Fluid and Powerful Animation within Frame Restrictions
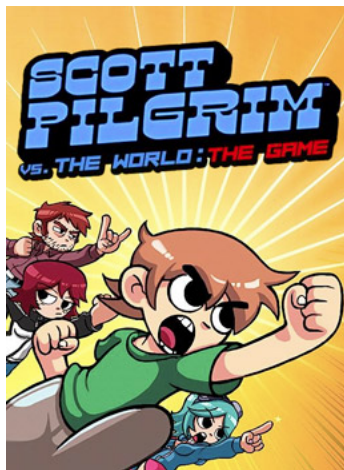
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Overview

- Animation Principles
- How it relates to gameplay
- Putting it together
- Reviewing Skullgirls
- Takeaways

Who am I?

Skullgirls?

- 2D animated fighting game for PSN/XBLA/ Steam

- All hand drawn by a team of traditional animators

Animation Principles

Silhouette

- Clear silhouette in your keys is the basis of making strong animation

Anticipation

- Even one frame of anticipation is enough

- Gives the move contrast to make it look more powerful

A note about anticipation

●Player characters generally need to move quicker than enemies to be responsive, so you might not have time for much anticipation
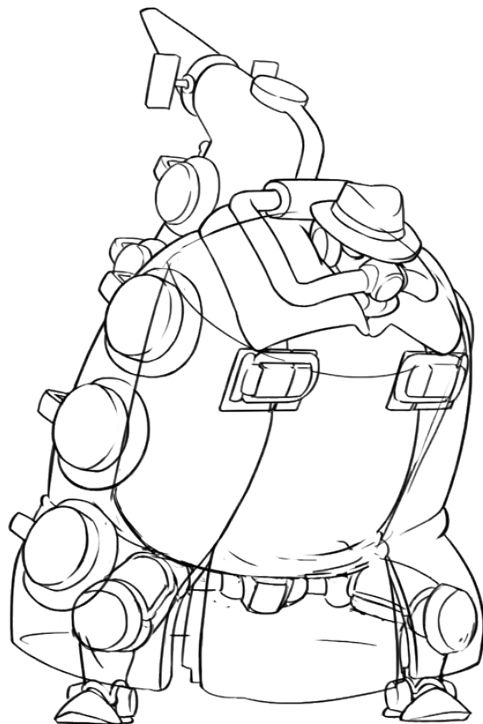
(That being said, you should always have time for some)

●Enemy characters generally need to give the player time to react, so they need more anticipation

Favoring your Keys
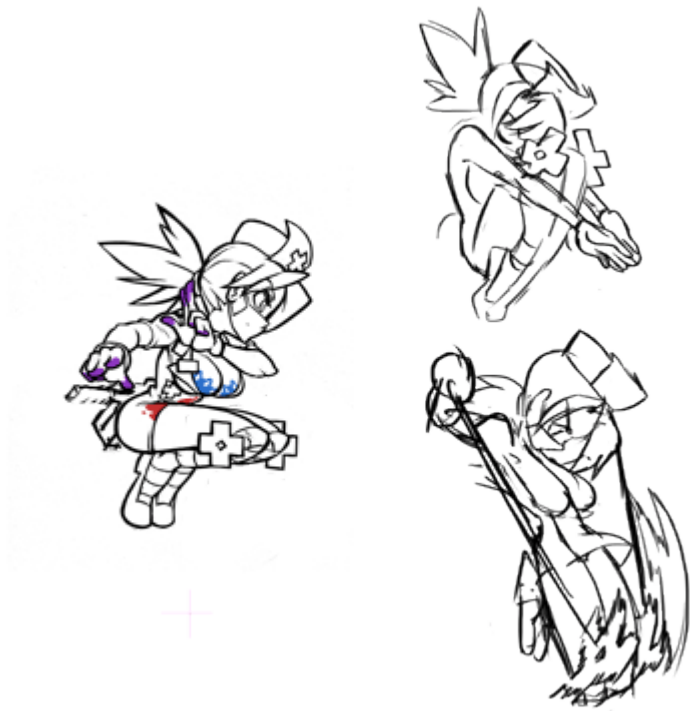
- In situations where you have limited frames, having inbetweens that emphasize your keys is important

Followthrough

- Use followthrough effectively to help fill in the gaps where you may not have time for inbetweens

Smears

- Smears also help fill in the gaps when you need to have a huge motion

Smears

Chun-Li from Street Fighter III: Third Strike

Ibuki from Street Fighter III: Third Strike

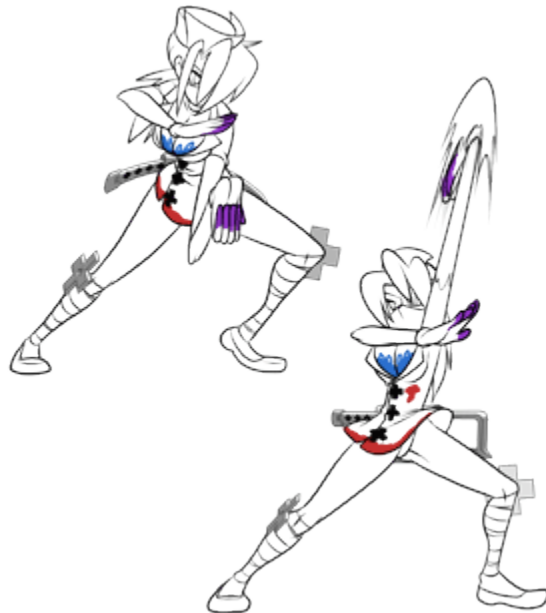Captain America from Marvel vs. Capcom

Overshoot

- One frame of an attack 'overshooting' its final key frame helps give it impact

Overshoot

- Street Fighter III: Third Strike has a lot of great examples of overshoot, including this example with Makoto

Breaking the body

- Don't be afraid to break limbs to push your animation

- A frame of delay helps give your animation strength

Breaking the body

Felicia from Darkstalkers

Necro from Street Fighter
III: Third Strike

Sol Badguy from
Guilty Gear

Remember, you're animating!

- Animation is the impression of creating a motion

- Remember your foundations, but push, exaggerate, and break a few bones to make your animation look awesome

- You're creating movement, not individual pieces of art

Timing and Gameplay

The Skullgirls Process

Rough   >   Implement   >   Finish   > Implement

Know what you're making

- In Skullgirls, we have general framecount guidelines for weak, medium and hard moves when doing roughs, so we have a starting point

- Work with your designer to get an idea of what she needs, and start animating from there

Use holds effectively

- If your game allows it, don't feel beholden to animating with each frame held the same amount of time, e.g. holding every frame for 4 frames at 60fps (approximately animating on twos)

- Sometimes mixing up the timing to hold your keys and its surrounding frames longer can save you frames

Use holds effectively, example

Old timing at even intervals

New timing with holds emphasized

Hitstop

- Hitstop is the period on an impact where both characters freeze before playing the rest of the animations

- This is more programmatic and less an animation thing, but important nonetheless

- "You damn well don't make a game without hitstop."
  - Mike Z, designer of Skullgirls

Transitioning to and from idle

- Don't forget that your idle animation is a motion in itself, so don't ease in and out of your idle animation

Gameplay is king!

- Find ways to work with your designers, not against them

- Ask your designer questions!

- You may be able to animate the most fluid jump with a ton of anticipation and a beautiful landing, but it won't do your game any good if it doesn't work with the game

Putting it Together

Anticipation, smear, main key, return
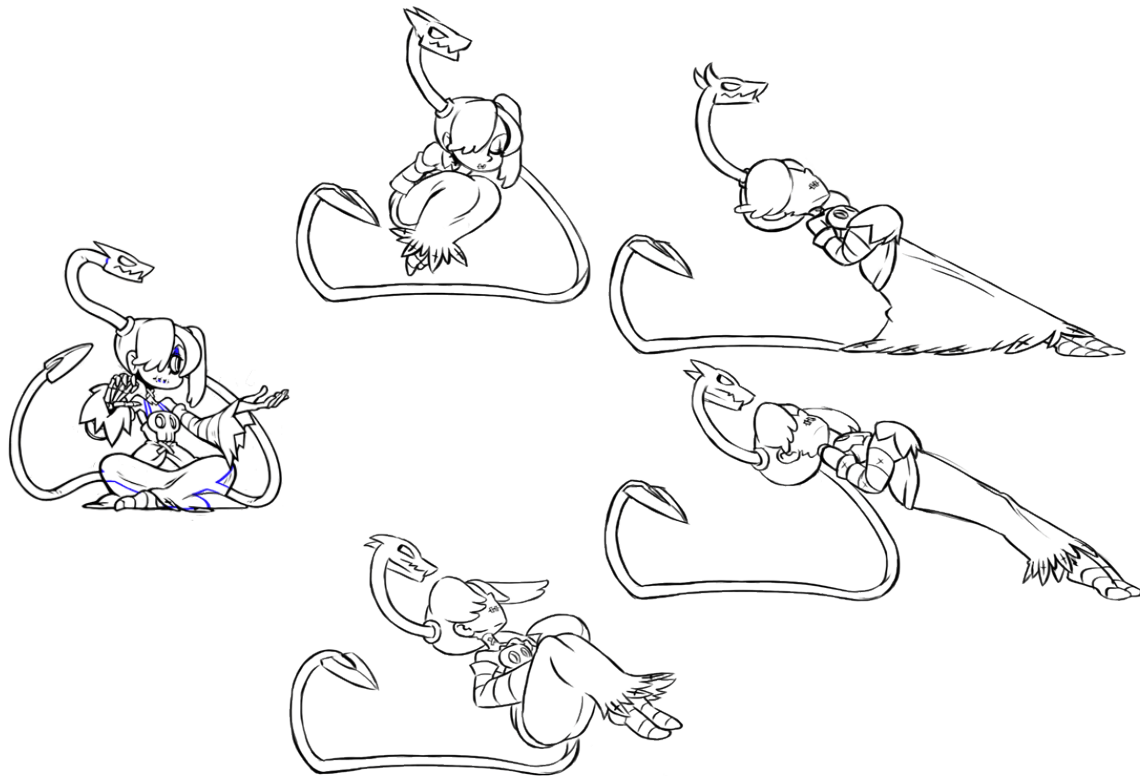
- If you think of an attack in these parts, it doesn't actually take a lot of frames to get a motion across

Lessons from Skullgirls

Fluid vs Overanimated

●The animation in Skullgirls was always smooth, but I didn't know how to effectively apply the previous principles, resulting in animation with unnecessary frames in the beginning

Filia's 21 frame kneefall

- 21 frames- too many! Lots of unnecessary and redundant detail

- Animation is too even, lacks impact

Filia's 21 frame kneefall, fixed

- More focus on keys, less inbetweens

- Six frames less than old version, but still as effective and has more punch

Cerebella Diamond Punch

- I don't know why this is 45 frames

- Overanimated, tons of unnecessary inbetweens

Cerebella Diamond Punch, fixed

- 29 frames- could maybe be even less

- Needs readjusting, but the poses are much clearer

One more note about Filia

Original version

One frame removed

Review

- Focus on your keys and use followthrough to fill in the gaps
- The core parts of a move: anticipation, smear, attack, return to idle
- Animation can and *should* work with game design

Resources

- Zweifuss (zweifuss.ca)

    Street Fighter III: Third Strike sprites

- Fighters Generation (fightersgeneration.com)

    Thousands of sprites from all kinds of fighting games

Thank you!

@kinucakes

Games referenced:
Skullgirls, Autumn Games
Darkstalkers, Capcom
Street Fighter III: Third Strike, Capcom
Marvel vs Capcom, Capcom
Guilty Gear, Arc System Works