

Adapting Motion Capture Data to Follow a User-Defined Path

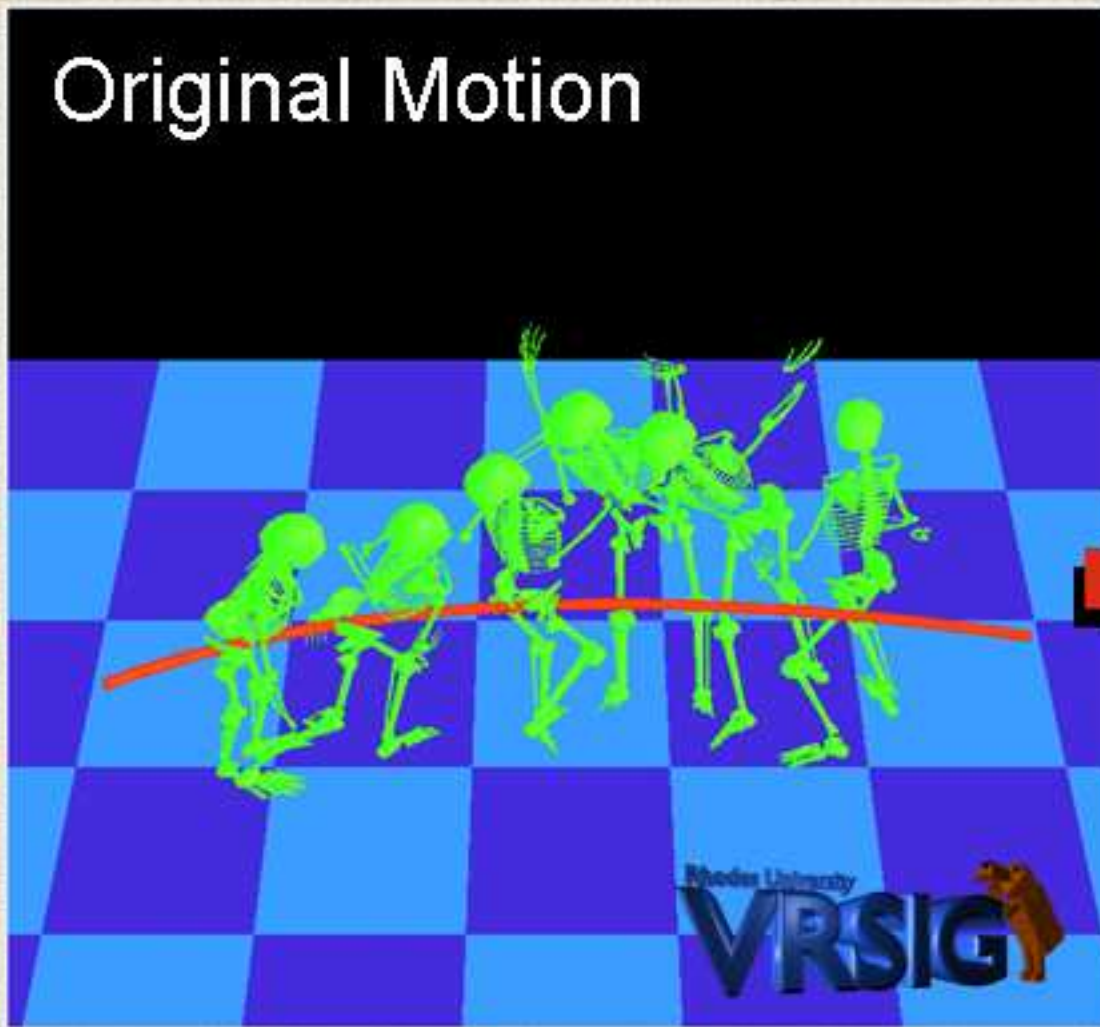
Objectives

- The user will be able to edit the path of a motion taken from a motion capture file
- Maintain the realism of the original motion

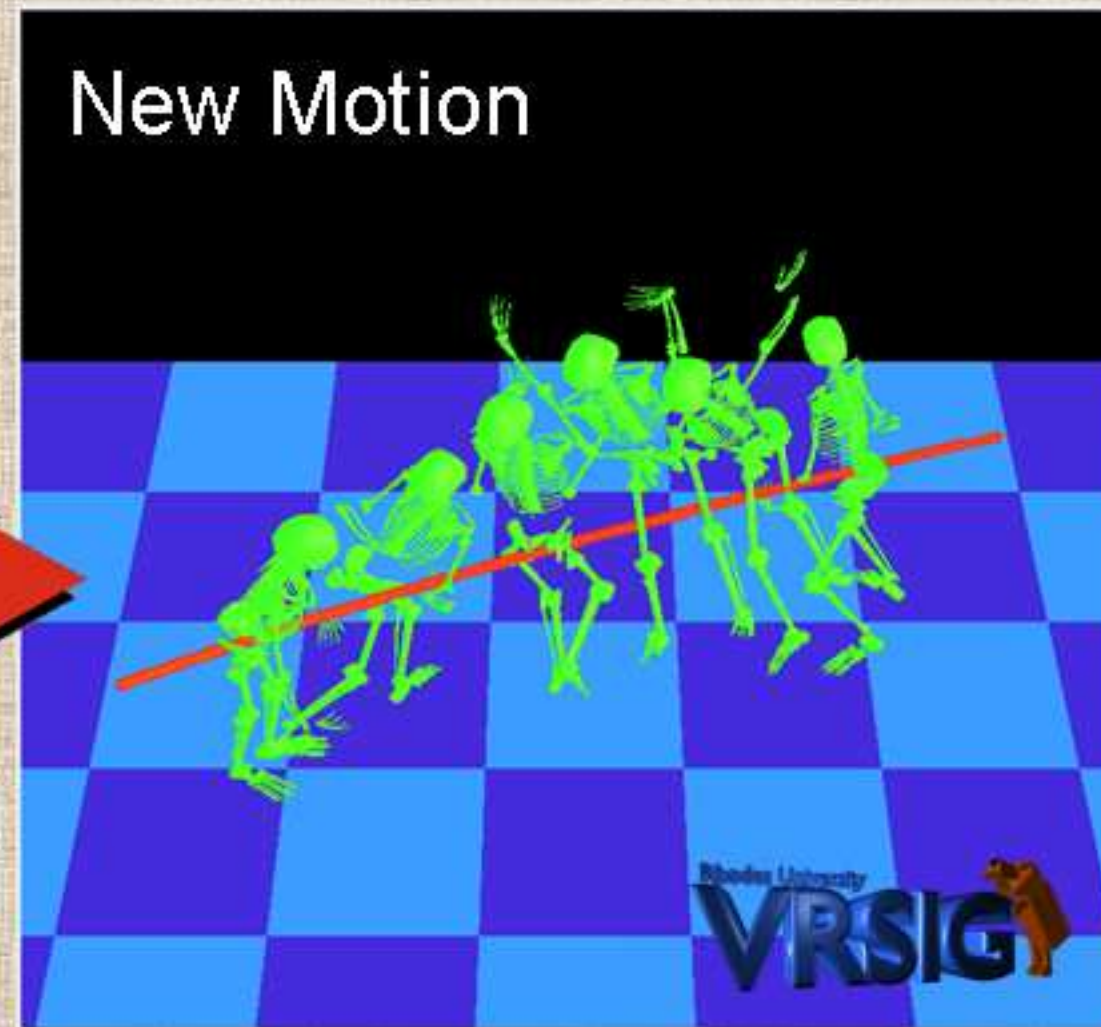
Motivation

- Subtle details of human motion are naturally present in motion capture data
- Motion capture is expensive
- Therefore, it is often desirable to be able to alter previously recorded data

Original Motion



New Motion

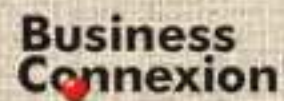
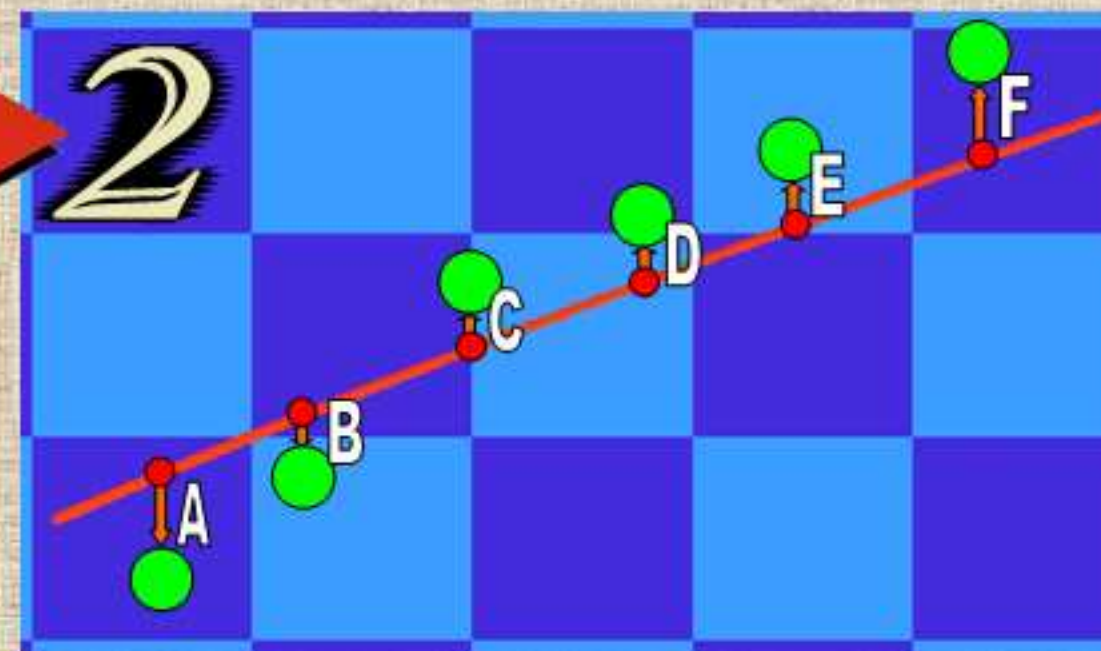
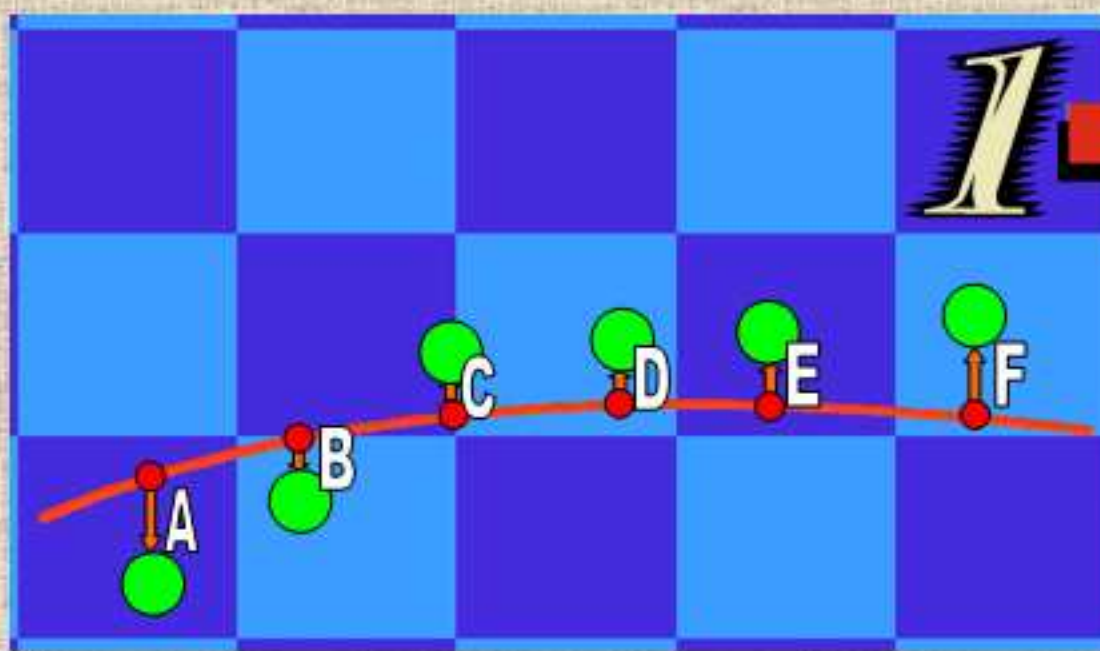


Method

- An initial path (1) is created using a least squares fit of a polynomial curve
- The motion is represented relative to the path
- Thus, altering the path alters the motion (2)

Representing the Motion Relative to the Path

- Residual = Transformation from the path's position/orientation to the avatar's position/orientation
- Translation residual and rotation residual calculated for each frame
- Arrows A, B, C, D, E and F represent translation residuals
- User alters the path: (1) → (2)
- To render the new motion at a given frame, we transform onto the path and then transform using the residuals



Mark Whitfield – e-mail: g01w2572@campus.ru.ac.za
<http://www.cs.ru.ac.za/research/students/g01W2572/>
Supervised by Shaun Bangay & Adele Lobb