21
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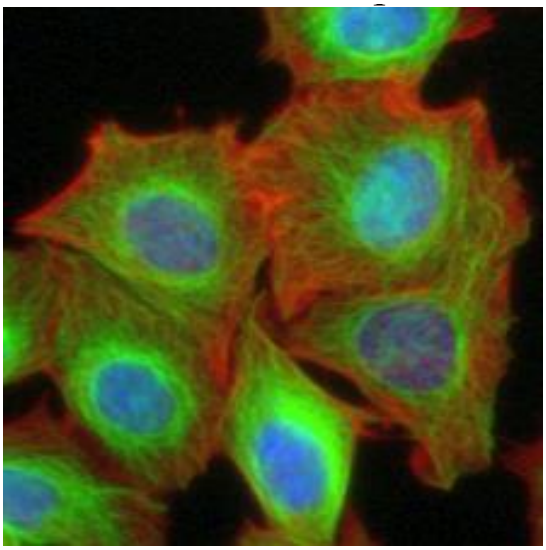
Коллоквиум факультета компьютерных наук НИУ ВШЭ



Peter Horvath

Hungarian Academy of Sciences,
Biology Research Institute

Finnish Institute for Molecular Medicine

Life beyond the pixels: Drug discovery using machine learning and image analysis methods

In this talk I will give an overview of the computational steps in the analysis of a single cell-based large-scale microscopy experiments. First, I will present a novel microscopic image correction method designed to eliminate vignetting and uneven background effects which, left uncorrected, corrupt intensity-based measurements. New single-cell image segmentation methods will be presented using energy minimization methods. I will discuss the Advanced Cell Classifier (ACC) (www.cellclassifier.org), a machine learning software tool capable of identifying cellular phenotypes based on features extracted from the image. It provides an interface for a user to efficiently train machine learning methods to predict various phenotypes. For cases where discrete cell-based decisions are not suitable, we propose a method to use multi-parametric regression to analyze continuous biological phenomena. Finally, to improve the learning speed and accuracy, we recently developed an active learning scheme which selects the most informative cell samples.

21 февраля, 18:10 – 19:30
Кочновский проезд, 3, ауд. 205

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