

2025 EECMS Summer Internship Application Form

Main Supervisor	Zhonghua Sun, Lisa Tee (Curtin)
Other supervisors (if applicable)	Marielle Valerie Fortier (KKH, Singapore)
Project Title	3D visualisation of anatomic structures for clinical diagnosis and preoperative planning: Semi-automatic organ segmentation using machine learning
Student location(s) for the project	
Duration of project (ideally six weeks)	4-6 weeks
Project Description	<p>Medical imaging modalities including computed tomography (CT) and magnetic resonance imaging (MRI) serve as the primary source of information for clinical diagnosis and preoperative planning. Precise understanding of the anatomical structure is crucial for clinicians to make timely diagnosis, develop optimal treatment options for a successful procedure. While CT and MRI provide excellent 2D representations of the 3D anatomy, it is essential for clinicians to comprehend the anatomy in its entirety which is presented by realistic 3D visualisations. This is difficult to achieve in daily practice due to time-consuming process involved in image processing and segmentation. This study aims to develop semi-automatic approach for segmentation of anatomical structures, primarily focusing in cardiovascular system and abdominal region due to complexity of the cardiovascular anatomy and pathology, and multiple organs that exist in the abdominal region. It is expected that study outcomes will enhance understanding of complex anatomical structures, hence assist clinical diagnosis and decision-making for optimal patient care.</p> <p>This project has a focus of using machine learning in semi-automation of segmentation of anatomical structure.</p>

Please email completed form to Tele Tan at t.tan@curtin.edu.au