Motion Style and Motion Editing

Announcements

Project 1

Office Hours

Reading

The Textbook

- Ch1: origins, history, film rules of thumb
- Ch2: transforms, representing orientations
- Ch3: interpolation, filtering, speed control, paths
- Ch4: deformations and morphing
- Ch5: forward and inverse kinematics
- Ch6: motion capture
- Ch7: physically based animation
- Ch8: fluids
- Ch9: people – skin, muscles, grasping, walking
- Ch10: faces – models, animation, lip sync
- Ch11: behavior, AI, crowds
- Ch12: blobs, plants, subdivision surfaces
- AppA: rendering, compositing, blur, shadows, posters
- AppB: geometry, physics, randomness, optimization

Editing Motion Capture Data

How might you edit motions in such a format?

Retiming

Displacement curves

Motion "filtering"

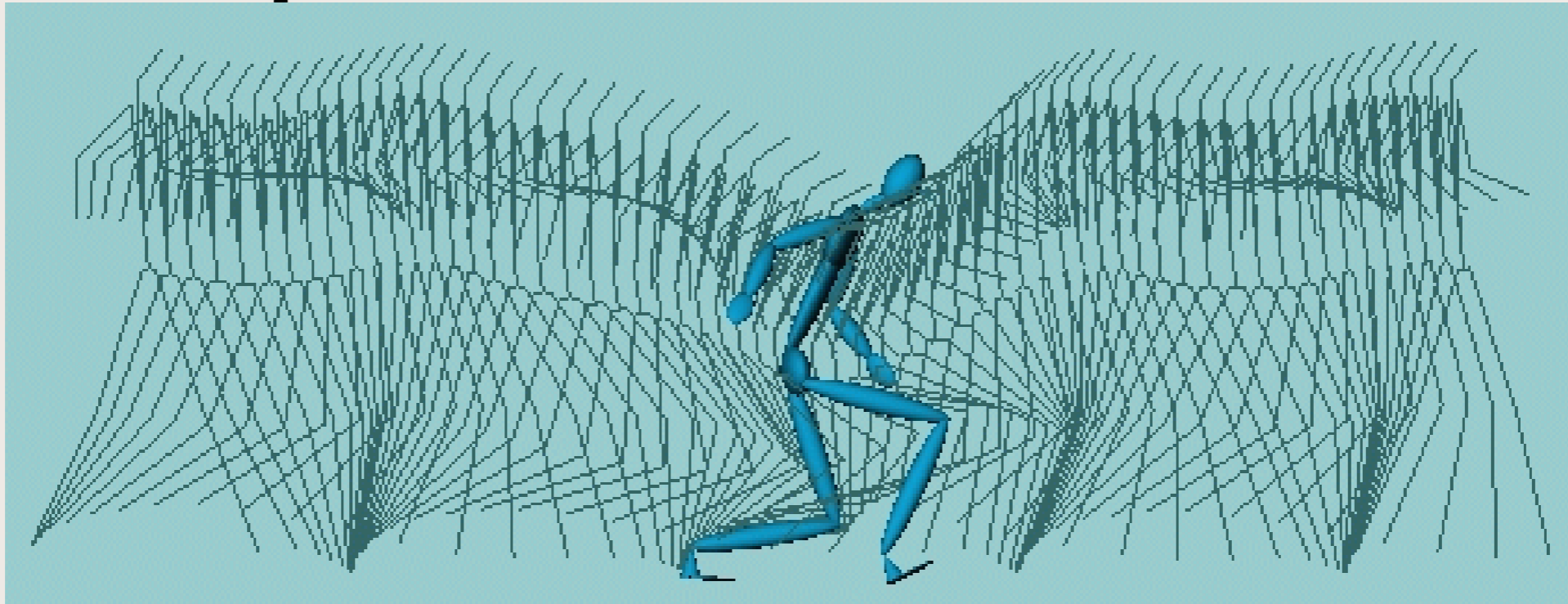Keyframe extraction / edit keyframes

Retiming

System outline:
- Beat extraction
- Dynamics extraction (louds and softs)
- User script file determines motions
- System controls timing, dynamic range of movements
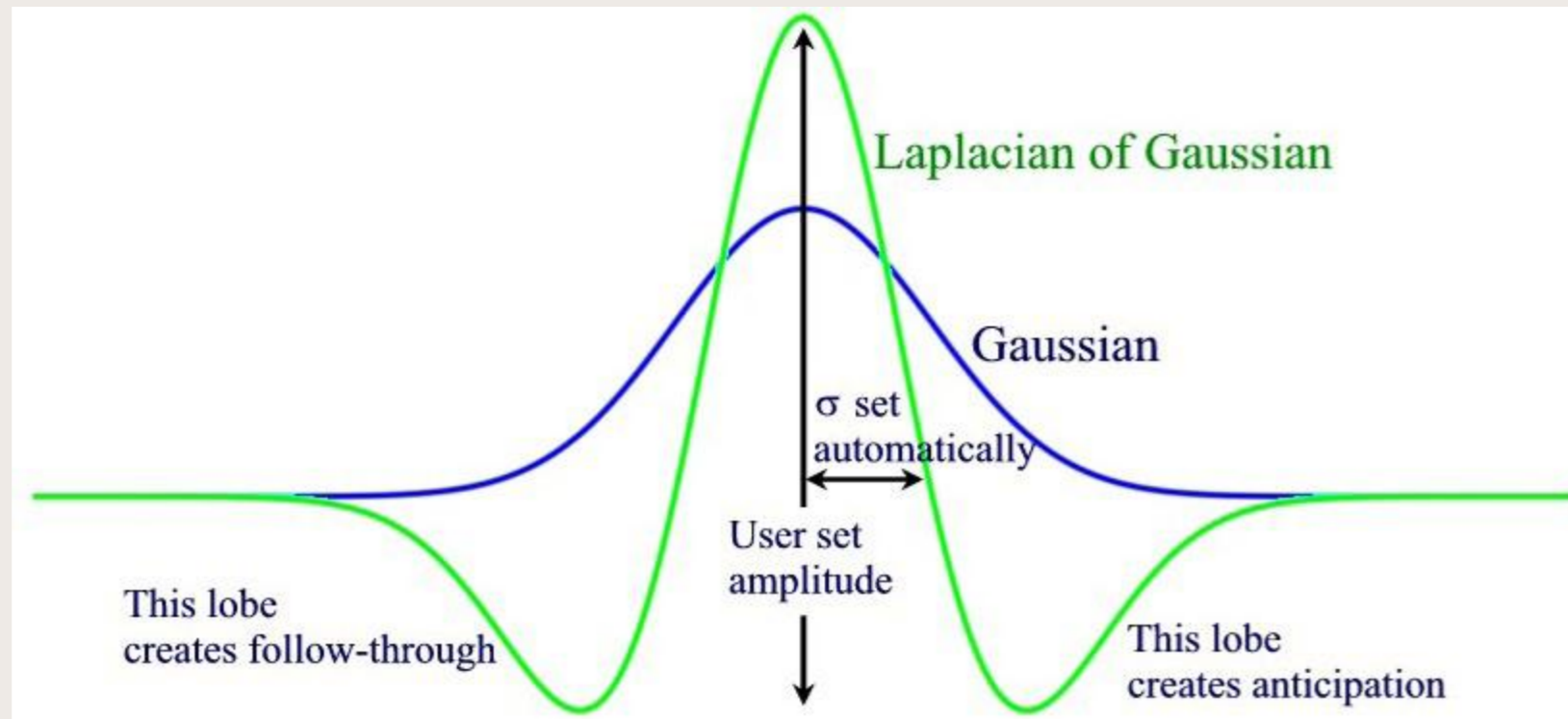
Displacement Curves

Main ideas:
- User edits → displacements to the original motion
- Displacements can be made at different resolutions in a hierarchical scheme

Jehee Lee and Sung Yong Shin, A Hierarchical Approach to Interactive Motion Editing for Human-like Characters, SIGGRAPH 99, 39-48, August 1999.

Motion Filtering

Main idea:
- A simple filter applied to a motion sequence can create squash and stretch effects and cartoon like exaggeration

Keyframe Extraction

Main idea:

- Keyframes are local extrema of an embedding of the motion into a low-dimensional space

Jackie Assa, Yaron Caspi, and   Daniel Cohen-Or
Action Synopsis: Pose Selection and Illustration
SIGGRAPH 2005