

PUBLIC NOTICE**Call for allocation of a Scientist Scholarship****Reference: BII/FhP-22/04**

The call for allocation of a Research Integration Grant for University Student is open and subject to the following conditions:

1. **General scientific field:** Engineering.
2. **Specific scientific field:** Biomedical Engineering.
3. **Admission Requirements:** i) University Student attending an academic degree in the field of Biomedical Engineering or similar; ii) basic knowledge on Python scripting for data analysis; iii) basic knowledge on machine learning techniques and interest in developing such skills; iv) proficiency in English and excellent communication skills and teamwork.
 - 3.1. **Work Plan:** The Student will work under the framework of projects “HomeSenseALS – Home-based Monitoring of Functional Disability in Amyotrophic Lateral Sclerosis with Mobile Sensing” (PTDC/MEC-NEU/6855/2020) and “AlpALS - Advanced learning models for prognostic prediction in ALS” (PTDC/CCI-CIF/4613/2020). Data collection in raw format will require an effort for standardization, preprocessing and monitoring (including alerts). This work foresees the development of a set of (Python) scripts to query a database and process the corresponding data, rendering it ready for further analysis. It is also expected that the student can complete a set of preliminary analyses on the processed data, namely in the form of statistics and visual representations on each dimension under study, and the application of unsupervised learning techniques to unravel specific patterns or supervised learning methods based on multimodal data to predict the patients’ functional scores. Ideally, the result should be fed into a visual dashboard, e.g., based on Streamlit, that can be used by the physicians collaborating with the project to easily assess each patient’s status, on any of these four dimensions.
 - 3.2. **Tasks:**
 - Data querying and processing from the project pilot database;
 - Implement monitoring and alerting scripts to secure patient data;
 - Integrate patients’ Mobility, Speech, and Respiratory information;
 - Multimodal Machine Learning studies;
 - Model correlations of interpretable features and ALSFRS (functional scale) scores;
 - Intuitive dashboard tool for clinicians (based on the Streamlit framework).
4. **Applicable law and regulation:** Portuguese Statute of the Scientific Research Scholarship Holder [“*Estatuto do Bolseiro de Investigação Científica*”], approved by Law no. 40/2004, of August 18, amended by Decree Law no. 202/2012, of

August 27, Law no. 12/2013, of January 29, Decree Law no. 89/2013, of July 9 (hereinafter referred to as the “Statute”), Law no. 123/2019, of August 28 and the Research Scholarships’ Regulation of Associação Fraunhofer Portugal Research (hereinafter referred to as the “Regulation”).

5. **Place of work:** Fraunhofer Portugal AICOS, Lisbon, Portugal, under the scientific supervision of PhD André Valério Carreiro.
6. **Scholarship’s Duration and Regime:** The scholarship shall have the duration of 3 months, eventually renewable for equal periods of time or until the term of the project, with estimated starting date on August, 2022, according to article 13 of the Regulation and article 3 of the Statute, under exclusivity regime, except for the exceptions expressly set out in nos. 3 and 4 of article 5 of the referred Statute.
https://www.aicos.fraunhofer.pt/content/dam/portugal/fhp/careers/grants/Regulamento_Bolsas_Fraunhofer_Portugal_Research_2021.pdf
7. **Amount of the monthly maintenance allowance:** The amount of the scholarship corresponds to €486,12 as per table of amounts of the scholarships of Associação Fraunhofer Portugal Research, https://www.fraunhofer.pt/content/dam/portugal/fhp/careers/grants/Reg_Bolsas_FhP_Anexo_II_Jan2022.pdf.
The payment of the scholarship shall be made on a monthly basis, by wire transfer.
8. **Selection Procedures:** The selection procedures to be used shall be made based on the following parameters:
A – Alignment of academic choices with the work to perform; B – Curriculum evaluation in accordance with the objectives of the project; C – Experience in research works. The following percentage weighting shall be given to the selection parameters: $0,3 \times A + 0,5 \times B + 0,2 \times C$.
9. **Composition of the selection panel:** Chairman: Doctor André Valério Carreiro; Permanent Members: Doctor Inês Sousa Soares and Doctor Maria João Vasconcelos.
10. **Publication/notification of the results:** The final evaluation results shall be published in a list ordered by final score, posted in a visible and public place at Fraunhofer Portugal. The approved applicant shall be notified by e-mail.
11. **Opening period of the call:** The call is open from 01-08-2022 to 15-08-2022.
12. **Documents and deadlines for application:** Applications must be submitted by means of an application email with the following documents: *Curriculum Vitae*, required qualifications’ certificate and other evidencing documents deemed relevant.

Applications should be delivered during the call's opening period, sent by e-mail with acknowledgement receipt to jobs@fraunhofer.pt, in *pdf* format, until 11:59 p.m. of August the 15th 2022.