

KAIST

CS 380
Introduction to Computer Graphics

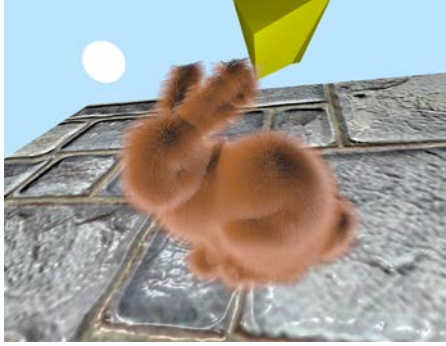
LAB (13)
2015.06.10

VISUAL COMPUTING Lab

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Overview

- Implement a 'furry' bunny



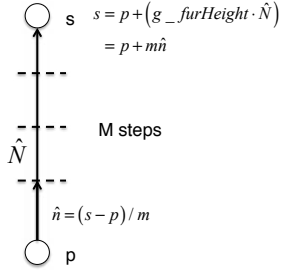
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VISUAL COMPUTING Lab

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Rendering Straight Fur

- First, implement `updateShellGeometry()`
- Alpha blending texture
- A straight fur model
 - p : vertex
 - s : the straight tip
 - n : unit direction
 - m : the number of steps
 - N : normal of a vertex
 - $g_furHeight$: total length of fur



$$s = p + (g_furHeight \cdot \hat{N})$$

$$= p + m\hat{n}$$

$$\hat{n} = (s - p) / m$$

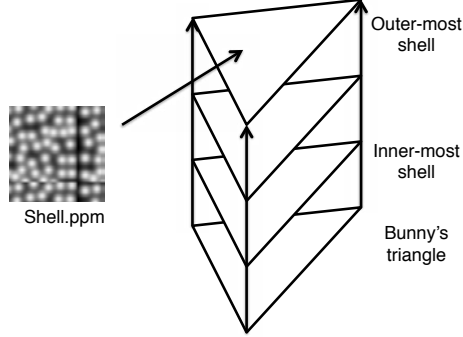
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VISUAL COMPUTING Lab

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Rendering Straight Fur

- Render the shells from the inner-most layer to the outer-most one.



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VISUAL COMPUTING Lab

Animating Straight Fur KAIST

- Dynamics simulation via the Euler method

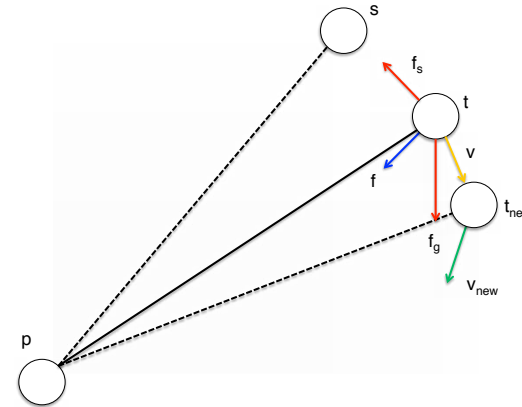
1. Compute f (gravity + spring force).
2. Update the tip position $t \leftarrow t + Tv$
3. Constrain the tip position $t \leftarrow p + g_furHeight \cdot \frac{(t-p)}{\|t-p\|}$
4. Update the velocity $v \leftarrow v + Tf$

T : unit time
 f : force
 v : current velocity

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Overview of the Euler method KAIST

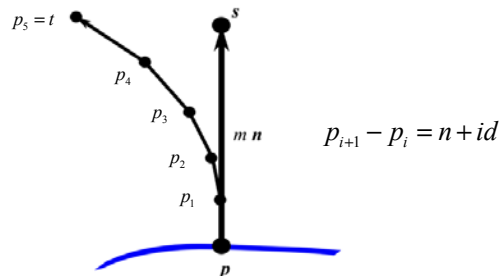


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Curry Fur KAIST

- After compute t , find the displacement vector d .



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Good Bye~! KAIST

- This is the last lab session! 😊

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