

Image Analysis of Neuronal Culture Micrographs

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ABSTRACT

Astrocytes are found in the Cerebral Cortex. They build up the micro-architecture of the brain. It is vital to count the number of these nuclei in order to solve questions regarding different psychological and neuronal diseases. Early signs of these conditions can be detected with regulation of nuclei count. An automated nuclei counter program was implemented in Matlab for this very purpose. Three different nuclei detection methods were tested and compared to decide which methods would be used in the final program. These were Sobel, Canny and Watershed. From the 30 different images analysed and processed, the Sobel and Watershed method were chosen to be combined to create a short program to detect and count the number of astrocyte nuclei in a 20x image. As this program is robust it could be used by neuroscientists for further research on Astrocytes and other nuclei too.

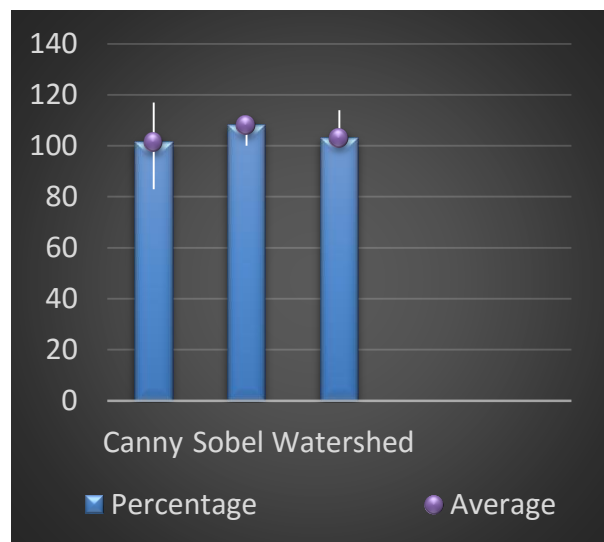


Figure 1. Method Results

H Hamid, Image Analysis of Neuronal Culture Micrographs, *Proc. 13th School Conf. for Annual Research Projects*, V F Ruiz (Ed), pp. 2–3, University of Reading, 24 May 2016.