



**Funded by
the European Union**

Job Information

Organisation/Company

Università della Calabria (University of Calabria)

Department

Department of Computer Engineering, Modelling, Electronics and Systems Engineering (DIMES)

Research Field

Engineering » Electrical engineering

Engineering » Electronic engineering

Engineering » Materials engineering

Physics » Applied physics

Physics » Optics

Researcher Profile

First Stage Researcher (R1)

Positions

PhD Positions

Application Deadline

21 September 2026 – 12:00 (noon), Europe/Rome time

Country

Italy

Type of Contract

Temporary

Job Status

Full-time

Is the job funded through the EU Research Framework Programme?

Horizon Europe – MSCA, call HORIZON-MSCA-2024-DN-01

Marie Curie Grant Agreement Number

101226363

Is the job related to a staff position within a Research Infrastructure?

No

Funded by the European Union under grant agreement No 101226363.

Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the granting authority. Neither the European Union nor the granting authority can be held responsible for them.



**Funded by
the European Union**

Offer Description

This position is part of [UNVEIL](#), a Marie Skłodowska-Curie Doctoral Network funded by the European Union (Grant Agreement No. 101226363). UNVEIL brings together 21 partners and trains 12 doctoral candidates in advanced non-destructive imaging and digital tools for the study and preservation of paintings and 3D artworks.

The University of Calabria is recruiting one doctoral candidate (DC2). The successful applicant will be enrolled in the PhD programme in **TEACH – Technology Applied to Cultural Heritage** ([programme website](#)) and will work on the topic described below.

Doctoral Candidate DC2

Project title: Pseudo-noise Pulse-Compression Thermography (PuCT) with a multi-wavelength lighting source for the stratigraphy of paintings.

Objective. The main objective of the project is to optimise the PuCT technique for the inspection of paintings. The work combines signal processing with a modular heating system based on LEDs, which will be designed and built in the laboratory. LEDs covering the range from UV to NIR will make it possible to heat the varnish, the paint layer and the layer underneath selectively, so as to improve the resolution between layers, in particular for easel paintings.

Pseudo-noise PuCT works with low heating power and allows the LEDs to be driven efficiently. More importantly, it increases the sensitivity to small thermal changes and makes the excitation easy to tune, so that the procedure can be tailored to different types of painting (canvas, panel, wall and fresco). This matters because the frequency range of interest can change by up to a factor of 10,000 when moving from canvas to wall paintings.

Imaging procedures based on different post-processing methods (virtual wave, deconvolution and others) will be implemented to further increase the signal-to-noise ratio (SNR) and to enable thermal stratigraphy of the artwork. The system will first be optimised on mock-ups. A portable system for the inspection of paintings will then be built, equipped with a multi-wavelength lighting source and able to reach high SNR values.

Further goals are: (i) image fusion with hypercolorimetric multispectral imaging and visible data for emissivity correction, in collaboration with DC9 at Profilocolore Srl; and (ii) comparison and image fusion with other sub-surface non-destructive evaluation techniques, such as air-coupled ultrasonic testing and terahertz (THz) imaging, using both mock-ups and real artworks, in collaboration with DC1 at CNRS–Georgia Tech (France), DC3 at the University of Warwick (UK) and DC10 at Newcastle University (UK).

Reference: Ricci, M., Zito, R., & Laureti, S. (2024). Pseudo-noise pulse-compression thermography: a powerful tool for time-domain thermography analysis. *NDT & E International*, 148, 103218.

Planned secondments

- CNRS – International Research Lab Georgia Tech-CNRS (France): training on THz imaging; comparison and integration of THz and PuCT; on-site measurements on wall paintings together with CNRS-LRMH.

Funded by the European Union under grant agreement No 101226363.

Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the granting authority. Neither the European Union nor the granting authority can be held responsible for them.



**Funded by
the European Union**

- Centre for Conservation and Restoration “La Venaria Reale” (Italy): training on the diagnostics of easel paintings; on-site tests on mock-ups and artworks with a first prototype of the LED system.

Candidate profile

- MSc (or equivalent) in electrical engineering, electronic engineering, imaging science, physics, or a related field in science and technology for the conservation of cultural heritage or in non-destructive evaluation;
- interest in thermography, non-destructive evaluation, experimental work and signal processing;
- programming skills (for example Python or MATLAB);
- very good written and spoken communication skills in English;
- ability to work both independently and as part of an international, interdisciplinary team;
- commitment to publishing results in peer-reviewed journals;
- strong motivation, good organisational skills and attention to detail;
- willingness to travel for secondments, training and academic events;
- desirable: previous knowledge or experience of thermography measurements and non-destructive testing.

Practical details

Duration: 36 months, starting on 1 November 2026.

Supervisors: Stefano Laureti (University of Calabria) and Marco Ricci (Sapienza University of Rome).

PhD programme: TEACH – TEchnology Applied to Cultural Heritage, University of Calabria (dices.unical.it).

Recruitment follows an open, transparent, merit-based, impartial and equitable procedure. The University of Calabria values the diversity of its staff and welcomes all applications, regardless of age, gender, nationality, ethnic and social origin, religion, belief, disability, sexual orientation or identity.

The other UNVEIL positions and the collective advert are listed on the UNVEIL recruitment page: <https://unveil-dn.eu/contact/>

Where to Apply

The official call (Rector's Decree No. 996 of 10 August 2026, PhD courses – XLII cycle, academic year 2026/2027) is published here:

https://unical.portaleamministrazionetrasparente.it/archivio22_bandi-di-concorso_0_35736_874_1.html

Direct link to the English version of the call document: [dr_996 ... xlii ciclo en.pdf](#)

Please note: the call covers all PhD programmes of the University. The UNVEIL position belongs to the PhD programme TEACH under Administrative Category 997 (EU Funds). The details of the TEACH programme, including the UNVEIL position, are given on pages 73–77 of the call document.

Applications must be submitted online through the Esse3 portal:

<https://unical.esse3.cineca.it/>

Funded by the European Union under grant agreement No 101226363.

Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the granting authority. Neither the European Union nor the granting authority can be held responsible for them.



**Funded by
the European Union**

To apply you need Esse3 login credentials and you must pay a non-refundable administrative fee of €10 (payment instructions are given during the online procedure). Applicants who do not yet have an Esse3 account must first register here:

[Esse3 registration \(English\)](#)

When you submit your application, please also complete the expression of interest form on the UNVEIL website, if you have not already done so: <https://unveil-dn.eu/contact/>

Requirements

Education level

Master's degree or equivalent. The degree may also be obtained after the application deadline, provided it is awarded by the pre-enrolment deadline set in the call.

Skills / Qualifications required

At the date of recruitment, the selected candidate must:

- hold a Master's degree (or an equivalent qualification obtained abroad) in a relevant scientific field, such as engineering or physics;
- not hold a doctoral degree. Candidates who have successfully defended their doctoral thesis but have not yet been formally awarded the degree are not eligible;
- not have resided or carried out their main activity (work, studies, etc.) in Italy for more than 12 months in the 36 months immediately before recruitment (MSCA mobility rule);
- have an excellent academic record;
- work full-time on the research activity, unless the European Commission authorises otherwise for personal or family reasons;
- carry out only the research activities set out in the research programme, without taking on teaching duties at the university;
- not receive any additional income beyond what is stated in the call;
- sign the agreements required in relation to intellectual property rights;
- respect the confidentiality rules of the European project.

Languages

English – Level: Very Good

Internal application form(s) needed

[dr 996 del 10082026 bando di selezione dottorato di ricerca xlii ciclo en.pdf](#) (English)

Additional Information

Eligibility criteria

The position is open to candidates of any nationality who meet the eligibility rules of the Marie Skłodowska-Curie Actions – Doctoral Networks (MSCA-DN). At the date of recruitment, applicants must meet both of the following conditions.

Funded by the European Union under grant agreement No 101226363.

Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the granting authority. Neither the European Union nor the granting authority can be held responsible for them.



**Funded by
the European Union**

Experience. Applicants must not already hold a doctoral degree. Applicants who have successfully defended their doctoral thesis but have not yet been formally awarded the degree are not eligible. Applicants must hold a five-year university degree (Master's degree or equivalent).

Mobility rule. Applicants must not have resided or carried out their main activity (work, studies, etc.) in Italy for more than 12 months in the 3 years immediately before the recruitment date.

Further details are given in the “Recruited Researchers” section of the Horizon Europe Work Programme 2023–2025 for MSCA actions:

https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/wp-call/2023-2024/wp-2-msca-actions_horizon-2023-2024_en.pdf

General information on MSCA Doctoral Networks: <https://marie-sklodowska-curie-actions.ec.europa.eu/actions/doctoral-networks>

Selection process

Admission procedure (Administrative Category 997): assessment of qualifications, assessment of the research project, and an oral examination. Knowledge of English is tested during the oral examination and must be at level B1 or above of the Common European Framework of Reference for Languages (CEFR).

Assessment criteria: maximum overall score 60 points – qualifications up to 30 points (research project up to 20, CV up to 10) and oral examination up to 30 points. A minimum of 21 points is required to be admitted to the oral examination and to pass it.

Calendar: the results of the assessment of qualifications will be published on 2 October 2026. The oral examination will take place on-line on 6 October 2026. Instructions for the oral exam for UNVEIL candidates will be published with a later note on the official call page. Results are published at <https://dices.unical.it/ricerca/dottorato-di-ricerca/>.

Documents to be uploaded (PDF format only)

For the UNVEIL position (Administrative Category 997), the online procedure requires the following documents, as set out in Article 4, paragraph 12 of the call:

- self-declaration of the academic qualification under Art. 47 of D.P.R. 445/2000 (Annex B) – only for candidates holding a qualification awarded in Italy or in an EU country, including students who will graduate by the pre-enrolment deadline;
- for all candidates holding a degree awarded outside Italy, the documentation listed in Article 3, paragraph 3 of the call, used to assess the foreign qualification;
- self-declaration of the examinations taken and the marks obtained, for candidates who do not yet hold the entry qualification;
- research project, up to 16,000 characters including spaces, written in line with the research topic of the position;
- curriculum vitae et studiorum;
- copy of a valid identity document (both sides);
- copy of the Italian tax code (Codice Fiscale), if the candidate has one;
- any further qualifications that can be assessed, as listed in the programme factsheet (Annex A).

Funded by the European Union under grant agreement No 101226363.

Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the granting authority. Neither the European Union nor the granting authority can be held responsible for them.



**Funded by
the European Union**

Benefits

The recruited doctoral candidate will receive a gross research fellowship (“Incarico di ricerca”) in accordance with Italian law. The amount follows the MSCA rules set out in the “Applicable Unit Contributions” section of the Horizon Europe Work Programme 2023–2025 for MSCA actions (see the link above).

Monthly gross salary (MSCA components):

- living allowance: approximately €3,821.53 (base rate €4,010.00 × 95.3% country correction coefficient for Italy);
- mobility allowance: €710.00;
- family allowance: €660.00, “Long term leave”, and “Special Needs” where applicable.

The net amount depends on social security contributions and on local taxation.

The working environment. The University of Calabria is organised as a campus covering about 200 hectares. It hosts 14 departments, 80 degree programmes, 2 specialisation schools, 13 interdepartmental centres, 4 museums, the University Language Centre, a residential centre with about 1,800 beds, several canteens, a public transport service used by thousands of students every day, more than 200 lecture rooms, the largest library in southern Italy, a centre for music and performing arts, a sports centre, and a business incubator run by the Research, Innovation and Social Impact Area, which has extensive experience in managing EU projects (ESF, ERDF, FPs, H2020, Horizon Europe).

Additional comments

For further information about the position or the application procedure, please contact Dr Stefano Laureti and Prof Marco Ricci (stefano.laureti@unical.it, marco.ricci2@uniroma1.it).

They will be happy to give more details about the project and about how to apply.

Work Location(s)

Number of offers available

1

Company/Institute

University of Calabria

Country

Italy

State/Province

Cosenza

City

Rende

Funded by the European Union under grant agreement No 101226363.

Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the granting authority. Neither the European Union nor the granting authority can be held responsible for them.



**Funded by
the European Union**

Postal Code

87036

Street

Via Pietro Bucci

Contact

State/Province

IT

City

Rende (CS)

Postal Code

87036

Street

Via Pietro Bucci – Arcavacata

Website

<https://www.unical.it/>

Funded by the European Union under grant agreement No 101226363.

Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the granting authority. Neither the European Union nor the granting authority can be held responsible for them.