



Advanced Detection of Metaphases

Customization
Package
**Metaphase
Detection DNN**



DNN-Based Metaphase Detection

The analysis of chromosomes starts with the time-consuming process of identifying metaphases on a specimen. The metaphase finder, Metafer Metaphase, powered by the established Metafer slide scanning software, is a dependable solution for automating this arduous step since many years. However, the machine learning-based approach has limitations, especially when poorly prepared cells or suboptimal cell cultures are involved.

MetaSystems has improved its Metafer-based metaphase finder to better manage these difficult scenarios. The use of Deep Neural Networks (DNN), a form of artificial intelligence, has the potential to enhance the detection of metaphases, even where previous methods were inadequate. This improvement allows for the inclusion of challenging preparations into automated workflows.

The DNN-based metaphase search can be added to any Metafer-based metaphase finder as a Customization Package. The approach typically yields metaphases of superior quality compared to those identified by traditional algorithms. The method has the potential to not only boost the overall count of detected metaphases but to also decrease the need for recording metaphases at high resolutions.

Improved Sensitivity

Discover more metaphases than previously possible, including those that are challenging to detect.



Improved Specificity

Unlock the potential to reduce the occurrence of false positives and to improve the quality of the detected objects.



Reduced Active Time

Attain higher specificity in results and reduce the necessity for manual selection of high-resolution metaphases.



Shorter Scan Time

Decrease overall processing time by eliminating the need of capturing excess images to obtain sufficient high-quality metaphases.



Less Storage Space

Conserve disk storage space on your servers by reducing the number of high-resolution images that need to be acquired.



Increased Robustness

Simplify the process of accommodating variations in slide preparation, thereby reducing the need for retraining and enhancing consistency.





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MetaSystems offers **Customization Packages** for application workflows that have been successfully implemented for customer labs using standard Metafer platform functionality. It is expected that they can be implemented for other customer labs using similar workflows and slide preparation procedures. If a Customization Package is purchased, MetaSystems product specialists will - based on their experience from other similar application cases - support the customer lab in adapting the Metafer software configuration to their needs. The performance of the solution will depend on the quality of the customer slides and the expertise of the users, MetaSystems cannot specify or guarantee any performance parameters. The validation of the solution for clinical use is the sole responsibility of the customer lab.

MetaSystems software provides, among other functions, features to assist users with image processing. These include, but are not limited to, the use of machine and deep learning algorithms for pattern recognition. The output generated in this process should be regarded as preliminary suggestions and, in any case, mandatorily requires review and assessment by trained experts.

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