

2022 School of EECMS Summer Internship Application Form

Main Supervisor	Dr Sonny Pham
Is the main supervisor an ECR/MCR?	YES/NO NO
Other supervisors (if applicable)	Professor Sambit Datta
Project Title	3D Building Reconstruction from UAV Aerial Image Data
Duration of project (select between 4 and eight weeks)	8 weeks
Project Description	<p>NOTE: This is a pilot project that will potentially form an ARC Linkage project with Lateral.</p> <p>3D reconstruction of models from sensor data is a challenging problem in computer vision. and it has a huge impact in areas such as architecture where such advanced methods can revolutionize current labour intensive approaches. Deep learning-based models such as Pix2Vox and SoftRas can readily convert a single 2D image to a 3D model. In this project, we aim at exploring state-of-the-arts in computer vision and artificial intelligence to reconstruct 3D building models from point clouds and UAV aerial image data. Such a combination of different data modalities allow us to not only obtain 3D meshes but also segment, build and render core components of a building such as walls and roofs. It is planned that data sets of aerial UAV imagery from the NYUST campus will be used for the study.</p> <p>This project aims at reconstructing the 3D roof models of buildings from point clouds derived from UAV aerial image data. To do so, we will explore and custom train state-of-the-arts in computer vision. Both qualitative and quantitative evaluation will be conducted to identify the best candidate model for future research.</p> <p>This project requires a competent student with prior experience with 3D modelling and a background in AI. The intern will be working under the supervision of a team of academics. The candidate is expected to produce code, presentation and reports of the findings.</p>