SANI Architecture - 2D Object Recognition Development Specification - 21 September 2021 - 27 March 2022

sequentially activated neuronal input neural network

image data

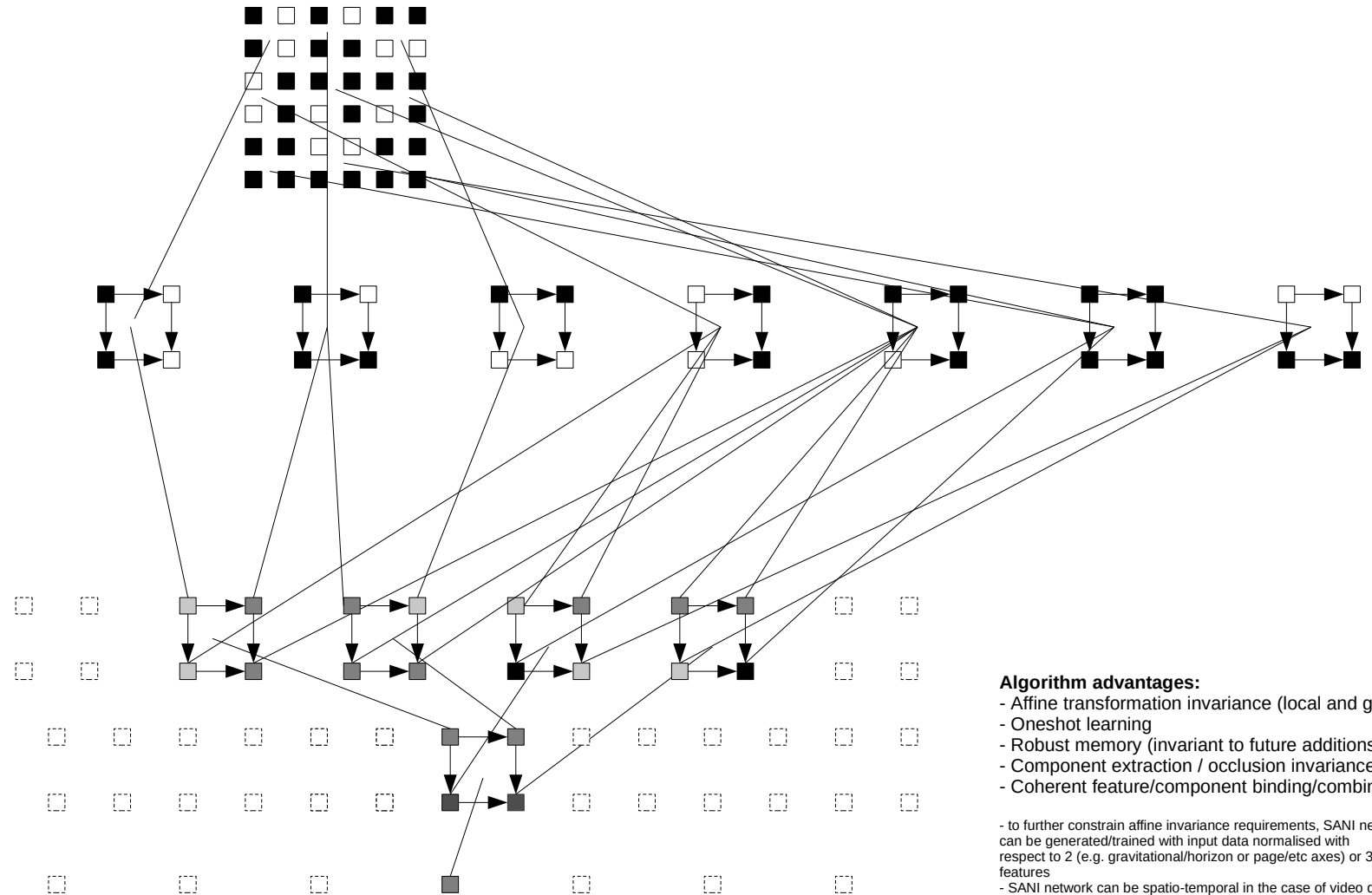**SANI Network**

sequential convolution filters

SANI generation phase:
train network at current resolution

SANI detection phase:
sample image at different resolutions

sequential convolution filters

sequential convolution filters

object identification

Algorithm advantages:
- Affine transformation invariance (local and global)
- Oneshot learning
- Robust memory (invariant to future additions)
- Component extraction / occlusion invariance
- Coherent feature/component binding/combination

- to further constrain affine invariance requirements, SANI network can be generated/trained with input data normalised with respect to 2 (e.g. gravitational/horizon or page/etc axes) or 3 (ATOR) features
- SANI network can be spatio-temporal in the case of video data

Algorithm requirements:
- Sequence index contiguity (connectivity) must be assured - ie all SANI node input must correspond to contiguous input data.

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