

ITEA project results enhancing people's lives

Improving diagnostics in pathology

Histopathology is the microscopic examination of biological tissues to observe the appearance of diseased cells and tissues in very fine detail. Currently histopathology diagnostics takes only a fraction of the tissue into account and no special attention is given to the biochemical composition of the tumour. This makes the pathological examination labour intensive and subject to large inter-observer variation. With the introduction of the 3D Pathology solution, not only is more tissue taken into account, but also the biochemical composition is used to find the best solution for patient care.

The 3D Pathology solution creates a diagnostic street where tissue biopsies are digitised and reconstructed into a multi-modality three-dimensional volume. By viewing the resected tissue in 3D instead of 2D, the spatial arrangement of the tissue is restored, potentially giving more insight in the growth patterns of tumours. Together with the biochemical information as provided by Mass Spectrometry Imaging, this will increase the amount of information provided to the pathologists.

However, to keep the workload of pathologists low, the data is processed using state-of-the-art analysis techniques, including deep learning. By creating a multimodal 3D reconstruction and combining this with deep learning techniques, the 3D Pathology solution can improve the diagnostics in pathology. This way the pathologist is guided to the regions of interest, reducing his/her workload and enabling more accurate diagnosis, resulting in more and better optimised treatment options for patients.

**ITEA 3 project
3DPathology**

