

Project proposal template – Faculty studentships Summer 2014

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<i>Project title</i>	<input style="width: 90%;" type="text" value="Object classification using satellite imagery"/>	<i>Director of Study</i>	<input style="width: 90%;" type="text" value="Olga Duran"/>
<i>Second Supervisor</i>	<input style="width: 90%;" type="text" value="Jean-Christophe Nebel"/>	<i>School</i>	<input style="width: 90%;" type="text" value="Mechanical and Aut"/>
<i>Other members of supervisory team</i>	<input style="width: 90%;" type="text"/>	<i>Any requirements from applicant (eg degree in specific subject area)</i>	<input style="width: 90%;" type="text" value="Degree in a STEM (Science, technology, engineering and"/>
Project summary (max 1,000 characters)			
<p>Satellite imagery includes hyperspectral data gathered in hundreds of spectral bands (soon thousands of bands). The spectral diversity of this data enables good discrimination between different materials and has opened ground-breaking perspectives in many industries including security, defence, construction, mining, manufacturing and agriculture that depend heavily on using remote sensors for robust and automatic detection of potential threats or failures.</p> <p>Due to the low spatial resolution of the sensors which offer a trade-off between spatial and temporal resolutions, subpixel detection algorithms are required to identify the targets (such as vehicles from satellite platforms or pedestrians from airborne platforms) and classify them.</p> <p>Another issue is the extraction of important information from very high-dimensional spaces in real-time. As a result, efficient and novel non-linear dimensionality reduction algorithms will be investigated so that object classes can be robustly modelled.</p>			