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A web-based platform for education and quality control in cell morphology

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The morphological differentiation of cells is a challenging task for which experience and continuous qualification over many years is needed. In the field of diagnostics of variations in blood and hematopoietic organs the qualification of health personnel is of particular importance. For this reason an interactively usable knowledge and qualification platform for professionals in hematology in the area of cell morphology has been developed. The HemaWeb platform covers significant aspects of knowledge transfer, knowledge development and knowledge assurance and provides professional exchange with tutorial support and certified examinations. Fundamental information about cell morphology is contained in a case database and in a cell dictionary. Interactive test assignments provide the opportunity to check this basic knowledge. Knowledge Transfer from experts to platform users is supported by interactive discussion of clinical cases in webinars and case conferences through a discussion platform. The core element of the platform is a module for internal and external quality control (inter-laboratory tests) by means of virtual microscopy. Digitized samples are pre-annotated by a clinical expert as supervisor of the test. Participating laboratories can access and navigate slides, enter their annotations and receive automated reports on their performance. The platform has been evaluated in a several pilot studies with hematology laboratories in Germany. It provides access to high-quality slides and flexible, extra-occupational education without the obligation to be present. Improved education and training possibilities can be realized and cost-efficient execution of inter-laboratory tests with a higher grade of comparability are possible.

Biography

Christian Munzenmayer has completed his Doctorate from the University of Koblenz-Landau in 2006. Since 2000, he is with the Fraunhofer Institute for Integrated Circuits IIS, Germany. His primary research interests center on image and texture analysis, automated microscopy and digital pathology. He is the Head of the research group Medical Image Processing and Manager of the business field Digital Pathology and Laboratory Diagnostics. He is the author and co-author of over 60 publications in scientific journals and proceeding volumes and has been Reviewer for *Medical Engineering and Physics*.

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