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Combining Max-Tree and CNN for \$\frac{4}{3}\$ Segmentation of Cellular FIB-SEM Images

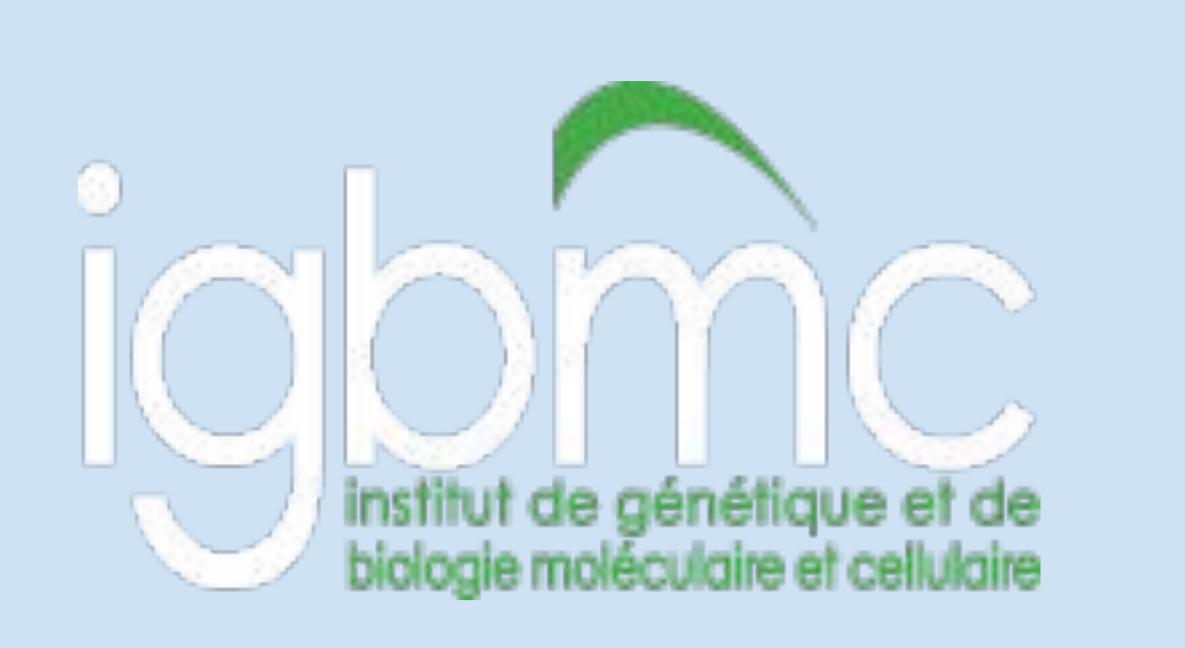




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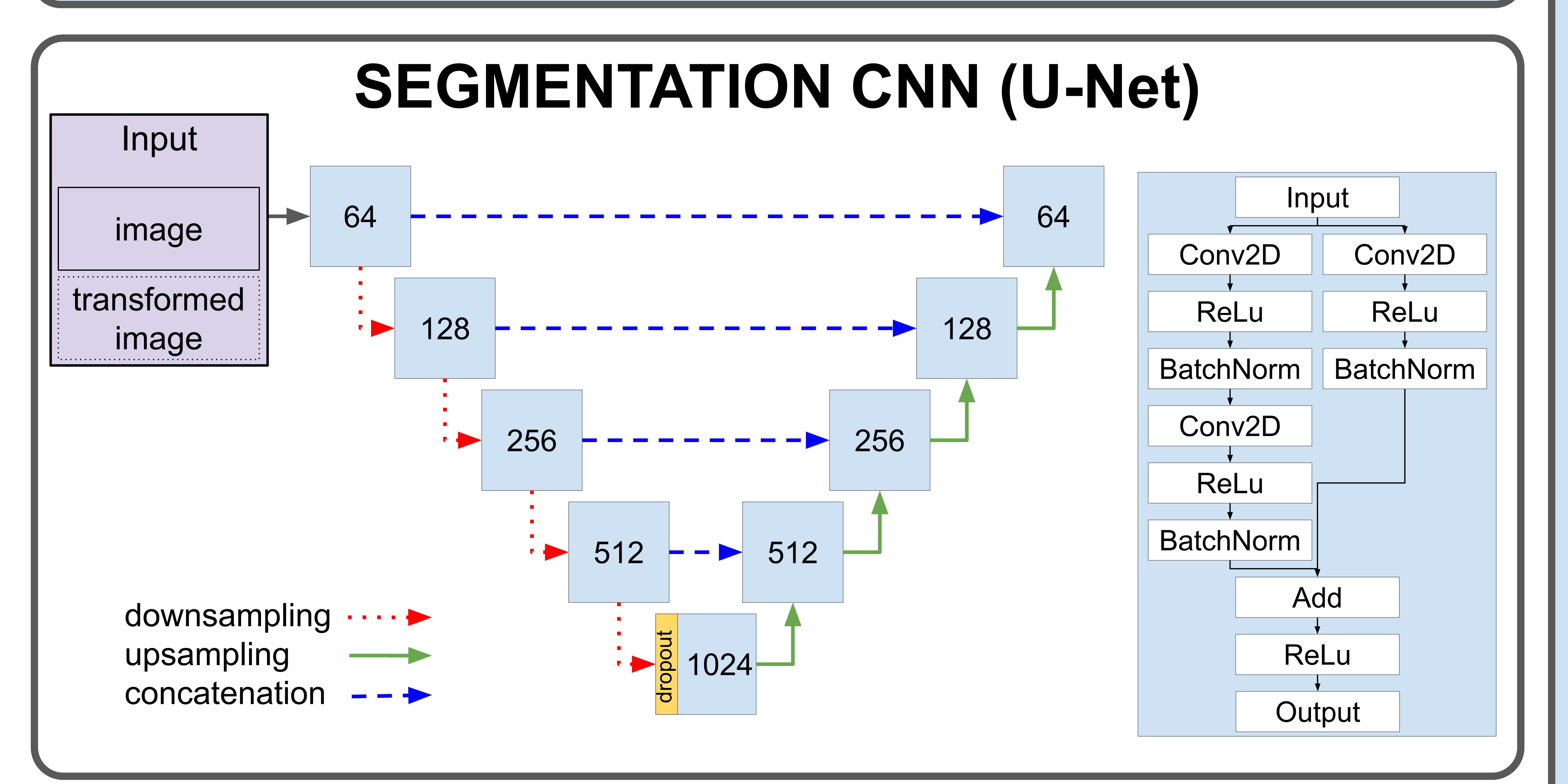
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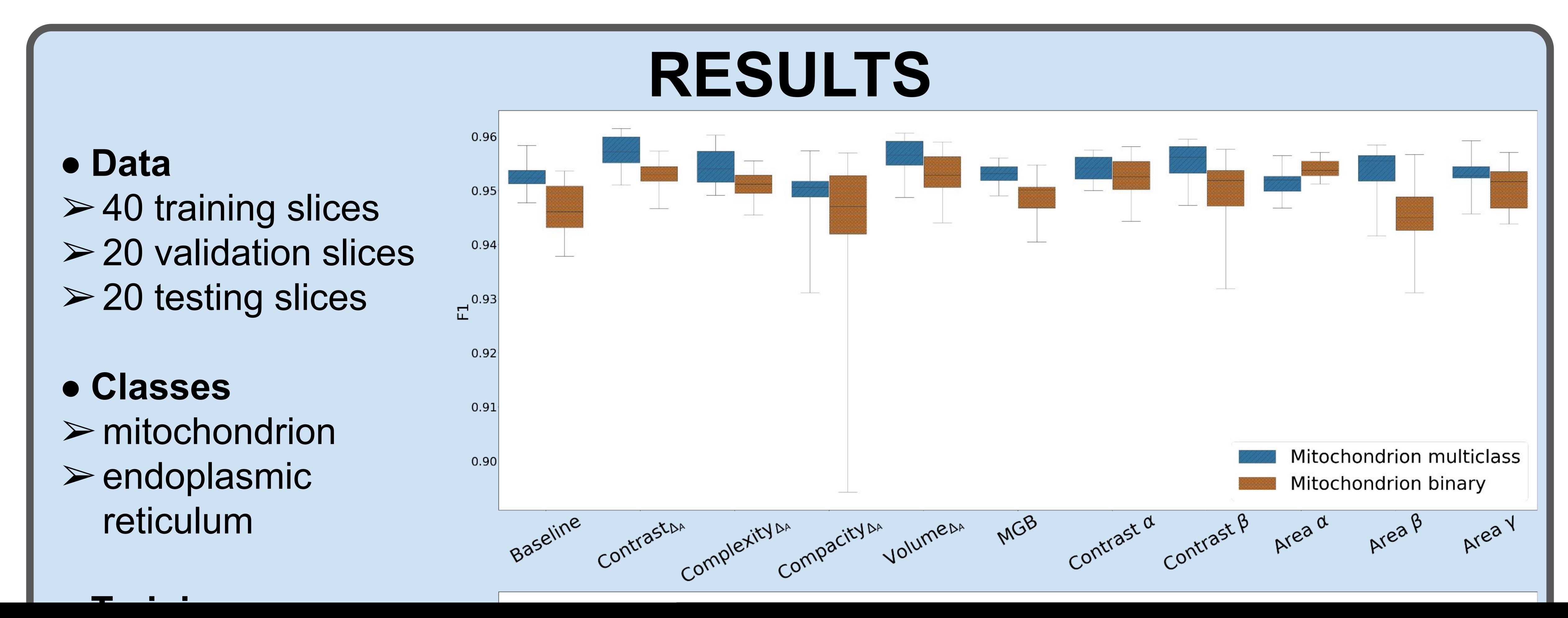


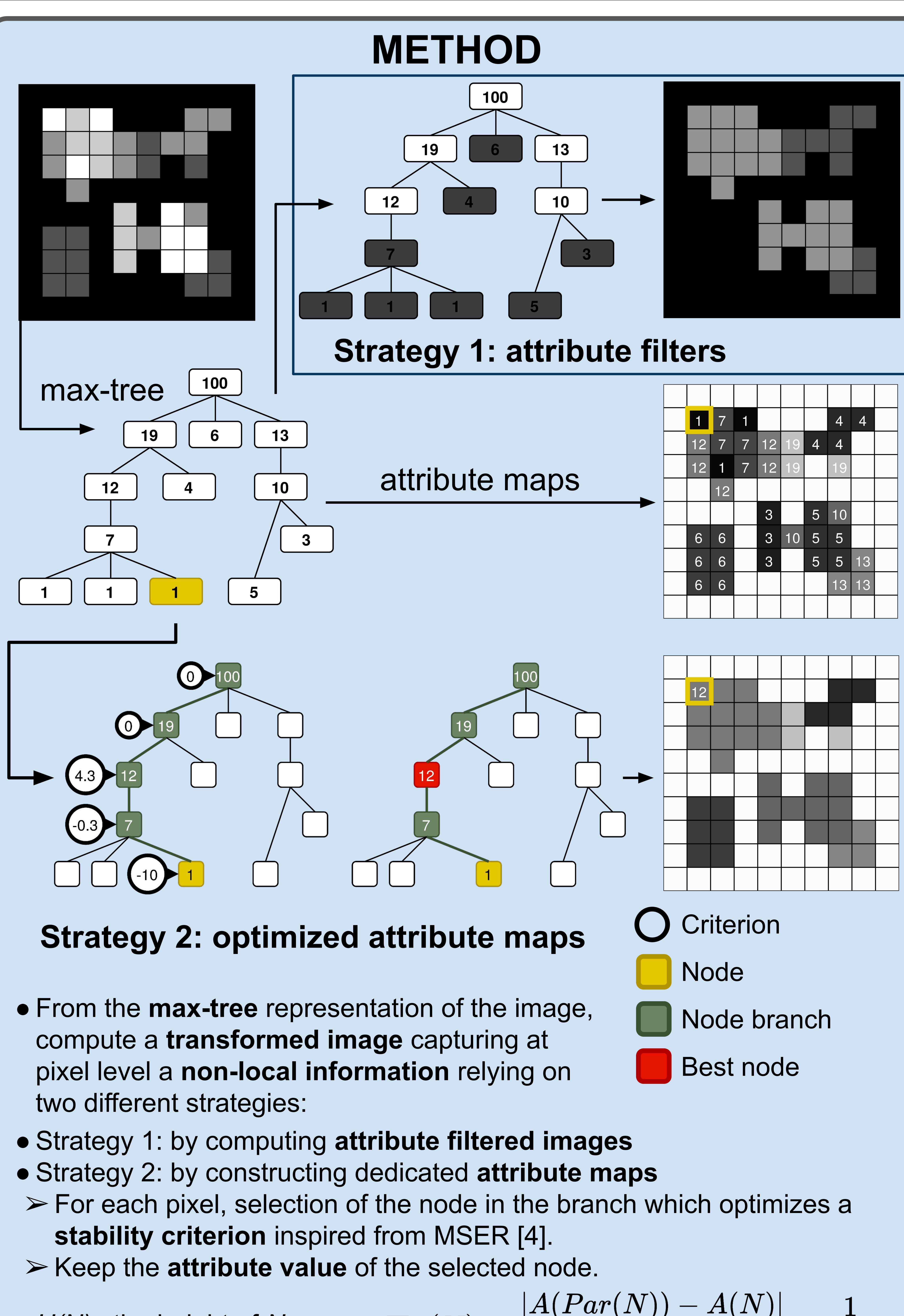


INTRODUCTION

- Objective of this work
- ➤ Use attribute based filters to **enrich** the input of a **convolutional neural network**, extending the work of Farfan *et al.* [1].
- > Provide a reproducible framework to allow replication of our experiments.
- Max-tree [2] enables to design efficiently nonlinear attribute filters [3]. We propose **two strategies** to create a transformed image:
- > By means of attribute filtering (strategy 1).
- > By constructing attribute maps (strategy 2).
- Application: Segmentation of organelles in Electron Microscopy.
- > Focused Ion Beam milling combined with Scanning Electron Microscopy.







|H(Par(N) - H(N)|

• H(N): the height of N.

• *A(N)* : the area of *N*.