Walk Cycle

The walk cycle can be broken down into various phases based on the relation of the feet to their points of contact with the ground. The stride is defined by the sequence of motions between two consecutive repetitions of a body configuration. The left stance phase of a stride is initiated with the right foot on the ground and the left heel just starting to strike the ground. During this phase, the body is supported by both feet until the right foot pivots up and the right toe leaves the ground. The left stance phase continues as the right foot leaves the ground and starts swinging forward and as the right heel strikes the ground and both feet are once again on the ground. The left toe leaving the ground terminates the left stance phase. The right swing phase is the period in which the right toe leaves the ground, the right leg swings forward, and the right heel strikes the ground. Notice that the right swing phase is a subinterval of the left stance phase. The end of the right swing phase initiates the right stance phase, and analogous phases now proceed with the roles of the left leg and the right leg switched. The walking cycle is characterized by alternating periods of single and double support.

Facial Animation

The simplest approach to facial animation is to define a set of key poses, also called blend shapes. Facial animation is produced by selecting two of the key poses and interpolating between the positions of their corresponding vertices in the two poses. This restricts the available motions to be the interpolation from one key pose to another. To generalize this a bit more, a weighted sum of two or more key poses can be used in which the weights sum to one. Each vertex position is then computed as a linear combination of its corresponding position in each of the poses whose weight is non-zero. This can be used to produce facial poses not directly represented by the keys. However, this is still fairly restrictive because the various parts of the facial model are not individually controllable by the animator. The animation is still restricted to those poses represented as a linear combination of the keys. If the animator allows for a wide variety of facial motions, the key poses quickly increase to an unmanageable number.