Animations

Jaanus Jaggo
Animation principles

Image source:
https://jadsit0221.wordpress.com/2015/03/22/principles-and-points-in-animation/
Squash & Stretch

The volume should stay the same!
Squash & Strech
Squash & Strech
Ease in / Ease out

STANDARD IN-OUT MOVEMENT

EASY EASE IN-OUT MOVEMENT

POSITION

TIME

POSITION

TIME

Example of oscillating pendulum
Ease in / Ease out

https://www.youtube.com/watch?v=uDqjldl4bF4
Linear / Cosine interpolation

Vector2 LinearInterpolate(Vector2 p1, Vector2 p2, float mu)
{
    return(p1*(1-mu)+p2*mu);
}

Vector2 CosineInterpolate(
    Vector2 p1, Vector2 p2, float mu)
{
    float mu2 = (1-cos(mu*Mathf.PI)) / 2.0f;
    return(y1*(1-mu2)+y2*mu2);
}
Different curves for different things
Anticipation

Character prepares for the action to give a glue!

What the character here is preparing for?
Anticipation

How to let the player know that the trap is going to trigger?
Staging

https://www.youtube.com/watch?v=uDqjIdI4bF4
Pose to Pose
Pose to Pose
Pose to Pose
Pose to Pose
Pose Design

Which pose is better, the left or the right?

https://www.youtube.com/watch?v=ZmLkVtqjf1A
Silhouetted posing

A good pose has some negative spacing and “reads” well. Good practise is to make sure that the pose looks good as a silhouette.

Pose Design

Which pose is the best?

https://www.youtube.com/watch?v=ZmLkVtqjf1A
Straight ahead
Combining

Pose-to-pose + Straight ahead
Combining

In video games you can combine physics based bones with regular ones.
Arcs
Arcs

Posing characters in C or S curve makes them more appealing.

Timing

http://www.youtube.com/watch?v=uDqjldl4bF4&t=16m10s
Overshooting

http://www.youtube.com/watch?v=iJOUTSy0fQI&t=9m24s
Overshooting

Makes hits and punches feel connected!

Street Fighter 3
Exaggeration
Make it snappy: Lara Croft GO

http://www.youtube.com/watch?v=gn4MzuviDs&t=20m40s
Secondary action

Show Secondary Actions

No! I’m not angry at you!

No! I’m not angry at you!

for more life and meaning
Secondary motion - Follow through

Drag movement
Secondary motion
Quiz

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Quiz

Anticipation

Squash and stretch

Exaggeration

Staging

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Rotoscoping

What game is it?

https://www.youtube.com/watch?v=wKgLfqOVHco
3D character animations

Where are those characters from? Can you notice something?
Skinned meshes
Motion capture
Face animations

https://www.youtube.com/watch?v=kvCxyDwHeag&t=662s
Face animations

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Face animations

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Face animations

Motion capture is the best bet. But it is expensive!
3D face animations are hard to make

Bad face animations can look uncanny.
Kingdom rush - more animations = less frames
Anima 2D - Unity rigged 2D animations
Animating in Unity
Pixelart animations

- Wire animation
- Shape animation
- Shaded animation

Vertex color animations
Vertex color animations
Vertex color animations
Animating quadruped characters

1. Animation speed

https://www.youtube.com/watch?v=Bs046-TWMhA
Animating quadruped characters

2. Animation direction

https://www.youtube.com/watch?v=Bs046-TWMhA
Animating quadruped characters

3. Blending from locomotion to idle

https://www.youtube.com/watch?v=Bs046-TWMhA
Animated materials

Organic substances are usually animated in custom shaders.
Suggestions

Watch the 12 Principles of Animation:
https://www.youtube.com/watch?v=uDqjIdI4bF4

Try Anima2D
https://www.assetstore.unity3d.com/en/#!/content/79840