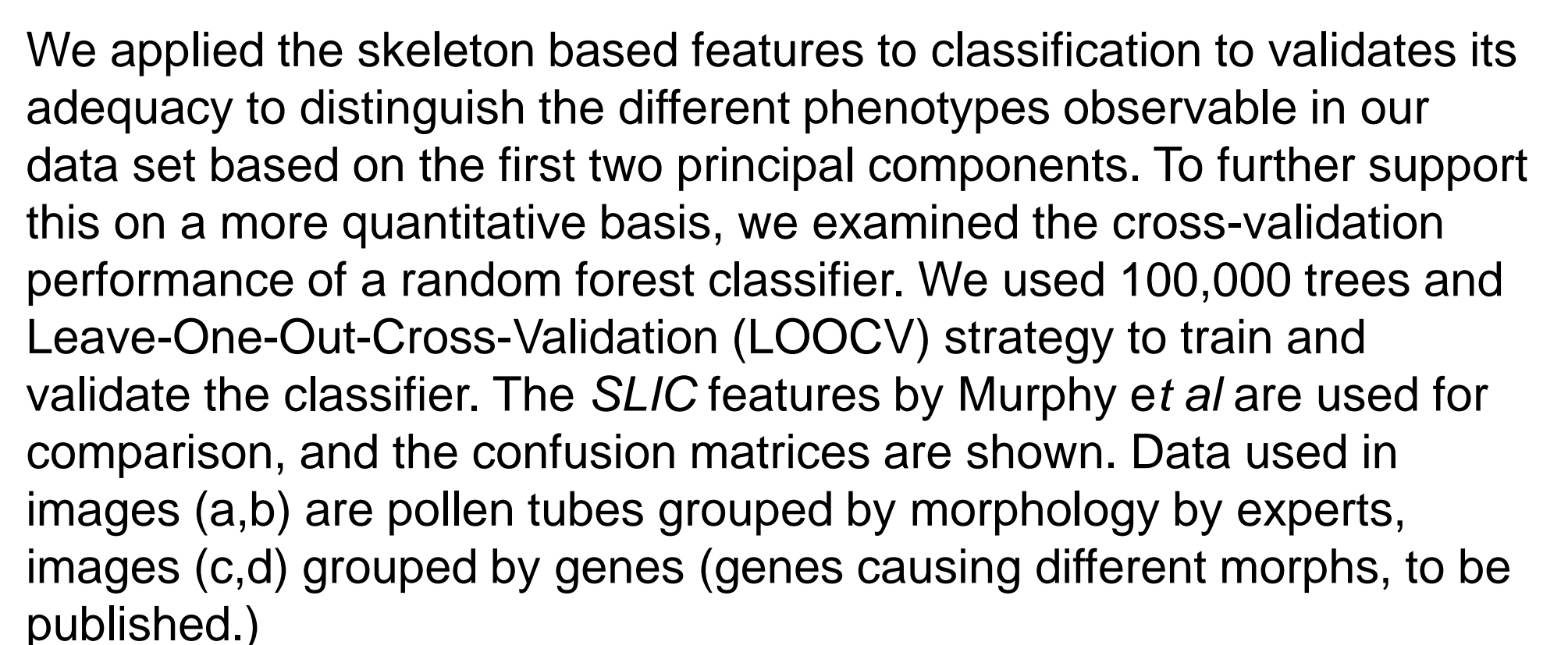
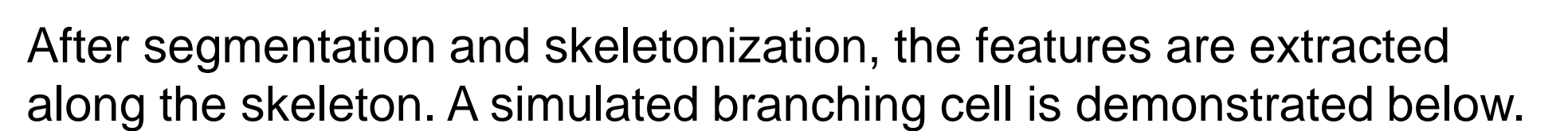
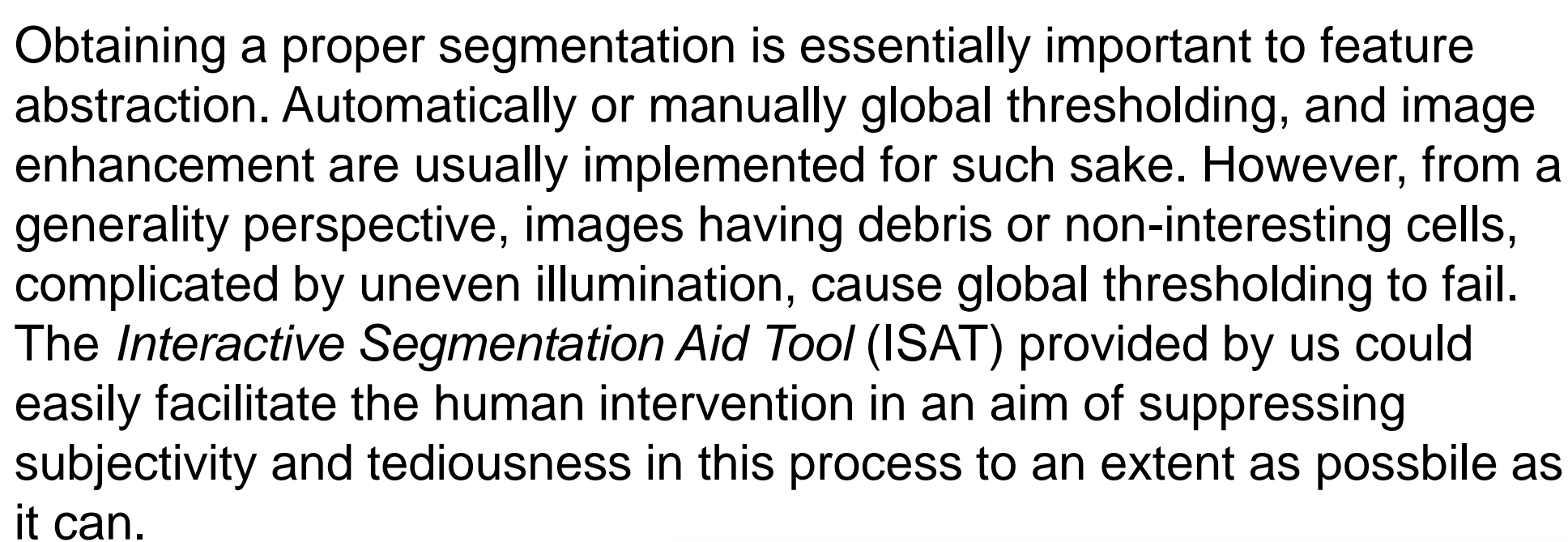




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The biological morphology, consisting of shape, color, structure or pattern, has always been an indispensable research object in biological science domain. We devised a computational tool to model and quantify morphological features from sets of cell fluorescence images, which in here, contain pollen tube images and neuron images. A skeletonization based model is proposed to account for the cell morphologies which are shown in Tip-growth cells (TGCs) like pollen tubes and neurons.

The workflow is demonstrated using a neuron image (kindly provided by Dr. Zhi Yang from ION). The four intermediate outputs: intensity image, cell mask, cell body mask and skeleton image are represented in black ellipses. These outputs are used to perform feature extraction later on. Adj. Mat. is short for adjacency matrix.



The skeleton features provide a new way to quantify the morphology of branching cells (or TGCs), and can be used in clustering and classifying high-throughput image morphology data provided that the image quality is consistent.

For lab images bothered by serious noises and pollutants, **ISAT** provides an easy and effective solution to segmentation.