

KAIST

CS 380

Introduction to Computer Graphics

LAB (8)

2015.04.27

VISUAL
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Task 1: key frame sequence interface

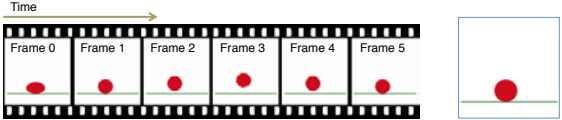
- Goal 1: manipulate a key frame sequence
 - Add or delete a key frame ('n' and 'd' keys)
 - Update the current key frame ('u' key)
 - Navigate the frame sequence ('<' and '>' key)
 - Store and load the sequence ('i' and 'w' key)
 - Go to the current key frame (space bar)
- Goal 2: store and load a key frame sequence
 - Write the sequence in a file
 - Free format
 - Read the file and load the frame sequence
- Need to know how the sequence structure works.

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Animation

- A sequence of frames
 - To depict motion and shape change



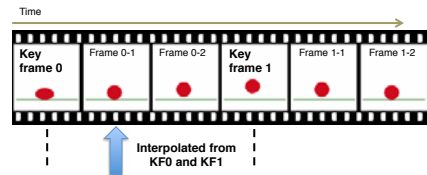
- Frame (in animation)
 - Like a video frame which is a image at one instant.
 - Here, the state of scene (geometric relation represented by a scene graph) at one instant.
 - Do not confuse with the definition of frame in graphics

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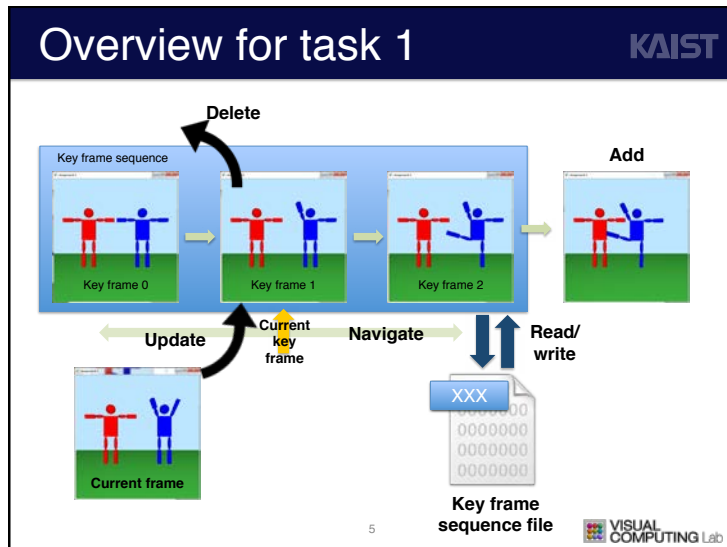
Key frame sequence

- Key frame
 - Storing all frames is memory-consuming.
 - Method: Just store **a few important frames** and interpolate intermediate frames from key frames.



- Key frame sequence
 - A sequential list of key frames

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Task 2: Linear interpolation KAIST

- Fill frames between key frames
- Linear interpolation for rigid body transform (RBT)
- For translation, $(1-\alpha)t_0 + \alpha t_1$
- For rotation, $(cn(q_1 q_0^{-1}))^\alpha q_0$
 - Quaternion power operator needs to be implemented.

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Task 3: Playing the animation KAIST

- Sequential rendering according to the key frame sequence.
- Use `glutTimerFunc` for sequential rendering
 - `glutTimerFunc(msec, callback function, value)`
 - msec: a time in which a callback function is triggered
 - Callback function: callback function
 - value: value for callback function
- While animating the scene, no operation works.

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Demo KAIST

- 百聞이 不如一見 (백문이 불여일견)
- One picture is worth a thousand words!

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