
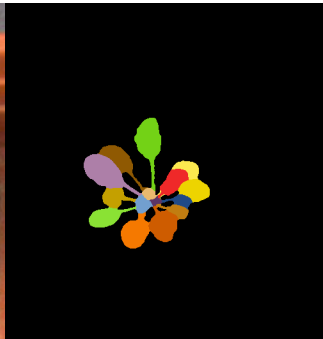


Module	Introduction to Image Processing / COMP2032 (IIP) / Semester 2
Module Convenor(s)	Tissa Chandesa

Assessment Name	Coursework	Weight	40%
Description and Deliverable(s)	<p>The coursework (details below) requires you to develop a software solution, using the Matlab Image Processing Toolbox, to a real image processing problem and produce a written report describing and critically evaluating your solution. The deliverables required are:</p> <ol style="list-style-type: none"> 1. Matlab code: .m file 2. Written report: 2000 words max, PDF format <p>Detect and Segment Leaf</p> <p>Segmentation is a common approach often used in image processing to extract qualitative data as well as to reduce the complexity of further processing or analysis of a given image. Prior to segmentation, a pre-processing pipeline usually takes place to improve the quality of the input image.</p> <ol style="list-style-type: none"> 1. Design and implement a Matlab program capable of detecting and segmenting leaves. Your program must take in the given input image and produce the desired output image. A sample of the input and output image is shown below. <div style="display: flex; justify-content: center; align-items: center; gap: 20px;">   </div> <div style="display: flex; justify-content: center; align-items: center; gap: 20px;"> Input Image Output Image </div> <p>To be clear: the output image should only contain a black background with the leaves colour coded. The colours for each leaf must be distinct and MUST be randomly generated by your program at every instance.</p> <p>Note: the aim here is to produce one, single Matlab program. This should be able to process each of the three images without any changes being made to the software or any hard-coded parameters it may use. You should also seek a solution that is as automatic as possible, i.e., try to minimise the number of user-supplied parameters. You are ONLY ALLOWED to use ONE segmentation technique, so, choose wisely!</p> <ol style="list-style-type: none"> 2. Write a report (max 2000 words) which: <ul style="list-style-type: none"> – Describes the pre-processing technique(s) and segmentation method employed 		

	<ul style="list-style-type: none"> – Explains why you choose those technique(s) and method – Presents the results obtained on the images supplied – Critically evaluates your method on the basis of those results; what are its strengths and weakness? <u>This section of the report should make explicit reference to features of the results you obtained.</u> <p>I would strongly recommend that you spend a little time examining the images using the tools available in Matlab before starting to construct a solution.</p>
Release Date	Friday, 18 th February 2022
Submission Date	Friday, 15 th April 2022, by 11:55pm
Late Policy (University of Nottingham default will apply, if blank)	Work submitted after the deadline will be subject to a penalty of 5 marks (the standard 5% absolute) for each late working day out of the total 100 marks.
Feedback Mechanism and Date	Marks and written individual feedback will be returned via Moodle 13 th May 2022
Assessment Criteria	<p>Matlab code: 30% [unable to run codes will result in 0% being awarded]</p> <p>Description of key features of the implementation: 20%</p> <p>Explanation of the results obtained: 20%</p> <p>Discussion of the strengths and weaknesses of the chosen technique(s) and method: 30%</p>