

<b>Project Title</b>	Building a next-generation scanning microscope
<b>Supervisor</b>	Dr Christopher Rowlands
<b>Theme(s)</b>	Biomedical Sensing Diagnostics and Imaging
<b>Project Type</b>	Lab based
<b>Project Description</b>	<p>Scanning optical microscopy is a workhorse tool for modern biology - it can see things deeper into tissue, with 3D resolution, and observe fast dynamic events.</p> <p>Recently, Dr Rowlands and Dr Pantazis have been interested in developing a technology called Primed Conversion (<a href="https://www.nature.com/articles/nmeth.3405">https://www.nature.com/articles/nmeth.3405</a>) in order to make it easier to use for researchers around the world. Primed conversion involves optically tagging cells as they develop, allowing us to trace the development of an organism from a single cell all the way up to a complete animal and seeing which cells are destined to form which parts. The missing piece for the widespread use of Primed Conversion is the integration of the system into microscope systems.</p> <p>The student on this project will build an add-on to a microscope which can perform Primed Conversion, aligning two lasers and scanning them in parallel through the sample.</p> <p>The skills required involve programming, electronic engineering, some mechanical design and some optical engineering, but any skills that the student doesn't possess can be taught. The most important thing is an aptitude for learning quickly and hard work.</p>