

# MODELING 3D HAIR BY OUTLINING HAIR CARDS

PRESENTER: MASAMUNE TAKANO  
AND YUKI MORIMOTO

## APPROACH

In our method, the user inputs the left and right outlines by sketching them to create hair strand meshes. This enables the user to adjust the details while considering the overall outline of the hairstyle

## RELATED WORK

In HairBrush [1], It is not appropriate for creating new hairstyles because it creates hairstyles by merging existing hairstyles from its database.

In DeepSketchHair [2], It is difficult to adjust the details of the hair because the entire model is made at once.

## REFERENCES

[1] Jun Xing, Koki Nagano, Weikai Chen, Haotian Xu, Li-yi Wei, Yajie Zhao, Jingwan Lu, Byungmoon Kim, and Hao Li. 2019. HairBrush for Immersive Data-Driven Hair Modeling. In Proceedings of the 32nd Annual ACM Symposium on User Interface Software and Technology (UIST '19). Association for Computing Machinery, 263–279.

[2] Y. Shen, C. Zhang, H. Fu, K. Zhou and Y. Zheng. "DeepSketchHair: Deep Sketch-based 3D Hair Modeling," in IEEE Transactions on Visualization and Computer Graphics, 10.1109/TVCG.2020.2968433.



FOR PAPER AND  
SUPPLEMENTAL  
MATERIALS

KYUSHU UNIVERSITY  
GRADUATE SCHOOL OF  
DESIGN



# A METHOD FOR MODELING 3D CHARACTER'S HAIR BY INPUTTING SKETCHED LINES AS THE LEFT AND RIGHT CONTOUR LINES OF A HAIR STRAND.



DRAW 2 LINES

HAIR CARD GENERATED

HAIR STYLE

## PROBLEM

- Modeling a character's hairstyle is an important task that affects the character's appearance.
- Generally, hair modeling requires many complex tasks and takes long time.

## METHOD

- In our method, we define a template as a canvas and place it around a head model. The user draws on the template to model the hair; the user intuitively provides the entire silhouette by drawing lines as the left and right sides of the contour of the hair cards.
1. Sketch two lines on the head model and template.
  2. Generate thick, round hair card.
  3. Repeating 1~2, users can make hairstyles.

## RESULTS



the CPU was AMD Ryzen 9 3900X, GPU was GeForce RTX 2080 Ti, and the system was operated interactively. Whereas general methods take hours to modeling, this method took about 20~30 minutes for making a hairstyle.