



Style Transfer for Videos

양수형, 심정은, 허 찬
유건희, 김미라, 송예은



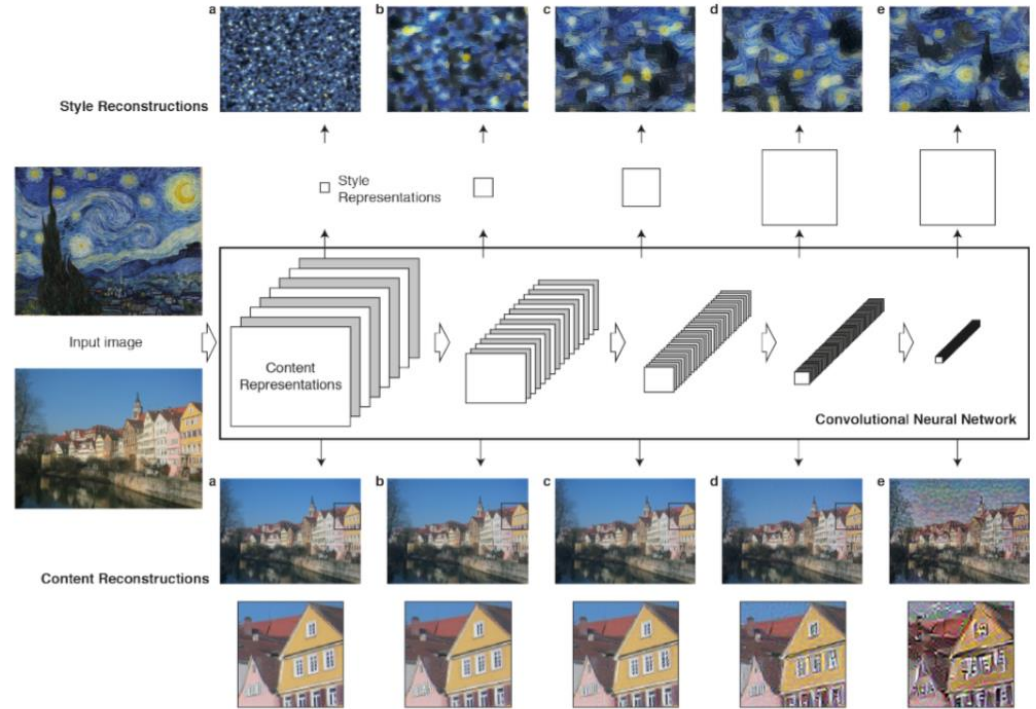
What is Style Transfer?

Style Transfer



How to Style Transfer

- **content** and **style** in CNN are separable



How to Style Transfer

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

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

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

Artistic Style Transfer for Videos

Artistic Style Transfer for Videos



<https://www.youtube.com/watch?v=Khuj4ASldmU>

Project Plans

1. Paper Review

A Neural Algorithm of Artistic Style

Leon A. Gatys,^{1,2,3*} Alexander S. Ecker,^{1,2,4,5} Matthias Bethge^{1,2,4}

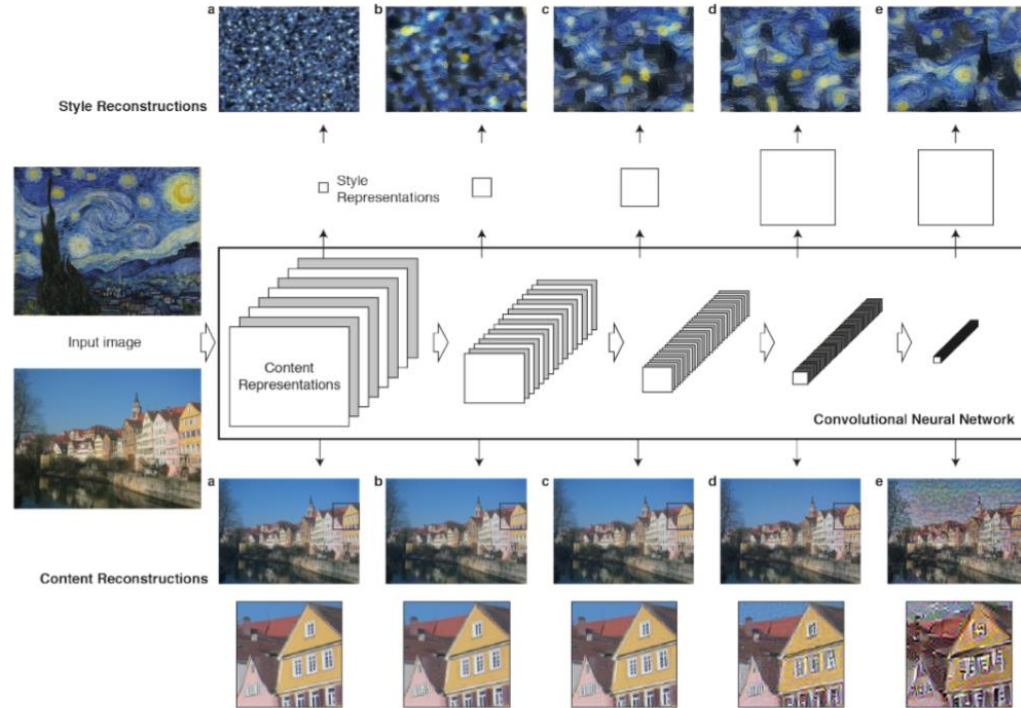
Artistic style transfer for videos

Manuel Ruder, Alexey Dosovitskiy, Thomas Brox*

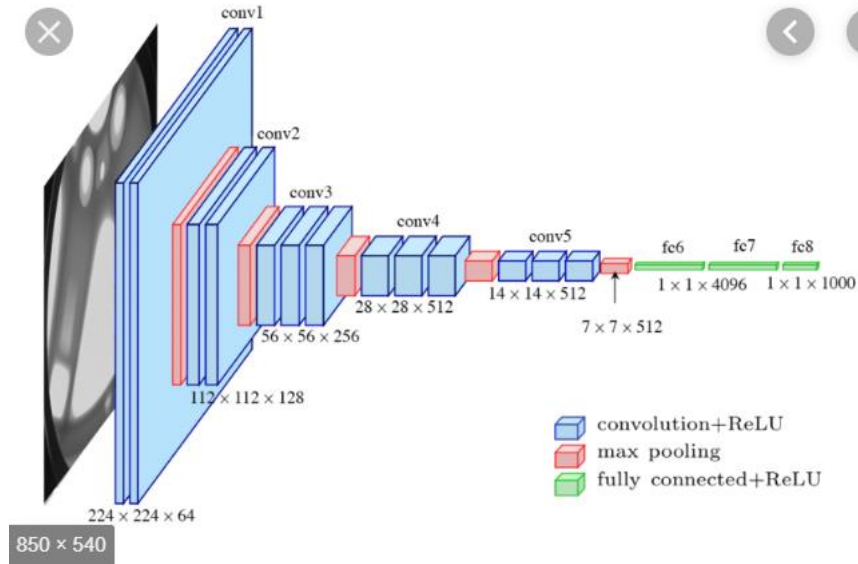
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2. Style Transfer of Images



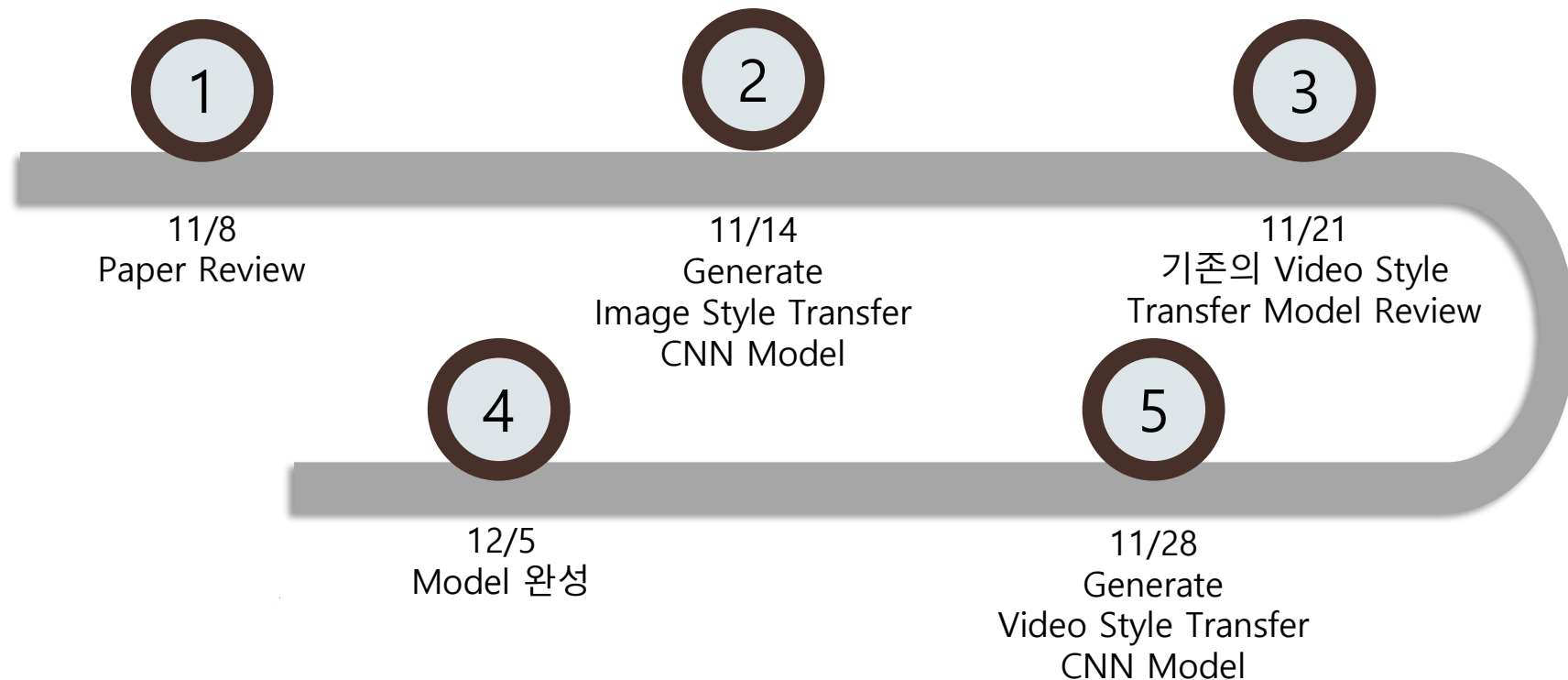
3. Style Transfer of Videos



standard VGG-16 network

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

Project Plans





Thank You

