

LeVEx: a Tool for Leaf Venation Extraction Using Image Processing

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Leaf venation is one of the basis for classification in plant taxonomy although other leaf features such as shape and flower structures are more predominantly in use. Aside from taxonomic studies, there have been numerous researches related to leaf venations such as the relationship of leaf venation patterns and weather of a geographic location and water flow within the leaf veins as basis for possible actual irrigation design. Leaf venation inspection by manual methods is tedious and time consuming especially for venations that are complex and detailed. Leaf Venation Extraction or LeVEx is a computer-assisted tool to extract the leaf venation from digital images of leaves using image processing methods. Images were processed using different procedures such as edge detection and morphological processes. The extraction application is developed using the Java programming language and the OpenCV library. LeVEx allows the user to set the level of detail of venation to extract depending on the need of the user. Input images are fresh leaves which can be the whole leaf or a part of a leaf. LeVEx is still in its initial stages and can only extract venations successfully clear and distinct venation of input leaf images.

Keywords: leaf venation extraction, image processing, leaf venation study