



Postdoctoral position in 3D biological image analysis

The BIOMAG (Biological Image Analysis and Machine Learning Group) has an opening for a postdoctoral researcher with a background in image analysis or machine learning to work on cutting edge problems in 3D high-content image analysis of cell morphology. BIOMAG is a newly established group at the Biology Research Centre (BRC) Szeged, Hungary. The main focus of the group is to develop novel image analysis and machine learning algorithms applied to large-scale microscopic image-based data to i) improve the accuracy of analysis, ii) gain new insights into the biology and evolution of cellular morphology, and iii) ask fewer and more intelligent questions from human experts. BIOMAG is a member of the Synthetic and Systems Biology Unit (www.brc.hu/sysbiol/) at the BRC. As a part of the Academy of Sciences, we offer an excellent knowledge-base in systems biology, an inspiring environment, and state-of-the-art analysis facilities.

Background and project description

The project aims to develop novel image analysis and machine learning methods to detect and describe behavioural and functional changes of cells in 2/3D microscopic images. These methods will be applied to investigate laboratory evolution of cellular morphology (in collaboration with Csaba Pal and Balazs Papp labs). Using image descriptors, the candidate will investigate machine learning methods to automatically identify cellular phenotypes (see Horvath et al, Journal of Biomolecular Screening 2011; Banerjee et al PLoS One 2013; www.cellclassifier.org). While the major focus will be on how the combination of active learning and semi-supervised learning strategies can improve and accelerate biological discovery, the candidate will have input in the direction of research.

Requirements

The successful Candidate has/is a:

- **PhD in computer science or similar fields, specialized on image analysis or machine learning**
- **Team player with initiative who is also able to work independently**
- **Proficiency in both written and spoken English**
- **Interest in biological applications**
- **Strong programming skills**

- **Experience with active learning, semi-supervised learning, or energy minimization techniques is a plus**
- **Strong background in mathematics and statistics is a plus**
- **Programming in Matlab or Python and basics in R, C++, and Java are plus**

Contact and application

The project starts in January 2014. Send your application along with your CV along with two references to Peter Horvath (phorvath@brc.hu).