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Quantitative measurement of cellular events with image processing and data mining for drug discovery, therapy and system biology

In the rapidly expanding fields of cellular and molecular biology, fluorescence illumination and observation is becoming one of the techniques of choice to study the localization and dynamics of proteins, organelles and other cellular compartments as well as a tracer of intracellular protein trafficking. With this arises the problem of the automatic mass analysis of image information. Image-interpretation systems which generate automatically the desired target statements from the images are important. The continuation of mass image analyses on the basis of the classical procedures leads to investments of proportions that are not feasible. New procedures are therefore required. We will present, new intelligent and automatic image analysis and interpretation procedure, based on our flexible image analysis and interpretation system cell interpret. We will demonstrate it in the application of HEp-2 cell pattern analysis.

Biography

Petra Perner (IAPR Fellow) is the Director of the Institute of Computer Vision and Applied Computer Sciences IBaI in Leipzig, Germany. She received her Diploma degree in Electrical Engineering and her PhD degree in Computer Science for the work on "Data Reduction Methods for Industrial Robots with Direct Teach-in-Programing". Her habilitation thesis was about "A Methodology for the Development of Knowledge-Based Image-Interpretation Systems". She has been the Principal Investigator of various national and International research projects. She received several research awards for her research work and has been awarded with 3 business awards for her work on bringing intelligent image interpretation methods and data mining methods into business.

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