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Containing reopening of the comparative evaluation for the awarding of 1 research grant at the Department of Business and Management of Luiss Guido Carli, Project title “Software vulnerability detection for embedded devices” –Scientific Manager Prof. Emilio Coppa (s.s.d. ING-INF/05)

THE RECTOR

- HAVING regard to Law No. 168 of 9 May 1989 concerning the establishment of the Ministry for Universities and Technological and Scientific Research.
- HAVING regard to Law No. 240 of 30 December 2010, and in particular article 22 providing that universities may award grants for the carrying out of research activities.
- HAVING regard to Ministerial Decree No. 102 of 9 March 2011 on “Minimum Amounts for Research Grants – Article 22 of Law No. 240 of 30 December 2010”;
- HAVING regard to Luiss Guido Carli’s Research Grant Regulations issued by Rectoral Decree No. 213 of April 13, 2023;
- CONSIDERING the resolution of the Council of the Department of Business and Management, the Academic Senate and the Executive Committee of Luiss Guido Carli, respectively dated March 19, 2024, March 26, 2024 and April 15, 2024;

DECREES AS FOLLOWS ARTICLE 1

The comparative evaluation notice has been reissued, attached to this decree of which it forms an integral part, for the conferment of n. 1 research grant at the Department of Business and Management of Luiss Guido Carli, Project title “Software vulnerability detection for embedded devices” –Scientific Manager Prof. Emilio Coppa (s.s.d. ING-INF/05).

Prof. Andrea Prencipe

NOTICE OF COMPETITION BY WAY OF COMPARATIVE EVALUATION FOR THE AWARDING OF 1 RESEARCH GRANT AT THE DEPARTMENT OF BUSINESS AND MANAGEMENT

ARTICLE 1 – SUBJECT MATTER OF THE NOTICE

The Department of Business and Management of Luiss Guido Carli hereby issues notice of a public competition based on qualifications, publications and interviews for the awarding of 1 research grant in the scientific area of **Mathematics /Computer Science** – Algorithms within the framework of the following scientific disciplines (**settore scientifico disciplinare**) and research projects:

Scientific Discipline	Research Project	The Heads(s) of the Research Project	Duration
ING-INF/05	Software vulnerability detection for embedded devices	Prof. Emilio Coppa	18 months

A summary description of each research project, the countries in which the research can be conducted and the countries of residence of the candidates and their nationality can be found for each research project listed in the annex to this notice – which is an integral part hereof – on the University's website at <http://www.luiss.it> and also at <http://bandi.miur.it> and <http://ec.europa.eu/euraxess>.

The gross annual amount of a research grant, inclusive of all charges to be borne by the University, is € 24.320,00 and will be disbursed to the beneficiary in deferred monthly instalments. The award of the position will be through the signing of an individual contract.

Pursuant to article 3 of Luiss Guido Carli's Research Grant Regulations grants may last for between one and three years, are renewable and are not cumulative with scholarships awarded for any reason whatsoever, with the exception of those granted by national or international institutions that would be beneficial – through foreign studies – for the research activities of the grantees, including contributions for research activities given by Luiss Guido Carli.

The overall duration of the relationship established pursuant to the aforementioned article, including renewals if any, may not exceed four years not counting the period in which the grant is used to coincide with an unfunded research doctorate up to the statutory duration of the course.

A renewal, which cannot be for a period of less than one year, is decided by Executive Committee of Luiss Guido Carli on the proposal of the department concerned before the expiry of the contract.

The overall duration of the relations established with the holders of research grants covered by this notice and the contracts referred to in article 24 of Law No. 240/2010, concluded also with various public, private and distance learning universities as well as with public research and testing institutes including ENEA and ASI, with the same person, may not in any case exceed twelve years in total, continuously or otherwise. Statutory maternity or sick leave will not be taken into account for the purposes of the duration of the said relations.

ARTICLE 2 – ADMISSION REQUIREMENTS

Persons who fulfil the following requirements may participate in the comparative evaluation referred to in article 1 of this notice:

- the last qualification held (master's degree, doctorate or similar foreign qualification) must have been obtained within 5 years from the expiry date of the call. (the limit does not apply if the candidate is enrolled in a doctoral program);
- master's degree from an Italian university or comparable academic qualification (of at least the same duration) from a foreign university (translated and legalised by the competent Italian diplomatic or consular representatives in the foreign country, according to the regulations in force, if not already declared equivalent);
- research doctorate degree, awarded in Italy or abroad, consistent with the announced grant or a scientific-professional curriculum suitable for the conduct of research activity.

The aforesaid requirements must be met by the application deadline. Otherwise the applicant's application will be rejected.

The comparative evaluation is not open to the "permanent staff" of universities, public research and testing bodies and institutes, the Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA) and the Italian Space Agency (ASI).

In accordance with the provisions of article 18(1)(b) and article 18(1)(c) of Law No. 240/2010 the competition for research grants is not open to those who are related, by blood or marriage up to the fourth degree inclusive, to a professor in the

department issuing the notice of competition or deciding on the renewal or to the rector, director general or member of the University's board of directors.

Holding a research grant is not compatible with participation in bachelor's, specialist, master's or funded research doctorate degree courses in Italy or abroad or university master's courses. For public sector employees it will entail taking unpaid leave including for part-time employees.

Private sector employees, even if just part-time, may not benefit from a research grant.

ARTICLE 3 – DEADLINE AND PROCEDURE FOR SUBMISSION OF APPLICATIONS AND QUALIFICATIONS

The application for admission must be submitted on-line by the deadline of **2 p.m. Central European Summer Time (CEST) of May 20, 2024**. Candidates are responsible for the information that will be input into the online form and the validity of the certification/self-certification submitted. The University is entitled to check the information and validity of the documents submitted and in the event of a discrepancy with what has been declared it may exclude the candidate at any time including after the competition has taken place.

The online procedure must be completed through accessing the University's website at <http://jsa.luiss.it/LGCAsegni/index.zul?CDS=AS4241>

To submit the application candidates must adhere to the following procedure:

- a) go to the webpage <http://jsa.luiss.it/LGCAsegni/index.zul?CDS=AS4241>;
- b) fill out all the application fields, attaching the required documents:

Mandatory documents

1. master's degree certificate indicating the final grade of the degree examination and the results of the individual examinations or equivalent academic qualification (if awarded abroad) or copy of the qualification (if awarded abroad) duly translated and legalised by the competent Italian diplomatic or consular representatives in the foreign country, according to the regulations in force;
2. research project;
3. curriculum of scientific and professional activities;
4. a list of publications and qualifications;
5. plain photocopy of a currently valid identity document of the applicant;

Elective documents

6. research doctorate degree certificate, if the applicant holds this kind of degree;
7. any other documentation and/or certification deemed useful as a proof that the applicant's scientific and professional curriculum is suitable for conducting research activity.

The application is to be considered for all statutory purposes as self-certification of the candidate's personal details and qualifications declared except for publications.

Once the procedure for submitting the application has been completed, the candidate will receive by email an application's copy as a proof of the procedure accuracy and validity.

For points 1 and 6, the applicant may submit self-certification in accordance with Presidential Decree No. 445 of 28 December 2000.

This University is obliged to make appropriate checks, including sample ones, and in all cases in which reasonable doubts arise as to the veracity of any declarations in lieu. Should the checks reveal that the contents of the declaration are untrue, the applicant will forfeit any benefits received as a result of the order issued on foot of the declaration which transpires to be untrue without prejudice to whatever other consequences may flow from the criminal law and other special legislation in the matter.

The University assumes no liability for any correspondence that goes astray as a result of the applicant's giving of imprecise contact details, the applicant's failure to or delay in notifying a change to the contact details specified in the application, errors on the part of the postal service or in any event problems in that regard attributable to third parties, chance or force majeure or non-return of the advice of receipt in the case of sending by registered letter.

ARTICLE 4 – EVALUATION OF QUALIFICATIONS AND PUBLICATIONS

The Judging Committee is appointed by decree of the Rector of Luiss Guido Carli and made up of three tenured professors from Italian or foreign universities.

The Committee may avail of the services, free of charge, of highly qualified Italian or foreign expert auditors external to the University.

The Committee will make its comparative evaluation of the candidates based on qualifications, publications and interview.

The Committee reserves the right to request copies of titles and publications from applicants.

For the purposes of that procedure the following amongst others will be considered as qualifications:

- research doctorate degree;
- the research project submitted;
- the carrying out of documented research activity with public and private parties through contracts, scholarships or assignments in Italy or abroad;
- any other documentation and/or certification deemed useful for ascertaining that the candidate's scientific and professional curriculum is suitable for conducting research activity.

The Judging Committee will award up to 60 points for the qualifications, publications and documented research activities and up to 40 points for the interview, which includes not just a presentation of the research project but also a discussion of the scientific works submitted, for a final score of up to 100 points.

The points to be awarded to qualifications will be divided as follows:

- a) up to 20 points for the academic curriculum;
- b) up to 10 points for the adequately detailed research project;
- c) up to 15 points for scientific publications that show originality, scientific relevance and consistency with the scientific area selected by the candidate;
- d) up to 15 points for documented research activity with public and/or private parties in Italy or abroad.

Candidates who are awarded a score of at least 36/60 in the evaluation of qualifications will be admitted to the interview phase.

Candidates awarded the minimum score or better will be notified that they have been admitted to the interview phase, indicating the date and place. Notification will be through publication on the University's website and e-mail sent to the address given for the purposes of the competition at least 15 days before the date scheduled for the interview,

To pass the interview, the candidate must be awarded a score of at least 24/40.

The sum of the qualifications, publications and interview scores will yield the overall score of each candidate.

At the end of the process the Judging Committee will compile the overall ranking in decreasing order for each research project based on the scores obtained as above.

The Judging Committee's decision is final.

The ranking is approved by decree of the Rector of Luiss Guido Carli and published on the University's website.

Any grants that become available as a result of their being declined before the grantees have commenced their contract will be redistributed in accordance with ranking order.

ARTICLE 5 – OBLIGATIONS AND RIGHTS

The winners must submit a declaration of acceptance within a maximum of 10 days following receipt of the notice of the grant award at the e-mail address given for the purposes of the competition, failing which the grant will be forfeited.

The start date of the grant may be deferred solely for duly certified health reasons, compulsory maternity leave and duly proved cases of force majeure.

In the event that the winner is a researcher of non-EU citizenship, the start date of the grant is subject to the positive outcome of the procedure specifically designed for the admission of third-country nationals for Scientific Research purposes, pursuant to art. 27 ter of the legislative decree n. 286/98 (Consolidated law on immigration), introduced by legislative decree no. 17/2008, which implements Directive 2005/71 / EC.

The researcher of non-EU citizenship must submit a declaration of acceptance within the peremptory deadline of 10 days from the date of receipt of the communication, by sending to the e-mail address elected for the purposes of the competition, of the awarding of the grant. The researcher of non-EU citizenship will lose his/her right to the research grant if, by the aforementioned term, doesn't declare to accept it or he/she doesn't start his/her activity by the dates established following the aforementioned procedure.

The grantees must undertake their research within the framework of research projects approved by the department they pertain to.

The grantees are required to submit an annual report in writing on their activities to the management of the department in which their work is done together with the assessment of the head(s) of the research project. The grantees are also required to submit a final report on their activities together with the opinion of the head(s) of research.

Subject to assuring the regular performance of the research activities assigned to them, subject to obtaining the prior authorisation of the department and after consulting with the head(s) of research, grantees may participate in the

carrying out of research or advisory work on behalf of third parties who have commissioned those type of activities from the University and thus the grantees may share in the associated revenue in the manner laid down in the regulations governing such matters. The grantees may also participate in activities carried out within the context of national, EU and international programmes.

The grants do not give any rights concerning access to permanent positions at the University.

In the event of documented serious illness, the research activity and thus the grant may be suspended.

The grant will not be suspended for absences of less than a total of 30 days over the course of a calendar year and consequently no justification of absences will be required.

The absence of incompatibility under article 2 of this notice, the absence of cumulation and the obtaining of the period of leave referred to above must hold true at the commencement date of the grant and last for the entire duration thereof.

If after commencing his or her scheduled research activities a grantee does not regularly and continuously carry them out for the entire period without justifiable reason or is guilty of grave and repeated omissions and breaches, a procedure to terminate the contract will be commenced on the proposal of the head(s) of research subject to the approval of the board of the department involved.

ARTICLE 6 – DISBURSEMENT, TAXES AND SOCIAL SECURITY

The University will arrange insurance coverage against injuries and civil liability for the grantees within the context of the performance of their research activities.

In the event that the winner is a researcher of non-EU citizenship, the university will cover the costs for the return trip of the Researcher to his country of origin and take out a sickness insurance policy for himself /herself and his /her family, (in the event of family reunification) or see to their registration to the Italian National Health Service for the entire period of stay in Italy, pursuant to the Host Agreement to be signed between Luiss and the researcher - as part of the procedure specifically conceived for the admission of citizens of third countries for the purposes of Scientific Research, pursuant to art. 27 ter of the legislative decree n. 286/98 (Consolidated law on immigration), introduced by the legislative decree no. 17/2008, which implements the Directive 2005/71 / EC.

For tax purposes, the grants will be subject to the provisions of article 4 of Law No. 476 of 13 August 1984, as amended; for social security purposes the provisions of articles 2.26 *et seq.* of Law No. 335 of 8 August 1995 as amended; for compulsory maternity leave purposes the provisions of Ministry of Labour and Social Welfare Decree of 12 July 2007 published in Official Gazette No. 247 of 23 October 2007; for sick leave purposes the provisions of article 1.788 of Law No. 296 of 27 December 2006 as amended.

During compulsory maternity leave when the running of time for the purposes of the duration of the grant is suspended, the maternity benefit paid by INPS pursuant to article 5 of the aforementioned Decree of 12 July 2007 will be topped up by the University to reach the amount of the grant.

ARTICLE 7 – RESPONSIBLE FOR THE PROCEDURE

The Head of the Procedure for this announcement is the People & Culture Director of the University, Dr. Francesco Maria Spanò, e-mail assegnidiricerca@luiss.it

ARTICLE 8 – FINAL PROVISIONS

For all matters not specifically addressed herein reference is to be made to article 22 of Law No. 240/2010, Luiss Guido Carli's Research Grant Regulations and, in so far as it is compatible, the general law on self-employment.

RESEARCH PROJECTS

Name of the research project	Software vulnerability detection for embedded devices
Research project Supervisor	Prof. Emilio Coppa (ING-INF/05)
Summary description of the research project	<p>This research is part of the project PRIN 2022 FARE “Firmware Analysis for vulnerability detection” and involves the design and implementation of novel static and dynamic analysis techniques able to identify vulnerabilities within the software running on embedded and IoT devices.</p> <p>More in detail, these are the main objectives:</p> <ol style="list-style-type: none"> 1) The first objective is the construction of a rich collection of real-world firmware, the identification of their execution context, and the analysis and improvement of emulation platforms able to run such software. 2) The second objective is to devise static analysis techniques able to identify portions of code that may contain software vulnerabilities. 3) The third objective of the project is to validate whether a security concern about a portion of code is indeed a security flaw using dynamic analyses based, e.g., on fuzzing and symbolic execution. <p>The activities require knowledge of or experience with: static and dynamic analyses for vulnerability detection (even in other domain, e.g., traditional platforms, blockchain, etc.), reverse engineering of binary code (e.g., experience with malware analysis), low-level aspects of computing systems (hardware architecture, assembly programming), low-level details of embedded systems and IoT devices.</p> <p style="text-align: center;">Admission requirements</p> <ul style="list-style-type: none"> • master’s degree in engineering in computer science • master’s degree in computer science • master’s degree in Cybersecurity
Countries in which the research can be conducted (apart from Italy)	All
Countries of residence of the candidates	All
Nationality of candidates	All