INESC TEC | Research Grant (AE2024-0497)
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Job Title	INESC TEC | Research Grant (AE2024-0497)
Department	CTM
Institution	INESC TEC PORTO, , Portugal
Date Posted	Nov. 22, 2024
Application Deadline	Dec. 4, 2024
Position Start Date	Nov. 21, 2024
Job Categories	Graduate Student
Academic Field(s)	Engineering - Other
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Job Description

Research Opportunities

Computational Learning

Work description

Breast conservative therapies have been allowing many women with breast cancer to avoid a mastectomy. Nevertheless, there are many scenarios where the latter is still conducted. Fortunately, breast reconstruction allows to alleviate the loss of the breast(s) either by making use of an implant or tissue from the body of the patient. Among the autologous options, the DIEP flap is nowadays considered the state-of-the-art. This technique gets its name after the designation of the blood vessel

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tree that exists in the lower and anterior portion of the abdomen, the Deep Inferior Epigastric Perforator vessels.

This is due to the crucial role that these blood vessels play in this procedure, since they are extracted among the tissue and must ensure proper vascularization of the new breast. When a patient shows interest in this type of reconstruction, the surgical team requests a Computer Tomographic Angiography (CTA) or Magnetic Resonance Angiography (MRA).

The radiology team acquires the scans and detects the DIEP vessels. In the end, a report with a description of every perforator that was found (variable but usually around 6-8) is delivered to the surgeons, such that they may determine whether the patient is eligible for the procedure, and in case she is, they may plan which vessels will include in the flap and how it will be collected. This process is very challenging for the radiological team, mainly because these blood vessels are very small (cross section of 1-2 pixels most of the time). The objective of this work is to investigate computer vision/machine learning techniques which can achieve a larger automation of the process of segmentation without significantly lowering its accuracy.

Minimum profile required

- Experience in Computer Vision and machine learning.

Preference factors

- Experience in research projects.

Maintenance stipend: € 1259,64, according to the table of monthly maintenance stipend for FCT grants , paid via bank transfer. Grant holders may be awarded potential supplements, according to a quarterly evaluation process (Articles 19, 21 and 22 of the Regulations for Grants of INESC TEC and Annex II), up to a maximum limit of 50% of the monthly maintenance stipend.

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INESC TEC supports costs with registration, enrolment or tuition fees, during the grant duration, under the terms established in the internal document: "Payment of Tuition fees to grant holders".

The grant holder will benefit from health insurance, supported by INESC TEC.

Application Period

Since 21 Nov 2024 to 04 Dec 2024

Centre

Telecommunications and Multimedia

Scientific Advisor

Hélder Filipe Oliveira

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Contact Information

Please reference Academickeys in your cover letter when applying for or inquiring about this job announcement.

Contact

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