

AI development for disruptive radiology assistant

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Sycal Technologies is a young digital health startup focused on increasing the detection of early-stage cancer and improving patient's quality of life applying AI-based algorithms to medical imaging tests.

Our first product helps radiologists to detect, localize and classify pancreatic cystic lesions on CT scans and magnetic resonance (MR) images. Combining the information of the images and data from the clinical history of the patient it predicts the probability of each lesion to evolve into pancreatic cancer, the 4th leading cause of death by cancer in Europe with a median survival time from diagnosis of 5 months.

Currently, we are expanding our portfolio applying our technology to other organs in the abdomen in order to increase the early-stage diagnosis of abdominal cancers.

Objectives and Tasks:

- The development of a deep learning framework for pixelwise labelling, automatic training and illustration of the results of multiple abdominal organs in CT scans and MR images.
- The development of an own low-latency deep neural network for semantic segmentation of multiple classes improving results from typical architectures such as fully convolutional networks or U-Nets.
- Statistical prediction model of the evolution in time from detected classes.

Within the 3-years period at least one research papers shall be published in important international conferences in medical imaging or computer vision (to be defined with the company).

The main objective of the researcher's work is the creation of a framework for semantic segmentation on CT scan and MR (magnetic resonance) images for multiple types of classes and on different resolution ranges. It will be also a goal of the researcher's work to develop and validate new mathematical models to optimize the number of parameters in the network as well as to minimize the number of layers.

Candidate Profile:

- Degree in engineering, physics or mathematics
- PhD in deep learning or similar
- Proven experience in deep learning frameworks for image analysis like: pytorch, tensorflow, keras or caffe. Experience in medical imaging (types of image formats, e.g.) is desired.
- Proven experience in the development of algorithms to analyse CT scans and/or MR images.
- Fluent in English or Spanish written and spoken (C1 at least)

We offer:

- Up to 38000€/year salary
- A young flexible and innovative work environment in contact with other entrepreneurs and start-ups. Our work centre is located at the Barcelona Activa Incubator in the centre of Barcelona (Spain).
- Flexible working hours and home office
- To begin in the first quartal of 2023