

Master of Science in Informatics at Grenoble  
Master Informatique  
Specialization Type your Option Here

**Your Title**

**Your Name**

Defense Date, 2017

Research project performed at YOUR LAB

Under the supervision of:

Your Supervisor

Defended before a jury composed of:

Head of the jury

Jury member 1

Jury member 2

Month

2017



### **Abstract**

Your abstract goes here...

### **Acknowledgement**

I would like to express my sincere gratitude to .. for his invaluable assistance and comments in reviewing this report... Good luck :)

### **Résumé**

Your abstract in French goes here...



# Contents

|                               |          |
|-------------------------------|----------|
| <b>Abstract</b>               | <b>i</b> |
| <b>Acknowledgement</b>        | <b>i</b> |
| <b>Résumé</b>                 | <b>i</b> |
| <b>1 Introduction</b>         | <b>1</b> |
| <b>2 Previous Work</b>        | <b>3</b> |
| 2.1 Image Space . . . . .     | 3        |
| 2.2 Object Space . . . . .    | 3        |
| 2.3 Texture Mapping . . . . . | 4        |
| 2.4 Stroke Based . . . . .    | 4        |
| <b>3 Conclusion</b>           | <b>5</b> |
| <b>A Appendix</b>             | <b>7</b> |



— 1 —

## **Introduction**





## Previous Work

The problem of stylizing a 3D object has received many attentions in previous work. There are many methods to stylize. Each of these methods has its advantages and disadvantages about the temporal coherence. We separated these ways to stylized in four different sections : image space, object space, texture mapping and stroke based rendering.

### 2.1 Image Space

This simplest way to stylize a 3D model is to do in image space. The scene is rendered as an image in texture and from this image, the stylization can proceed. In this The idea is from this image succeed to compute at each pixel the right colour of the splat if this is stroke-based rendering or which colour of an external texture has to be put on this pixel. To do a brush painting with strokes Hertzmann's [Image and Video-Based Artistic Stylistation, 2013] add strokes coloured depending on the image in the image and decide to delete or replace it to fit at best curves to edges of the image. But this method suffer to motion coherence between frames when the camera is moving some brush strokes will disapear and some will appear because every frames are computed independantly of the previous frame and from the 3D model. The method of Vergne et al [Implicit Brushes, 2011] use convolution of points to have a hand drawing effect. These points are placed depending on the *feature profile* which is extracted from the image using the maximum of the luminance gradient and the DeCarlo algorithm[DeCarlo, 1985].

The advantage of being in image space is that this is in a 2D space so it is easier to make 2D effects like brush paintings, pencil hand drawing. But the disadvantage is there is no information about the geometry (the depth, the normals) and because of that it is hard to ensure *motion coherence*.

### 2.2 Object Space

The most common way to display texture on an object is to do it in object space (also called 3D space) this permit to anchor the texture to each vertex of the models. In 3D space, we treat each vertex from the mesh independantly. Each vertex can have many informations about itself: position in 3D, normal of the surface, distance from the camera, ...

## **2.3 Texture Mapping**

## **2.4 Stroke Based**

## Conclusion

Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris.

Nulla malesuada porttitor diam. Donec felis erat, congue non, volutpat at, tincidunt tristique, libero. Vivamus viverra fermentum felis. Donec nonummy pellentesque ante. Phasellus adipiscing semper elit. Proin fermentum massa ac quam. Sed diam turpis, molestie vitae, placerat a, molestie nec, leo. Maecenas lacinia. Nam ipsum ligula, eleifend at, accumsan nec, suscipit a, ipsum. Morbi blandit ligula feugiat magna. Nunc eleifend consequat lorem. Sed lacinia nulla vitae enim. Pellentesque tincidunt purus vel magna. Integer non enim. Praesent euismod nunc eu purus. Donec bibendum quam in tellus. Nullam cursus pulvinar lectus. Donec et mi. Nam vulputate metus eu enim. Vestibulum pellentesque felis eu massa.

Quisque ullamcorper placerat ipsum. Cras nibh. Morbi vel justo vitae lacus tincidunt ultricies. Lorem ipsum dolor sit amet, consectetur adipiscing elit. In hac habitasse platea dictumst. Integer tempus convallis augue. Etiam facilisis. Nunc elementum fermentum wisi. Aenean placerat. Ut imperdiet, enim sed gravida sollicitudin, felis odio placerat quam, ac pulvinar elit purus eget enim. Nunc vitae tortor. Proin tempus nibh sit amet nisl. Vivamus quis tortor vitae risus porta vehicula.



# **— A —**

## **Appendix**

Appendix goes here...

