Automatic Classification of C-Elegans Mitochondria

TECHNISCHE UNIVERSITÄT MÜNCHEN

A Machine Learning project by Saksham Gautam and Daniel Hein
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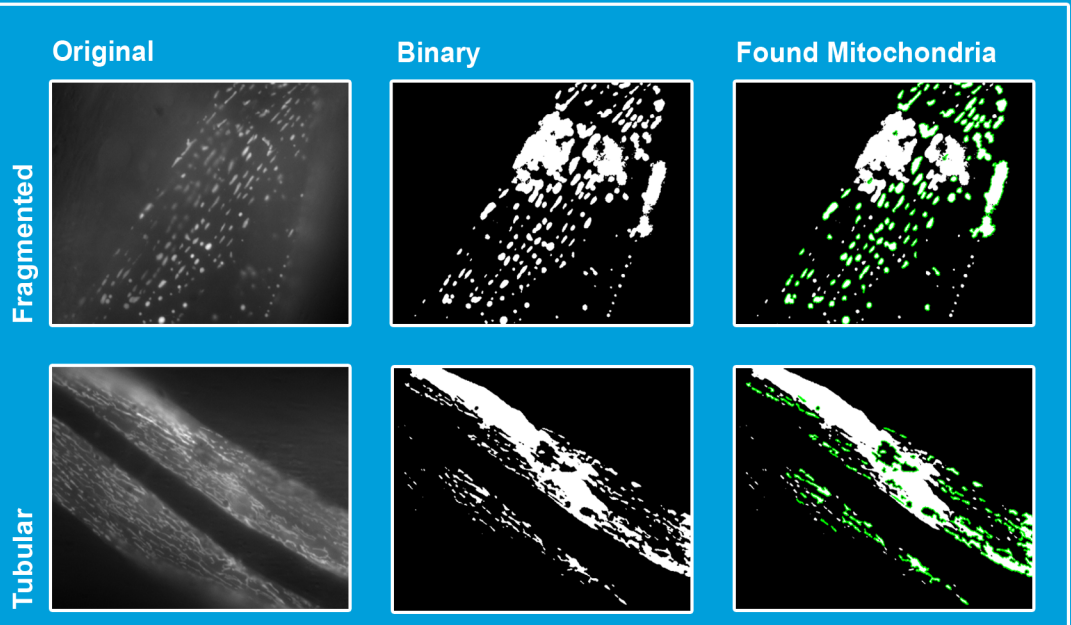
Introduction

Worms with fluorescent mitochondria are put under a fluorescence microscope and 10 to 20 pictures of it are generated. As the worm is transparent, photographing it with different focuses yields to photographs of different levels of the worm. After that, each “slice” of the worm is scrutinized on the computer screen to find just one picture where cells are clearly visible. Using computer imaging software, the photographs are discretized until mitochondria can be separated from background fluorescence. Afterwards, another routine of this pro-



Feature Extraction

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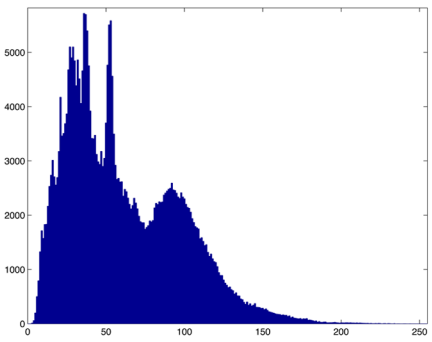

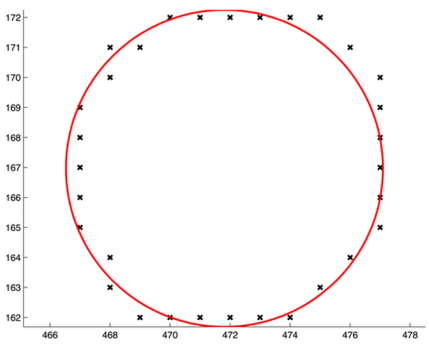

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Neural Network

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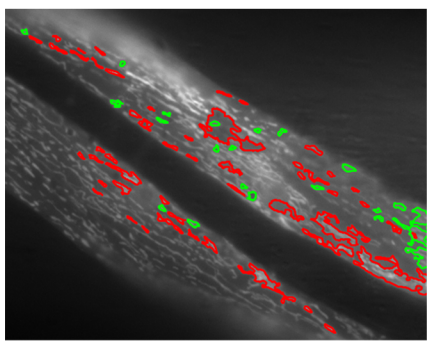

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Decision Boundary

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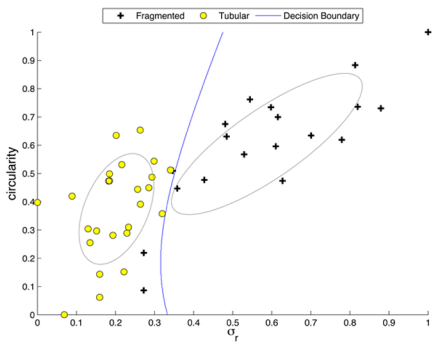

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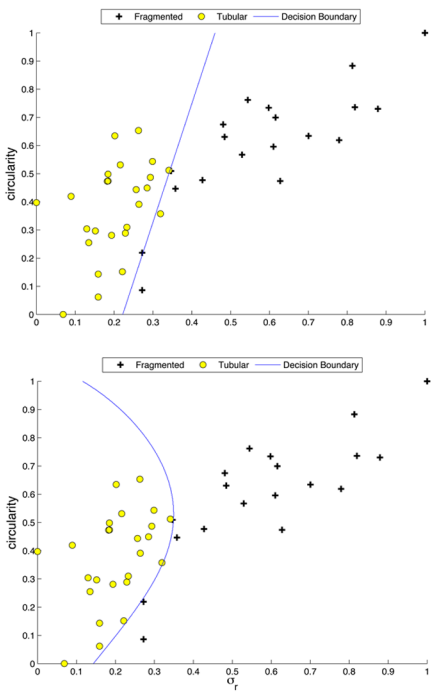

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