

Articulating The Appeal

Sonoko Konishi Michael Venturini
Pixar Technical Memo #07-12
Pixar Animation Studios

1 How can rats win empathy?

It's difficult. In our society, rodents are usually portrayed in a negative manner. To overcome this, every department on Ratatouille strove to create appeal. In this sketch we will focus on how this was achieved through articulation.

2 Supporting the form

Our rat's overall body is posed in a teardrop shape with a slight "S" shape down the spine. By lowering the center of gravity we create a soft appeal, maintain balance when the body is leaning forward and switch between biped and quadruped poses believably. When considering the body contour, we strove to keep simple direct shapes. By creating clean silhouettes and simplified forms, we retain the appealing stylized design even in extreme action. Simple shapes also help the rats feel smaller.



Figure 1: Complex vs. Simple silhouette. ©Disney / Pixar. All rights reserved.

3 Composing the face

The simplest emotional communication devices are the mouth and eyes. The large eyes and brows of a rat are the most expressive parts of its face. Rat faces also have several protruding parts such as the muzzle, brows and ears that can produce complex contours.

Deforming the base of the muzzle as the mouth moves adds a softness to the result. In contrast, the bridge of the nose is kept hard by preserving the integrity of the skeletal structure and keeping unnecessary chattering from distracting the viewer from the eyes. Squishy cheek mass is manipulated by the corner of the mouth and creates the most appealing smile. We extend the effect of cheek deformation in a wide region to link eyes and mouth connectivity. Setting the direction of the deformer to lead into the eyes creates a connection between the mouth and eyes. This is especially helpful when characters are delivering long lines or when the mouth disappears from certain angles under the muzzle, you feel the continuation of mouth movement through cheek reaction while the eyes keep acting.

Teeth heavily influence appeal. Just a slight change in ratio between teeth and gums can make a character less appealing such as exposing a gum-line. Our teeth have many controls to alter the relationship of gum and molar, and animators can pose them for charming

appeal or to stress a rat-like appearance. For example, by cradling the teeth within the lips they appear smaller and more appealing.

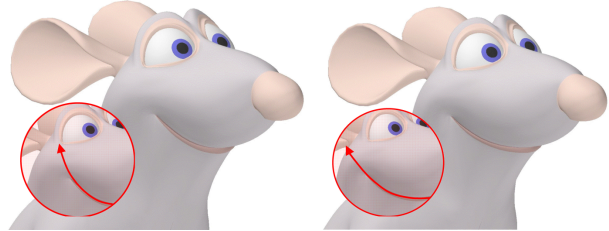


Figure 2: Directing eyes with lips. ©Disney / Pixar. All rights reserved.

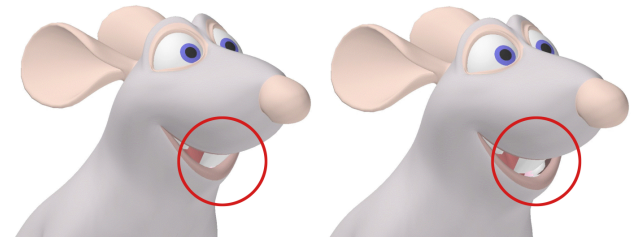


Figure 3: Lips to frame teeth. ©Disney / Pixar. All rights reserved.

Rat ears are used to mirror the attitude and help create compositionally pleasing shapes. As expressive as the ears are, it is the combination of simple deformers and how they blend into the full body silhouette that makes the motion feel complex.

Another challenge in this area was to maintain the legibility of the rat's facial expression under fur. In general, long fur covers flaws but can also accentuate or dull down the movement of skin underneath. We kept the skull area less squishy to avoid deforming skin from obstructing the eyes. However, extreme poses can push this boundary for 1 or 2 frames during animation.

4 Articulation for appeal

Deformation for expressions with compositional purpose provides character poses that deliver clear communication. Allowing the deformation to flow from one feature to another creates the illusion of connectivity and the ability to read whole body as emotion. If the visual qualities of character get the viewer's attention during the storytelling, that's appeal.