to apply for the selection; the Administration may, at any time and even after the exams, order the exclusion from the selection hereto.

Art. 6 – Selection Board

The Selection Board will be appointed upon administration resolution and is composed of three full or associate professors belonging to the competition Scientific sector or, alternatively, to the same competition macro-sector for which the procedure is announced or of equivalent role in the case of components not coming from national universities, identified by the Department that proposed the activation of the contract.

Two of the members, external to the University, are drawn with the methods provided by the art. 8-bis of the Regolamento per la disciplina delle chiamate dei Professori di Prima e Seconda fascia in application of articles 18 and 24 of the Law 240/2010 issued with DR 977/2013 and s.m .. A third component is identified by the Department Council among the professors inside or outside the University. As envisaged by art. 57 of Legislative Decree 165/2001, in order to guarantee equal opportunities between men and women for the access to work and work treatment, generally, at least one member is female.

The Commission appoints a president and a recording secretary between their members.

Notice of the appointment of the will be published on Alma Mater Studiorum - University of Bologna website.

Art. 7 – Selection procedure

The selection procedure is carried out by the Board after a preliminary evaluation of each candidate's qualifications, curriculum and scientific production, including the doctoral thesis, according to the criterion identified by the MIUR in D.M. 243/2011.

The candidates chosen in the preliminary evaluation based on their comparative merits - between 10 and 20% of the number of applicants and not less than 6 - will then be called for interview. The interview will consist of a discussion of the candidate's qualifications and scientific production and may take the form of a seminar open to the public. If the total number of candidates is 6 or less all candidates will be interviewed.

Any reference letters produced by the candidates will also be considered.

The discussion will take place in Italian. During the discussion, candidates must demonstrate adequate knowledge of the English language.

The discussion with the Commission can be carried out in public form, in the presence or remotely, electronically, using the audio and video teleconferencing tool via the Teams platform (the workstation from which candidates will take do the interview must be equipped with a webcam - essential for the recognition of the candidate - microphone and headphones and / or audio speakers), according with the provisions of the recent Prime Ministerial Decree containing urgent measures regarding the containment and management of the epidemiological emergency from COVID-19 and the regulatory provisions also considering the evolution of the health emergency.



Notice of day, date and place of public discussion and list of admitted candidates will be published at least 20 days before the discussion on the University website at: <http://www.unibo.it/Portale/Personale/Concorsi/RicercatoriTempoDeterminato/default.htm>.

The publication on the University website will constitute official notification to all applicants, without any obligation for any further communication.

The publication will be communicated by email to the address indicated by the candidates in the application.

The Alma Mater Studiorum - University of Bologna does not assume any responsibility for the non-receipt or the not-read of the e-mail.

It is up to candidates to keep themselves informed by consulting the University website page to find necessary information about selection.

Candidates attending the interview must bring a valid identification document with them.

EU citizens shall bring their passport or an identity document issued by their country of origin. Non-EU citizens shall bring their passport.

Art. 8 – Ranking List and recruitment

After the exams, the Board shall prepare the general final list based on the merits. The candidate ranked first on the list will have the right to opt for the research project to be carried out. At the second candidate will be assigned the remaining research project.

On equal merits, priority will be allocated according to date of birth and the youngest one shall prevail. The list based on merits is approved pursuant to the administration resolution and will be published in Alma Mater Studiorum – University of Bologna Official Bulletin.

The terms to raise any appeal shall start from the date of publication of said notice, in case the resolution has not been otherwise disclosed.

The use of the final candidates list is strictly bound to study and research related to the scientific sector SSD ING-INF/01 - Electronic Engineering.

The Department of Electrical, Electronic, and Information Engineering "Guglielmo Marconi" - DEI, will propose recruitment by a majority vote of the professors and associate professors of the Department and approved by the Board of Governors. The Department will also propose the date of commencement of employment contract.

Art. 9 – Employment procedures

Following the conclusion of the recruitment procedure referred to in art. 8, the candidates will be asked to sign a fixed-term contract of full-time employment.

The employment relationship is governed by a personal contract, statutory laws and EC regulations. The personal contract shall specify any reasons for which it might be terminated, as well as the relevant periods of notice. In any case the contract will be terminated immediately and without notice in the event of the cancellation of the recruitment procedure to which it is inalienably linked.

The trial period shall last three months. At the end of the period, unless the employment relationship has been terminated by either of the parties, the employee is confirmed for service and the whole period worked from the beginning of the contract shall be calculated for seniority purposes.

Art. 10 – Required documents

All the documents written in any foreign language shall be accompanied by a true and correct translation into Italian, written by an Italian consular, a qualified diplomatic representative, or an official translator.

Art. 11 - Rights and duties of a researcher with a fixed-term contract of employment

In accordance with the rights and duties of public employees prescribed by the Italian civil code, on signing the contract the researcher will be expected to perform all those activities mentioned in Art.



2. These activities will be carried out in respect of the existing hierarchy and in coordination with existing programmes and research projects.

The researcher will perform the requested activities in person, substitution is not permitted.

Existing Italian laws concerning maternity, injury and illness will be applied.

The researcher undertakes to fulfill the obligations of conduct prescribed by the code of conduct, issued by DPR 62/2013.

Art. 12 - Processing of personal data and person in charge for the contest

Information about the processing of personal data (provided during the application process) are available at the link: www.unibo.it/privacy (Notice for participants in contests and selections published by the University).

The person in charge of the contest is Mr. Gianfranco Raffaelli, Responsabile dell'Ufficio Ricercatori a tempo determinato - Piazza Verdi n. 3 - 40126 Bologna.

For further information, please contact: Ufficio Ricercatori a tempo determinato dell'Alma Mater Studiorum - Università di Bologna – Piazza Verdi n. 3 - Tel. +39 051 2099617 – 2098958 - 2098972, Fax 051 2086163; e-mail: apos.ricercatoritempodeterminato@unibo.it .

Art.13 - Reference Regulations

The present notice is issued based on the following regulations:

- Art. 24 of Law no. 240 dated December 30th, 2010;
- D.P.R. (Decree of the President of the Republic) no. 445 dated December 28th, 2000;
- Leg. Decree no. 165 dated March 30th, 2001;
- Law 241/1990;
- Regulation for fixed-term researchers of Alma Mater Studiorum – University of Bologna, (link: http://www.normateneo.unibo.it/NormAteneo/Regolamento_ricercatori_a_tempo_determinato.htm).

Per Il Dirigente dell'Area del Personale
f.to digitalmente Giovanni Longo