

Project proposal

<i>Project title</i>	High content screening of cancer cell morphometrics by novel image processing approach
<i>First Supervisor</i>	Dr <input type="text" value="Andreas Hoppe"/>
<i>Second Supervisor</i>	tbc
<i>School</i>	Computing and Information Systems <input type="text"/>
<i>Other member of supervisory team (no more than three KU supervisors in total)</i>	<input type="text"/>
<i>Specific requirements beyond 2:1 degree</i>	<input type="text"/>

Project summary (max 4,000 characters)

MSc by Research

The combination of light microscopy and image processing has led to the development of more objective, quantitative analysis techniques in experimental biology, providing an insight into complex biological processes.

The current problem with extracting quantitative measurements from biomedical data is that segmentation errors, caused by poor image contrast and noise, make results unreliable and thus often not suitable for an unsupervised screening approach.

This multi-disciplinary project, which will be undertaken in collaboration with Cancer Research UK, aims to develop a novel stochastic image vision based screening approach to provide a soft segmentation of 3D cellular objects and thus minimising uncertainties in this process. Morphometric parameters are then extracted from the segmentation result to identify the most significant features. Such an approach should reduce large segmentation errors and thus provide a more reliable assessment suitable for screening applications in cell biology research. The newly developed technique will be applied in a high content screening invasion study at Cancer Research UK to identify characteristics of malignant cells.