



ONESHOT

A digital biopsy: mapping lung tumors beyond imaging

THE INVENTION

Multi-level lung cancer screening system, which uses a combined radiomic analysis approach with four sub-levels (clinical, histopathological, molecular and epigenomic), integrating radiological images, genomic information, and clinical data to achieve a "digital biopsy".

Innovative aspects and advantages

- **Multimodal diagnosis:** unlike similar unimodal systems only focusing in CT, this system is capable of analyzing both CT-thorax and PET-scans.
- **Multidiagnostic level:** clinical, pathologic and molecular
- **Reduction in costs and patient distress:** reduced false positives and efficient decision making avoid unnecessary follow up procedures (radiology, biopsy, surgery), along with unnecessary patient distress and associated healthcare costs.
- **Easy deployment:** the system is implemented as a cloud service, independent of clinical infrastructure and fully compatible with existing imaging methods.

Summary

Screening programs with Low Dose Computed Tomography (LDCT) scans have proven essential in reducing lung cancer mortality, the leading cause of cancer deaths worldwide. However, they yield a high rate of false positives – among 60% of LDCT scans require closer follow up through radiological or invasive techniques, which causes distress in patients and increased healthcare costs.

We propose a system for the early detection of lung cancer based on image analysis and machine learning methods to characterize tumors and improves the performance in current prediction of lung nodule malignancy, mutational profile and evolution, optimizing their diagnosis and treatment.

We are looking for

- Investors for early-stage projects with the ultimate goal of helping to obtain an MVP for testing in real environments
- Clinical partners who can provide new data to continue with the technology validation.
- Open to explore alternative implementation pathways to hospital clinical practice such as clinical trials or primary care.

IP rights

EP priority application in 03/01/2023.

Scientific team

- Débora Gil - Interactive and Augmented Modelling research group in the Computer Vision Center (CVC), Professor at the Computer Science Department at UAB.
- Antoni Rosell - Professor of Medicine at the Universitat Autònoma de Barcelona and Clinical Director of the Thoracic Institute of Hospital Universitari Germans Trias i Pujol.



Contact

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