PhD Student (project 14)

**Image Processing / Scientific Computing**

Software Competence Center Hagenberg GmbH

The position is part of the EU-funded Marie Skłodowska-Curie Innovative Training Network InCeM (Integrated Component Cycling in Epithelial Cell Motility). InCeM focuses on cell migration, which is essential for vital processes such as tissue formation, wound healing and tissue invasion during carcinogenesis. It aims to visualise morphological, biochemical and physical processes of cell motility to integrate these data into multi-scale models with the goal to deliberately tune motile behaviour in relation to disease. InCeM provides an international and highly interdisciplinary framework of collaborators from academia and industry with core expertise in medicine, biology, biochemistry, image analysis, modelling and engineering.

Within this framework, this subtopic is concerned with model validation through biological image computing and will be performed under the joint supervision of Dr. Julian Mattes at Software Competence Center Hagenberg GmbH and Prof. Sergei Pereverzyev at Johann Radon Institute for Computational and Applied Mathematics (RICAM), Linz. We seek for a PhD student to join our efforts on integrating shape change models and imaging. From 2D and 3D images of migrating cells we aim to extract and to track the contour/the surface of the cell. The surface evolution of the cell shall be analyzed in order to describe basic patterns of shape change during cellular motion. Based on the cell models and the imaging data of real cells, both obtained from the partner laboratories of InCeM, we plan to approach the inverse problem of fitting model and data. This shall allow to retrieve parameters describing biophysical properties of the cell and to develop optimal control models for cell motility.

We are therefore looking for an outstanding candidate from outside Austria with strong skills in computer science and mathematics. The candidate should ideally be experienced with applications in cell biology and biophysics. We will recruit a motivated individual who will pursue a highly interactive multi-disciplinary project towards a PhD degree.

Applications are invited for PhD student fellowships to start in summer 2015. The fellows should not have resided or carried out their main activity (work, studies, etc.) in the country of the host partner for more than 12 months in the 3 years immediately prior to the reference date.

Salary details see [incem.rwth-aachen.de/salary.html](http://incem.rwth-aachen.de/salary.html).

Application deadline: Applications should be submitted immediately but no later than the 26th of July 2015.

Please send your application to:

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