

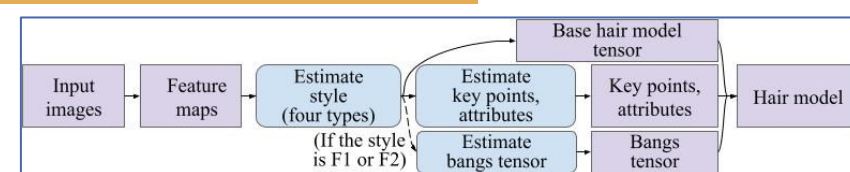
Automatic Generation of a 3D Braid Hair Model from a Single Image

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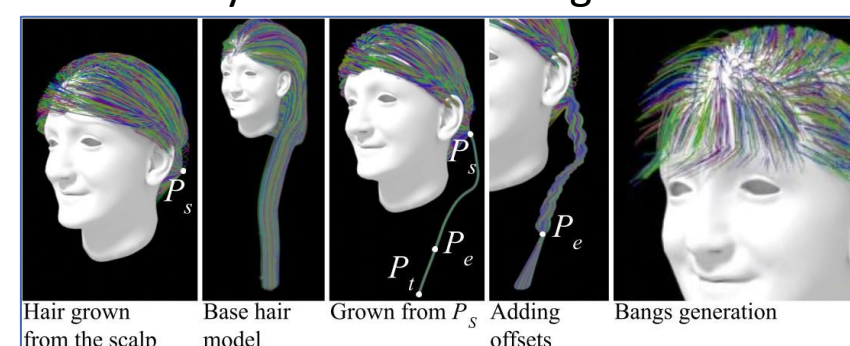
PROBLEM

- Hair comes in a variety of hairstyles and complex shapes, which makes it difficult to create 3D hair models.
- Reconstructing from portrait images is one of the solutions [1, 2]; however, braids are difficult because of their unique structure.

METHOD



1. Generate feature maps from an input image and hair mask.
2. Estimate style, key points (coordinates of the start point, end point, and hair tip of the braid), attributes (thickness and frequency), and bangs flow [1].
3. Select base hair from style and generate braids using an algorithm. Then synthesize the bangs.



RESULTS

See the figure on the right. Our method can also be used for ponytails, in addition to other braids, knotted curly hair, and frizzy hair by changing the function that provides the offset.

Automatically generate a 3D braid hair model from a single image even if the braids are not fully visible by estimating style, three key points, and attributes.



OUR APPROACH

- Combining an estimation model and an algorithm makes it possible to generate an entire head model with braids.
- Unlike recent previous works, we do not estimate the flow of the hair directly but estimate a few elements of braids. Because we generate braids based on an algorithm, they are less likely to be broken.

RELATED WORK

- Although the generation of hair models from images has been achieved to some extent in previous works [1-3], braids and dreadlocks were not successfully generated for the entire head.
- Sun et al. [3] developed a method that estimates each unit of braids and reconstructs the braids model accurately; however, each braid unit must be visible.

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ACKNOWLEDGEMENTS

This work was supported by KAKENHI (20K12534)
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<https://doi.org/10.1145/3532719.3543216>