

Selection of relevant nodes from component-trees in linear time

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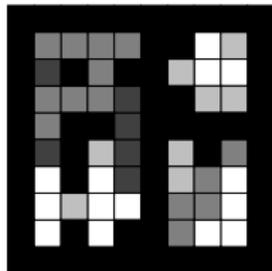
DGCI 2011 - Nancy

Definition (Component-trees)

A component-tree associates to a (discrete) grey-level image a descriptive data structure induced by the inclusion relation between the binary components obtained at successive level-sets.

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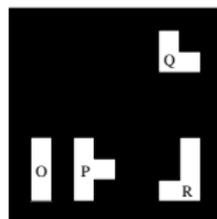
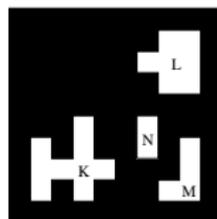
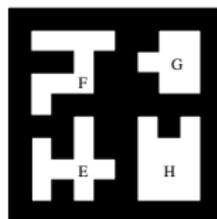
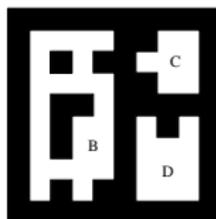
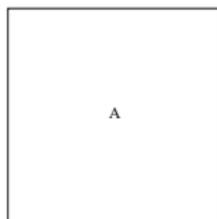
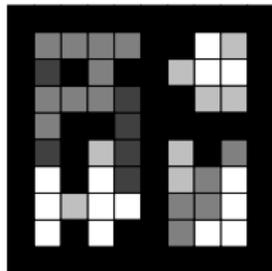
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Component-trees

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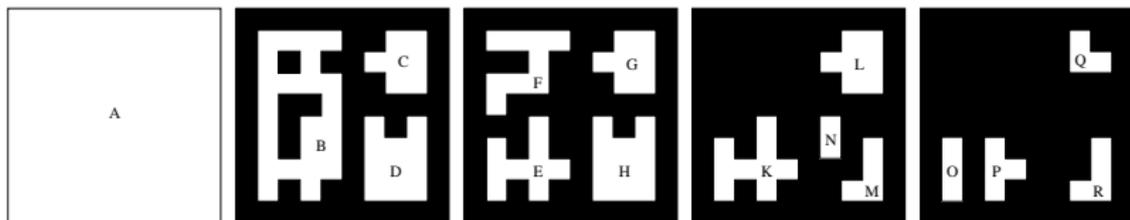
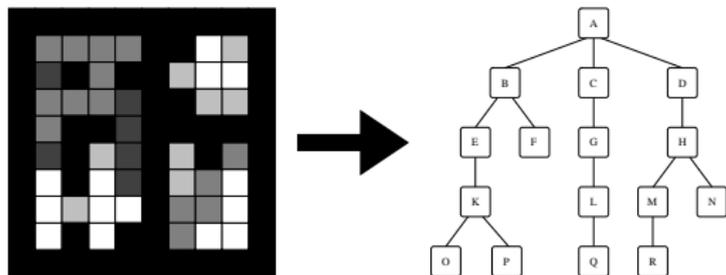
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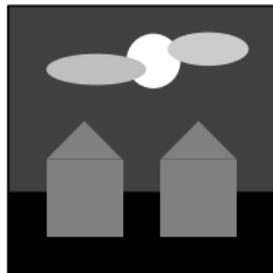
Definition (CT-based segmentation)

Node selection in component-trees \Rightarrow image segmentation.

Segmentation with component-trees

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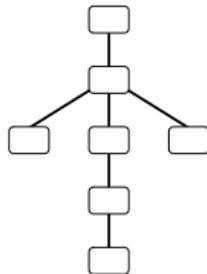
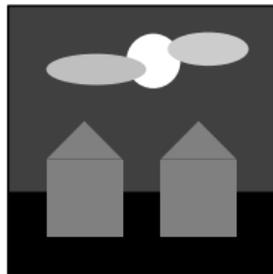
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Segmentation with component-trees

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Node selection in component-trees \Rightarrow image segmentation.



$v=0$

$v=1$

$v=2$

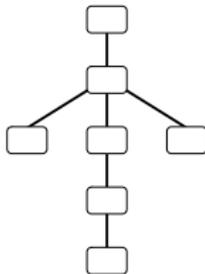
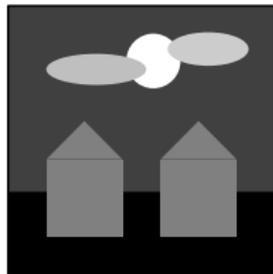
$v=3$

$v=4$

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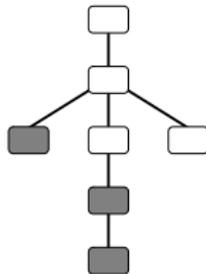
$v=0$

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Remark

*Standard approach for CT-based segmentation: selection of the nodes based on **attributes** (= local information at each node).*

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Alternative solution

*Example-based approach: selection of the nodes which **match at best a user-defined presegmentation**.*

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Contribution

- *Example-based CT segmentation strategy*
- *Proof of linear time complexity*
- *Software tool (cf. Demo session)*

Thank you for your attention



See you at the Poster & Demo sessions...