

A Neural Style Transfer

[[Paper](#)]



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Introduction

- Extension of Texture transfer
- Pre-Trained Feature Extraction Architectures [CNNs]
- Reconstructed from different layer responses
- Content and Style Reconstruction Loss

Architecture

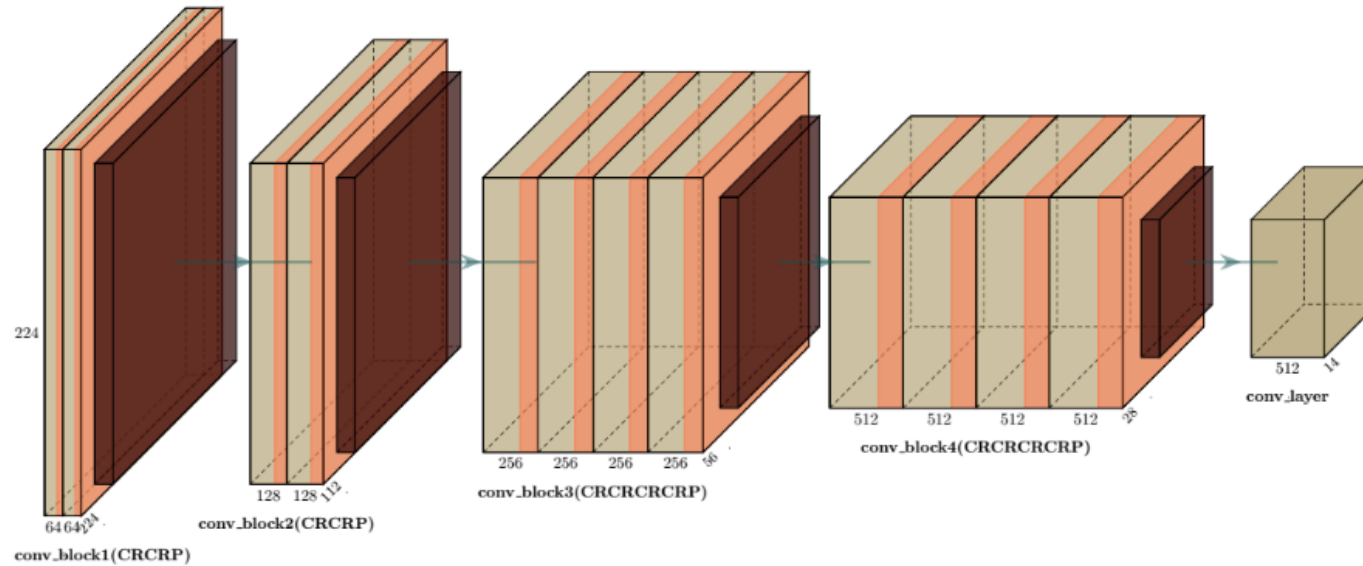


Figure 3.7: vgg19 architecture for feature extraction

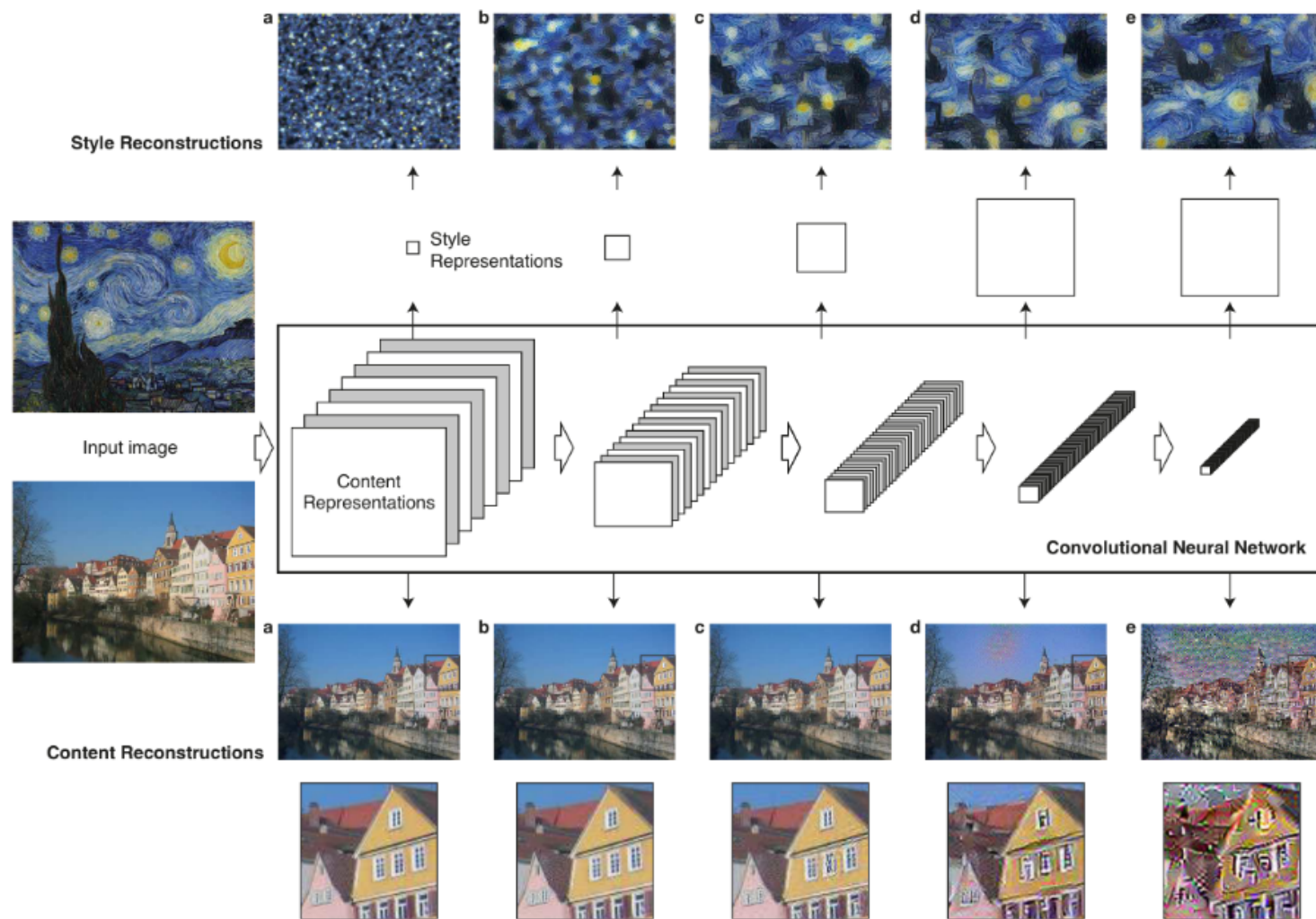


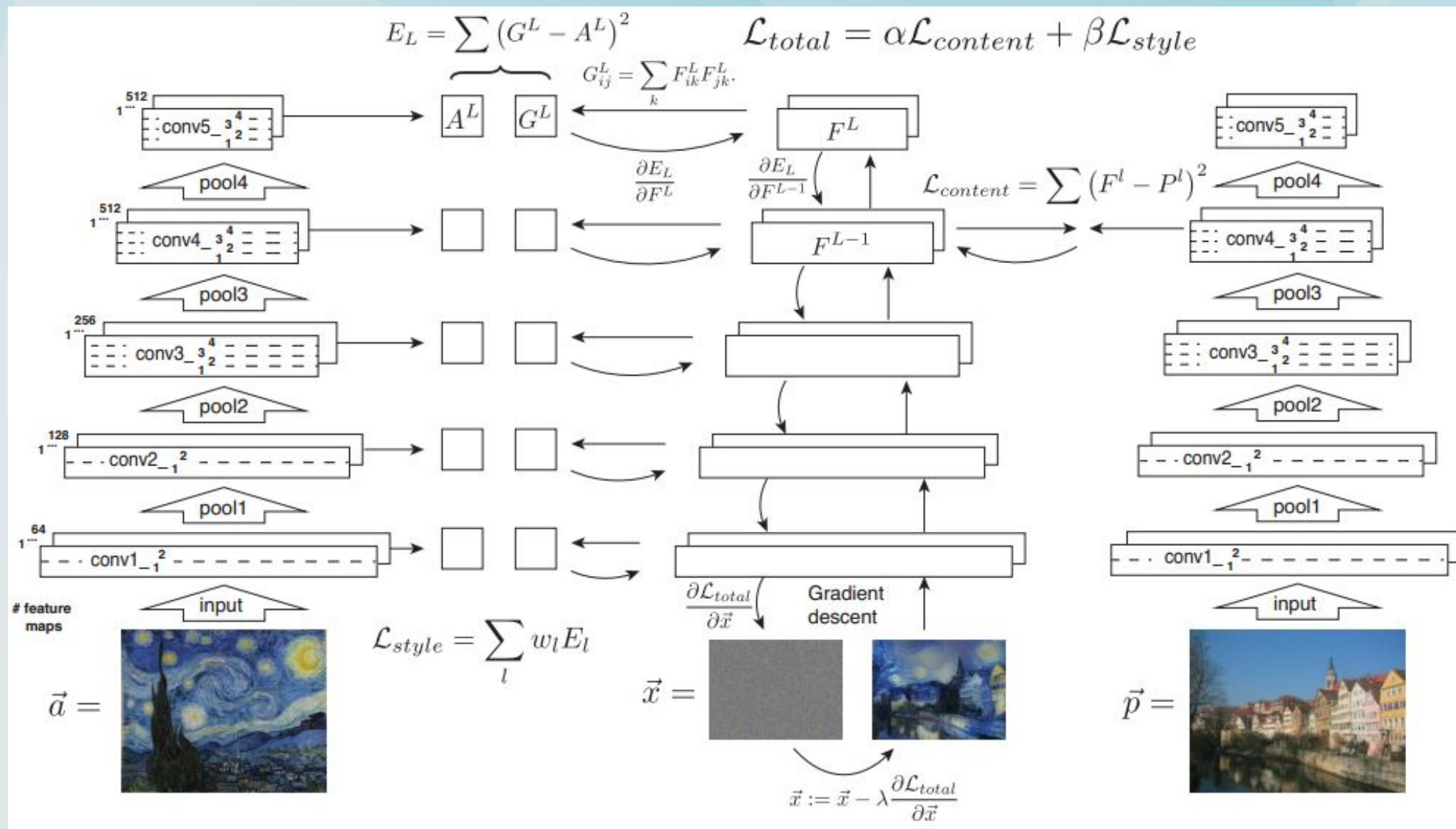
Figure 3.6: Content and Style reconstruction - Style Transfer

Optimization

$$\mathcal{L}_{total}(\vec{p}, \vec{a}, \vec{x}) = \alpha \mathcal{L}_{content}(\vec{p}, \vec{x}) + \beta \mathcal{L}_{style}(\vec{a}, \vec{x})$$

$$\mathcal{L}_{content}(\vec{p}, \vec{x}, l) = \frac{1}{2} \sum (F_{ij}^l - P_{ij}^l)^2$$

$$\mathcal{L}_{style}(\vec{a}, \vec{x}) = \sum_{l=0}^l w_l E_l$$



Results / Implementation

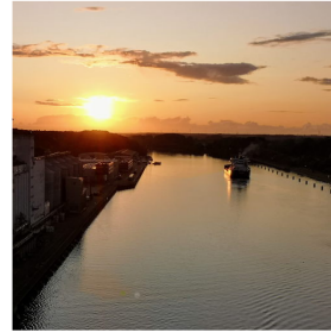
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(a) Vincent Van Gogh Style



(b) Street Art Graffiti Style



(a) content



(b) van gogh



(c) graffiti