Postdoc in AI for Computational Pathology

The Center for Computational Biology (CBIO) at Mines Paris / Institut Curie is looking for a highly motivated postdoc to work on several challenging projects in the field of AI for Computational Pathology.
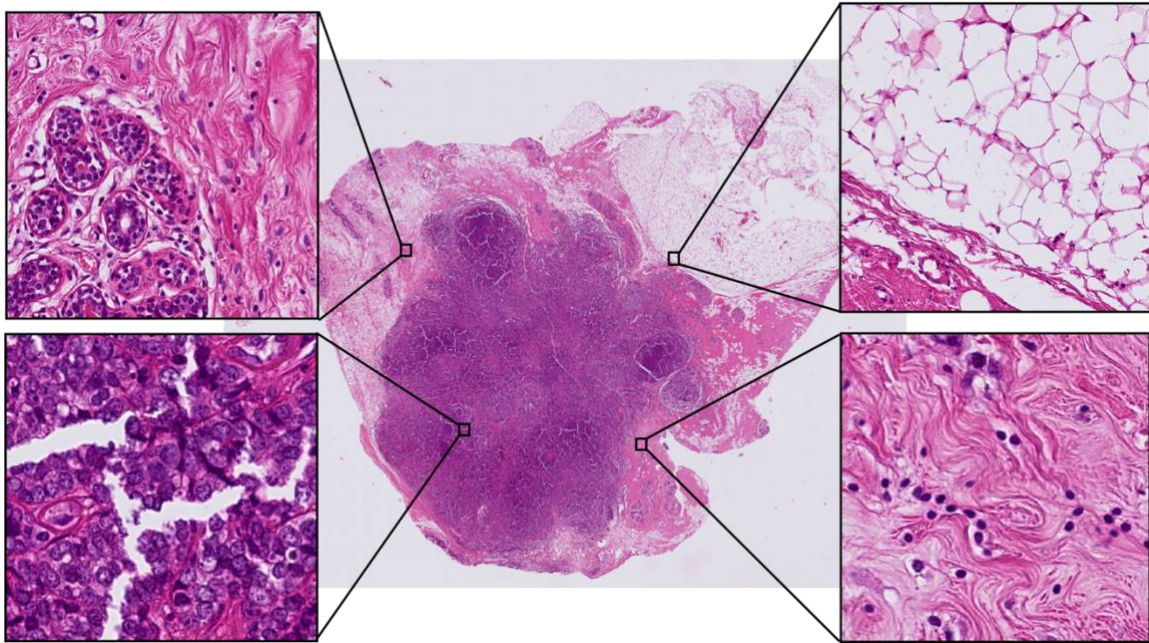

Figure 1 -Typical Whole Slide Image (WSI; here: breast cancer). Images are very large (Gigapixel range) and contain rich information on individual cells and the overall tissue architecture.

Project description

Computational Pathology is concerned with the automatic analysis of stained tissue slides in view of providing tools for Computer Aided Diagnosis and building models capable of predicting patient variables (such as survival or relapse risk) or genetic signatures. Artificial intelligence is today the major workhorse for Computational Pathology and has shown stunning successes in this field. On the other side, there are still many technological hurdles to be taken, and many methodological aspects to be addressed, relating to the latest developments in the field of Computer Vision. One of the most challenging and most rewarding directions is multi-modal data integration, another interesting field the investigation of causal inference and explainable AI in the context of computational pathology.

On the application side, we are involved in several clinical trials, where the objective is to predict the response to treatment and thus to identify the subpopulation of patients that would benefit from the treatment. Treatment response prediction is the most challenging task in Computational Pathology today, and also the problem of the highest clinical relevance. Thanks to our partnership with the Institut Curie, we have access to several large datasets that allow us to address these problems.

The candidate will work in an interdisciplinary team with medical doctors, bioinformaticians and experts in machine learning to tackle these exciting questions.

Research group

The project will take place at the Centre for Computational Biology, a joint laboratory between Mines Paris PSL, a major engineering school in France, and Institut Curie, a major hospital and research institution dedicated to cancer. The CBIO is a group specialized in machine learning for the life sciences with strong expertise in Computer Vision and Computational Pathology in particular. The group benefits from an exceptional scientific environment with immediate access to experts and collaborators in biology and medicine, enabling a stimulating interdisciplinary exchange. The laboratory is located in the center of Paris.

The project will be supervised by Thomas Walter (https://thomaswalter.github.io)

Candidate Profile

The candidate should have a PhD degree in Computer Vision, excellent programming skills and a promising track record. Some experience in biomedical image analysis is a plus, but not a requirement. The candidate should have strong communication skills and be capable of interacting with researchers from other fields (e.g. medical doctors, bioinformaticians, biologists).

Applications

The application file should contain:

- Cover letter
- CV
- List of publications
- Research statement
- Email addresses of 2 referees.

Applications are to be addressed to Thomas Walter: Thomas.Walter@mines-paristech.fr

The subject of the email should be (or contain): **Postdoc Application CBIO 2023**