



Deep Fashion Design in the Wild

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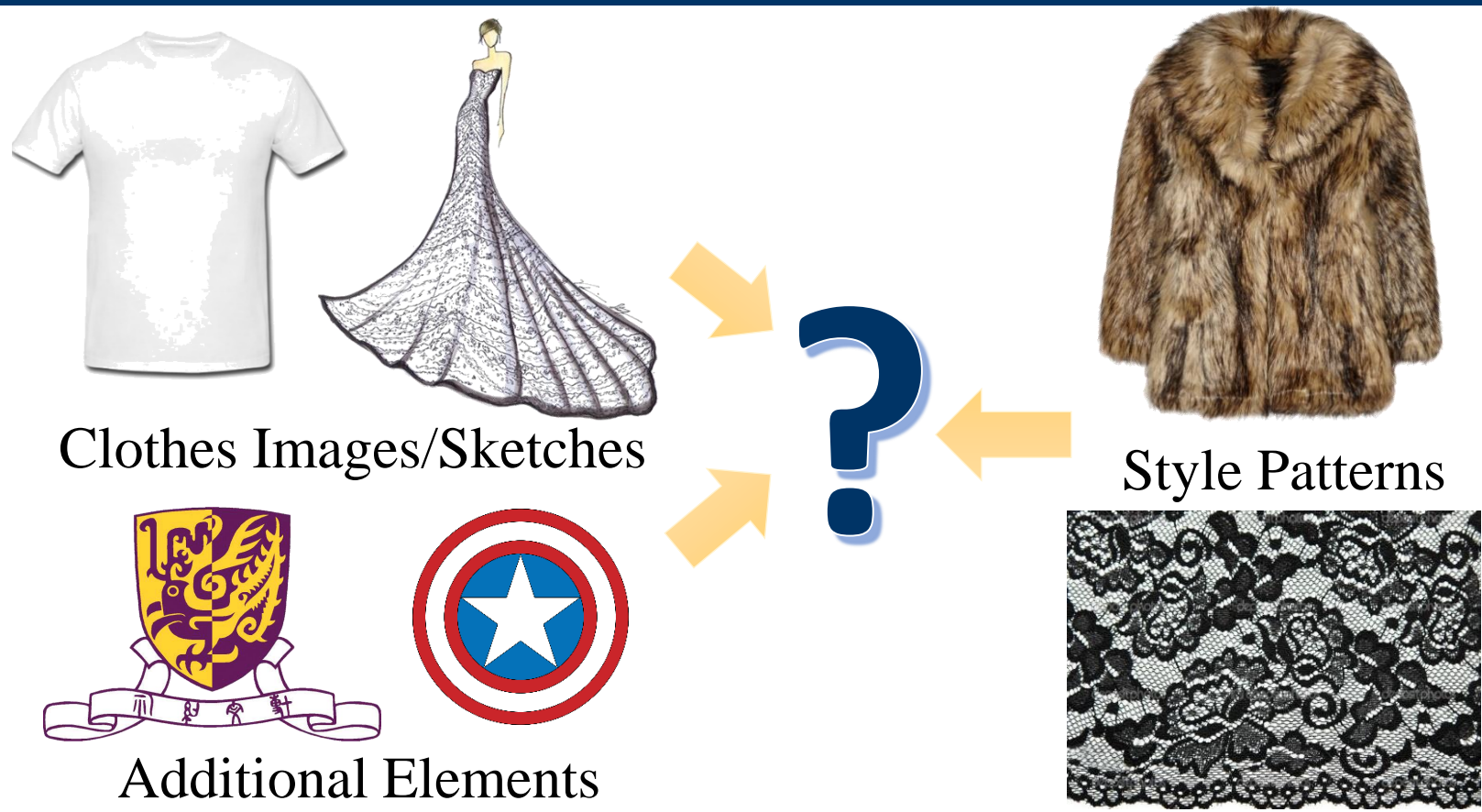
Group members:

Wang, Pei

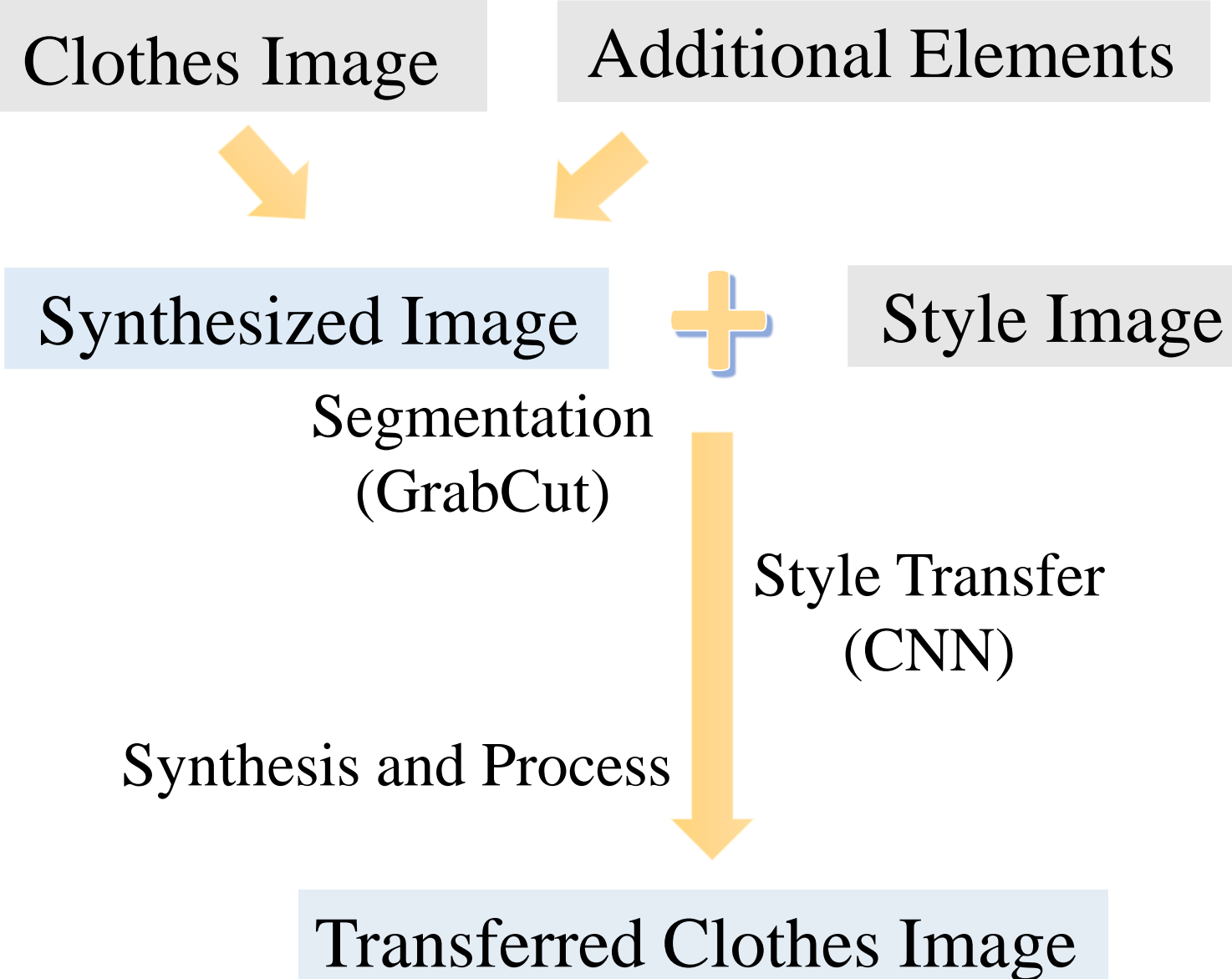
Niu, Haoying

Liu, Litian

Background

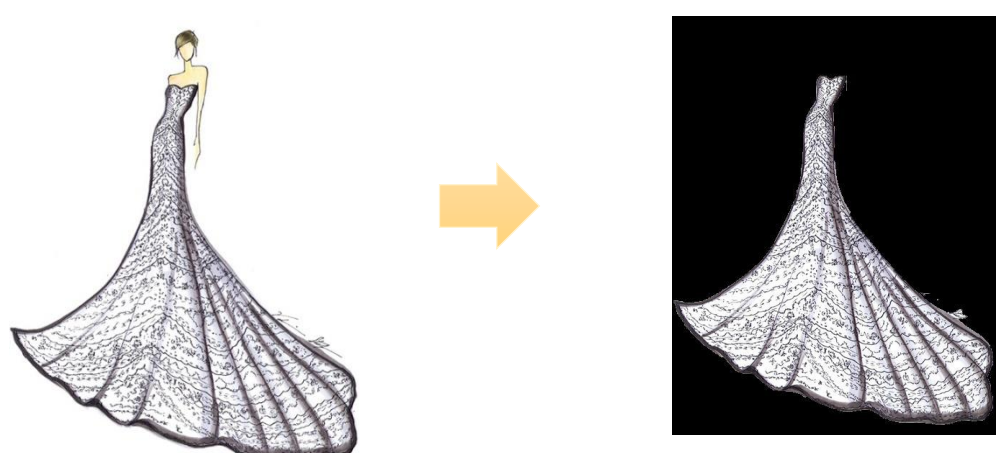


Project Overview



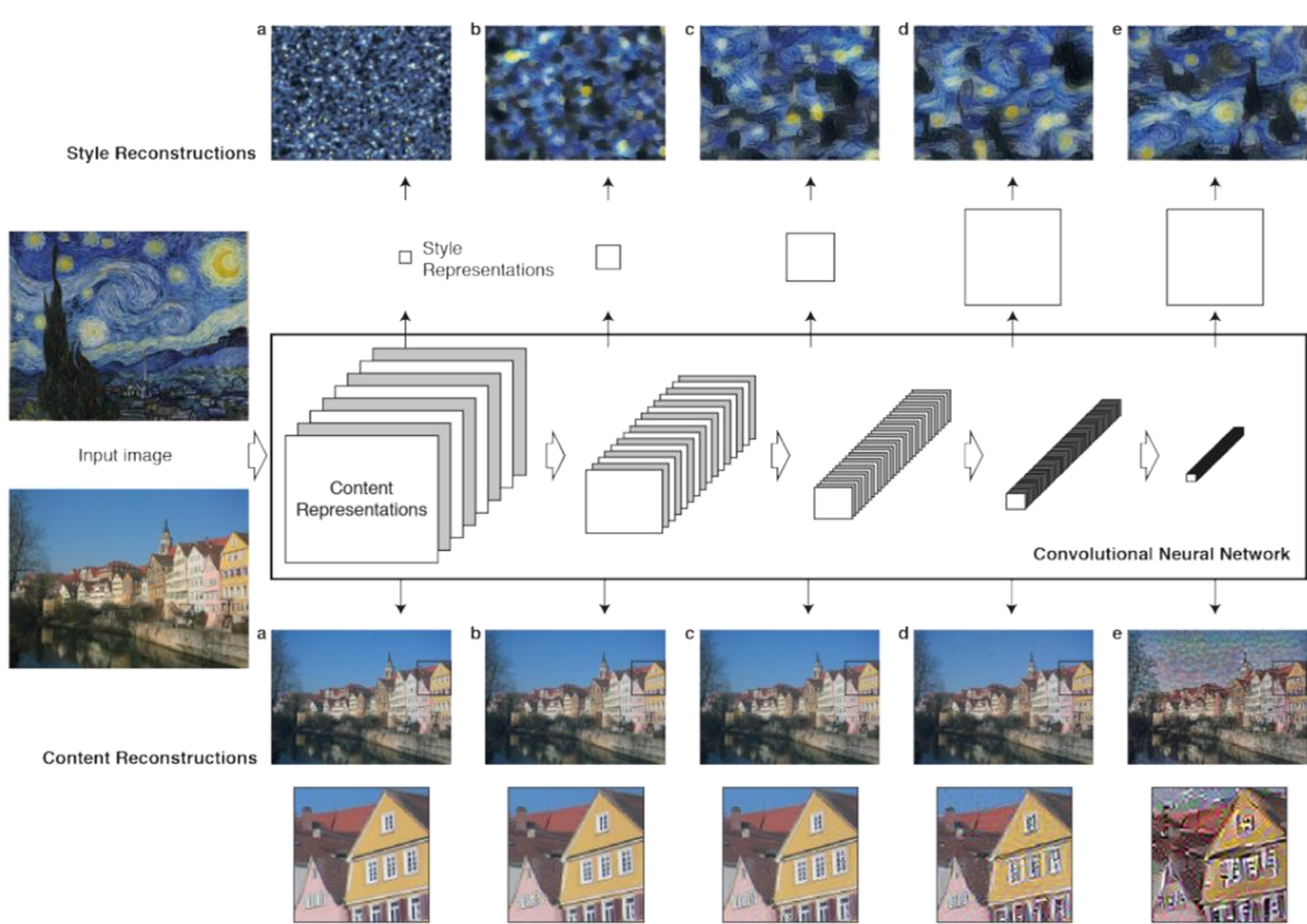
Methodology

Foreground Segmentation : GrabCut



Style Transfer: CNN style transfer

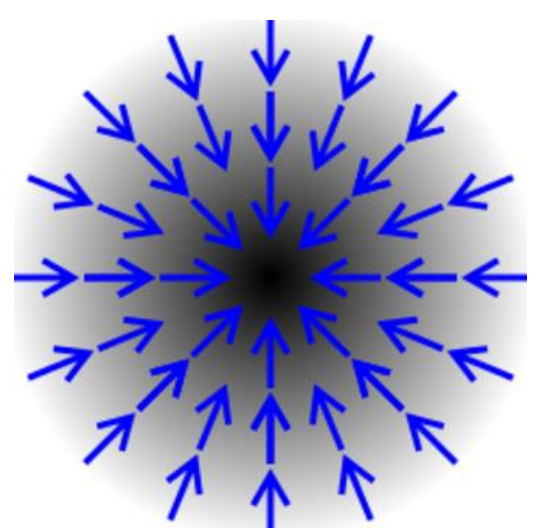
$$\mathcal{L}_{total}(\vec{p}, \vec{a}, \vec{x}) = \alpha \mathcal{L}_{content}(\vec{p}, \vec{x}) + \beta \mathcal{L}_{style}(\vec{a}, \vec{x})$$



Modified Loss Function

$$L_{edge} = \sum_{ij} (B_{ij} - X_{ij})^2$$

$$B_{ij} = \frac{b_{i,j} - b_{i-1,j}}{b_{i,j} - b_{i,j-1}}$$



\vec{x} : generated image.

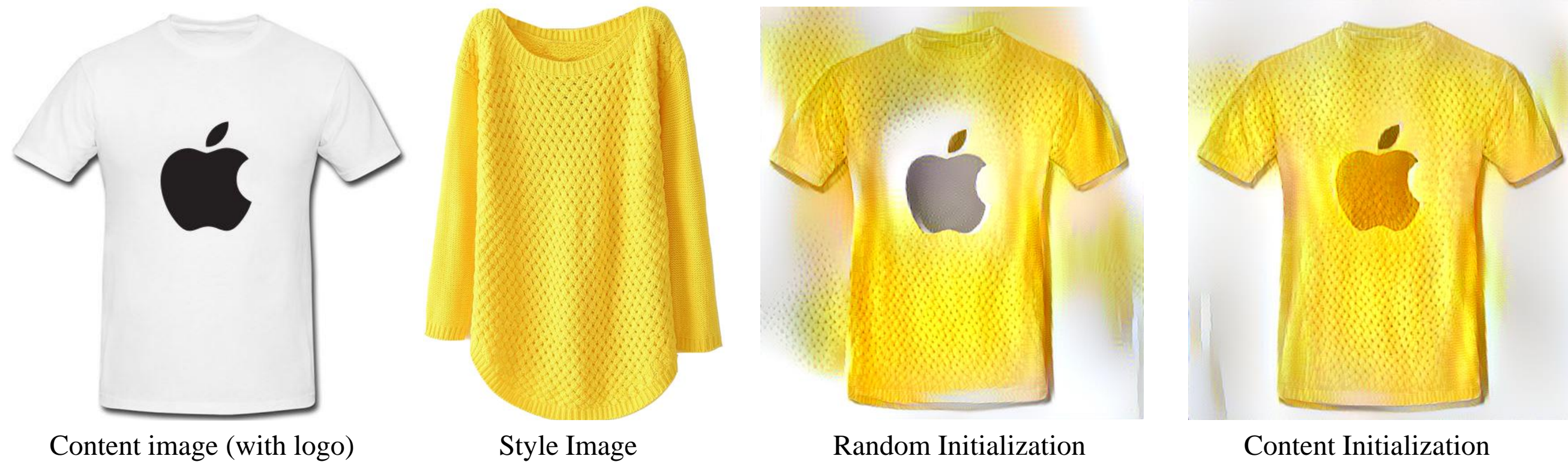
\vec{b} : original content image.

B_{ij} : direction/tangent of the gradient of \vec{b} at (i, j)

Experiments

1. Initialization

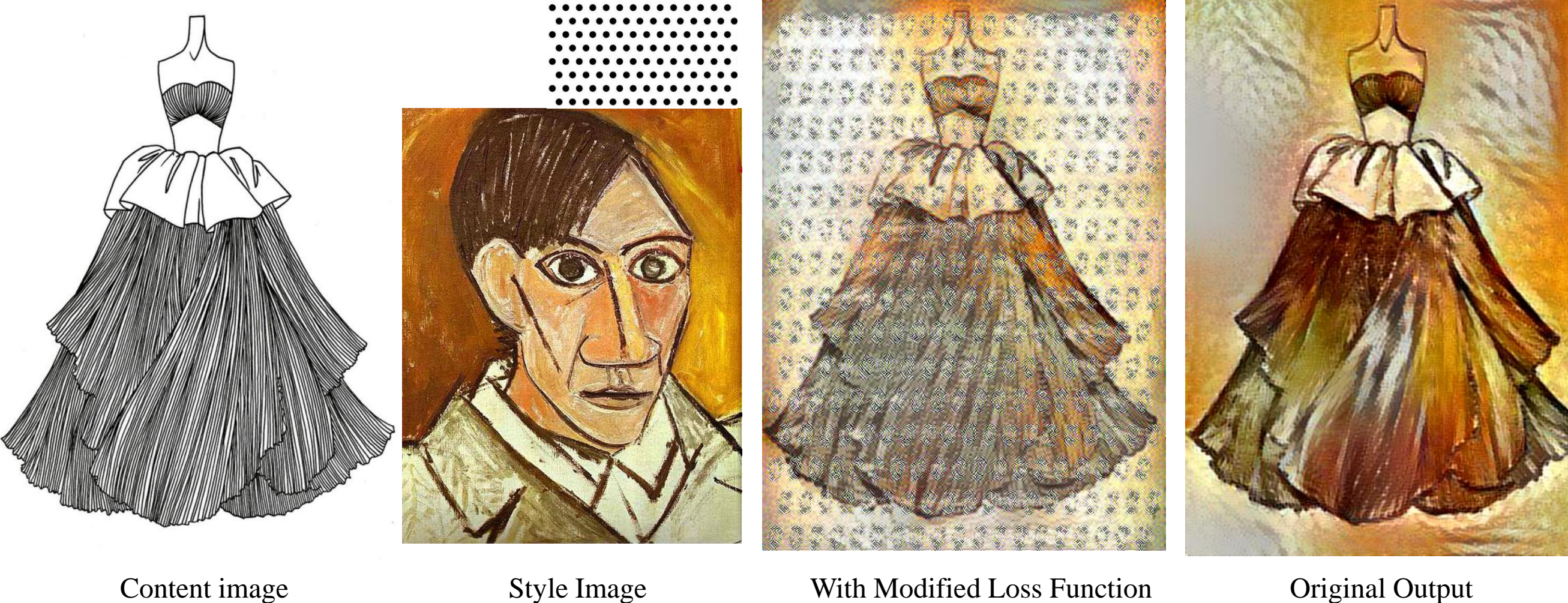
Content or random image as initial image



2. Optimizer



3. Modified Loss Function



4. Final Results



Implication

This project aims at making fashion design accessible for everyone. Girls can add desired fashion elements to their daily photos. Combining with the advance of 3D printing, it has the potential to unleash people's creativity and the pursuit of aesthetics.

References

Gatys, L. A., Ecker, A. S., & Bethge, M. (2015). A neural algorithm of artistic style. *arXiv preprint arXiv:1508.06576*.