

INESC TEC | Research Grant (AE2024-0409)
INESC TEC

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Posted Sep. 30, 2024, set to expire Jan. 30, 2025

Job Title	INESC TEC Research Grant (AE2024-0409)
Department	CRIS
Institution	INESC TEC PORTO, , Portugal
Date Posted	Sep. 30, 2024
Application Deadline	Oct. 9, 2024
Position Start Date	Sep. 26, 2024
Job Categories	Graduate Student
Academic Field(s)	Engineering - Other
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Job Description	

Research Opportunities

Mobile Robotics

Work description

Literature Review:

1. Review of previous work on localization using 3D sensors;
2. Analysis of current technologies, identifying their limitations and areas for improvement.

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Data Acquisition:

1. Selection of the most suitable 3D sensors (e.g. LiDAR, stereo cameras);
2. Planning data collection in different environments;
3. Identification of relevant public datasets.

Resource Engineering:

1. Feature Extraction: Identification of the most relevant features, such as curvature, normals and distances;
2. Feature Selection: Choose the most important features using techniques such as:
 - o Correlation analysis;
3. Importance of features (feature importance);

Dimensionality reduction.

Algorithm Development and Training:

1. Defining the model architecture, choosing the algorithm and carrying out tests with different configurations and hyperparameters;
2. Training: Division of collected data into training, validation and test sets.

Experimenting with various optimization techniques such as gradient descent and stochastic descent.

Performance Analysis and Refinement:

1. Assessment of model performance on the validation set, using relevant metrics (e.g., precision, accuracy, recall, F1-score);
2. Model Refinement: Adjusting the model by modifying hyperparameters, adding or removing features, or exploring different architectures;
3. Consideration of techniques such as transfer learning or ensemble methods.

Compilation of Results and Final Report:

1. Compilation of results obtained throughout the project;
2. Writing of the final report, detailing the work carried out and the conclusions drawn

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Academic Qualifications

Bachelor's degree in engineering or related field;

Minimum profile required

Enrollment in a Master's degree in Electrical and Computer Engineering, Computer Engineering, or related areas;

Preference factors

Experience in Artificial Vision, Artificial Intelligence, ROS;

Maintenance stipend: € 990,98, 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.

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 26 Sep 2024 to 09 Oct 2024

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Centre

Robotics in Industry and Intelligent Systems

Scientific Advisor

[Héber Miguel Sobreira](#)

What we offer

- **Multicultural and collaborative environment**
- A multicultural, international and collaborative environment that makes it easier to exchange ideas, work in networks and create synergies.
- **International projects**
- The possibility of working in international projects with some of the most important companies in the field.
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- Mentoring with the best researchers in the fields of electrical and industrial engineering, bioengineering, information technology and physics.
- **Self Improvement**
- The possibility of participating in international conferences, workshops, seminars and vocational training.
- **Other Benefits and Perks**
- Flexible working time, health insurance, discounts in hotels, transportation, etc.
- **Informal Events**
- Annual informal events, such as the multicultural party.

For more information: [Click Here](#)

Contact Information

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

Contact

Portugal

Contact E-mail rh@inesctec.pt