



Courtesy translation of D.R. n. 140/2022

*For more details on the selection process, please refer to the Italian version of D.R. n. 140/2022 available at <http://www.hunimed.eu/it/lavora-con-noi/>*

**SELECTION PROCEDURE FOR RESEARCH FELLOWSHIP**

|                                |  |
|--------------------------------|--|
| Research Program Title         | <b>Generative Adversarial Networks (GANs) for Synthetic Data in Breast Cancer</b>  |
| Tutor                          | Prof. Alberto ZAMBELLI   |
| Scientific Area                | 06 – Medical Sciences  |
| Gross amount of the fellowship | 36.000 Euro  |
| Duration of the fellowship     | 18 months  |
| Objectives of the research     | <p>In this study, we aim to explore the use of a class of Machine Learning models calls “Generative Adversarial Networks” (GANs) and other generative methods to generate synthetic data in breast cancer (BC) starting from a real-world data training set. BC represents a heterogeneous disease, based on clinical and molecular disease's sub-classification and therefore, robust data simulators for forecasting and decision making on the different heterogeneous BC are expected to enable innovation through rapid data access, without data-privacy restrictions.</p> <p>From this real-world information, we will generate synthetic data able to derive models to predict individual BC patients' outcomes. The results of this project could be useful for the BC scientific community as an innovative digital health experience of data augmentation, disease prognostication and freely data management without restrictions related to privacy concerns.</p> |
| Activities to be carried out   | <p>The candidate will carry out:</p> <ul style="list-style-type: none"><li>- Data extraction and setup of the working environment;</li></ul>   |

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|------------------------|---|
|                        | <ul style="list-style-type: none"> <li>- Exploration and evaluation of the models for synthetic data generation;</li> <li>- Development and implementation of the generative models identified;</li> <li>- Testing and validation of synthetic data generated and performance of the models;</li> <li>- Consolidation of the developed code;</li> <li>- Publication of the obtained results.</li> </ul>   |
| Work place             | PIEVE EMANUELE - Milan  |
| Mandatory requirements | Master in a STEM discipline or equivalent; scientific and professional CV suitable to the carrying out of the research activities outlines above.   |
| Selection process      | <p>Application for admissions must be submitted at the following link:</p> <p style="text-align: center;"><a href="https://pica.cineca.it/humanitas">https://pica.cineca.it/humanitas</a></p> <p>No hard copy of the application must be sent by post.</p> <p>At first access, applicants need to register by clicking on “Register” and completing the requested data.</p> <p>If applicants already have LOGINMIUR credentials, they do not need to register again. They must access with their LOGINMIUR username and password in the relevant field LOGINMIUR.</p> <p>Applicants must enter all data necessary to produce the application and attach the required documents in PDF format.</p> |
| Selection criteria     | <p>Selection criteria are predetermined by the Selection Committee. As part of the selection process, the Committee will evaluate the curriculum, titles and publications presented by the candidate and will consider, in particular:</p> <ul style="list-style-type: none"> <li>- Technical skills;</li> <li>- theoretical knowledge;</li> <li>- previous experience;</li> <li>- knowledge of the field of application;</li> <li>- problem solving skills;</li> <li>- linguistic knowledge.</li> </ul>  |



**FURTHER INFORMATION:**

In the event of any conflict between Job Opening text and Italian D.R. text, the Italian version will prevail.

For more details on the selection process please refer to the **D.R. n. 140/2022** (<http://www.hunimed.eu/it/lavora-con-noi/>) or send an inquiry to [ufficiodocenti@hunimed.eu](mailto:ufficiodocenti@hunimed.eu) or telephone +39 02.8224.5642/5421.