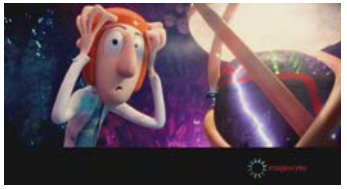
GDC
Tricks of the Trade 2016
Alex M. Lehmann, Art Director, Riot Games
Simon Unger, Sr. Animator, Phoenix Labs
Amy Drobeck-Jones, Sr. Animator, 5th Cell
Jean-Denis Haas, Sr. Lead Animator, Industrial Light & Magic
Billy Harper, Lead Animator, Sucker Punch Studios
Jay Hosfelt, Lead Animator, Epic Games
GAME DEVELOPERS CONFERENCE March 14–18, 2016 · Expo: March 16–18, 2016 #GDC16
UBM

"Tricks of the Trade" Host

Alex M. Lehmann
Art Director, Riot Games
animator for 10+ years

Riot Games, "League of Legends"
Sony Imageworks, "Cloudy with a Chance of Meatballs"
Microsoft, "Kodu"
4 years of working in Commercials & Feature Film in Europe



Meet the panel

SIMON UNGER
Sr. Animator
Phoenix Labs

AMY DROBECK-JONES
Sr. Animator
5th Cell

JEAN-DENIS HAAS
Sr. Lead Animator
Industrial Light&Magic

BILLY HARPER
Lead Animator
Sucker Punch Studios

JAY HOSFELT
Lead Animator
Epic Games

Why “Tricks of the Trade”?

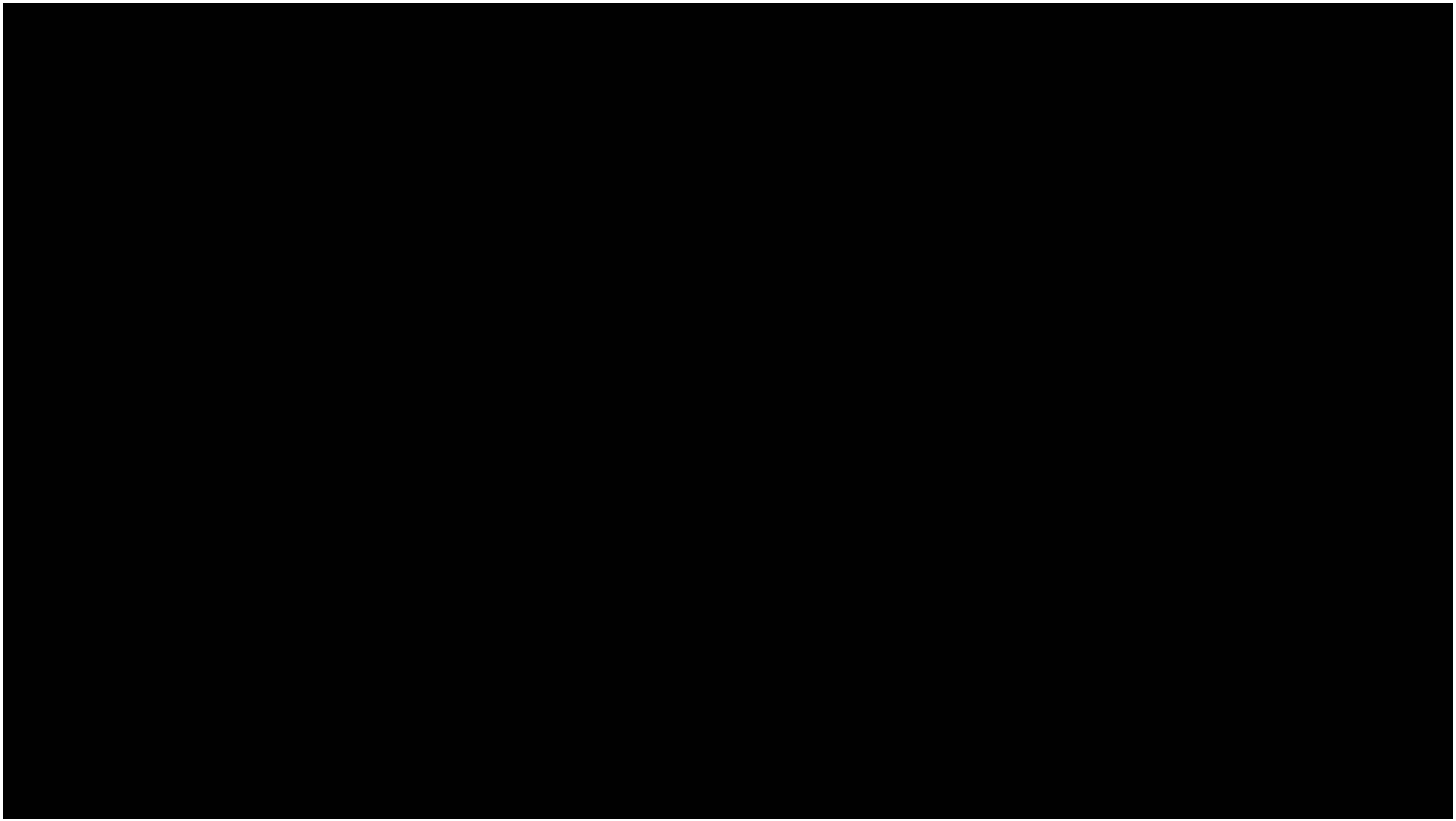
Got it… so, how does it work?

Tips to get the most out of this…

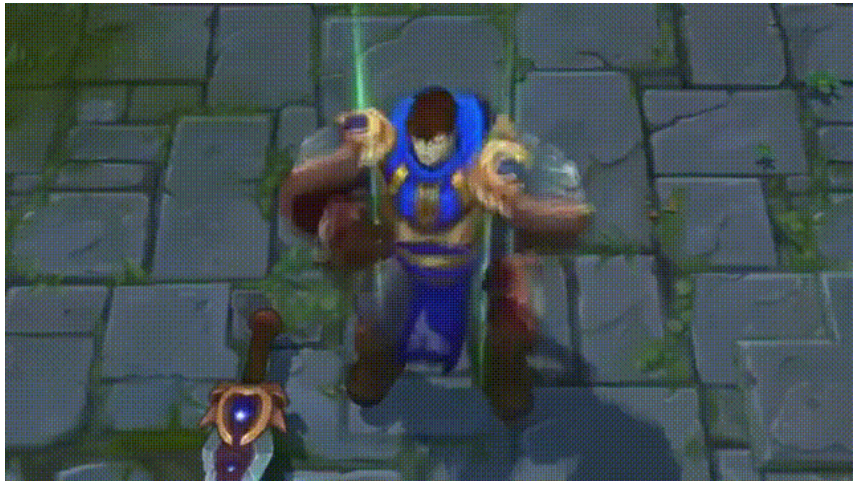
NOTE TAKING

ENJOY THE RIDE

GDC VAULT



Trick #01
Fixing repetitive animation loops



Trick #01 – ABA vs ABCA

Trick #01 – ABA vs ABCA

Trick #02 – RESPONSIVE ANIMS

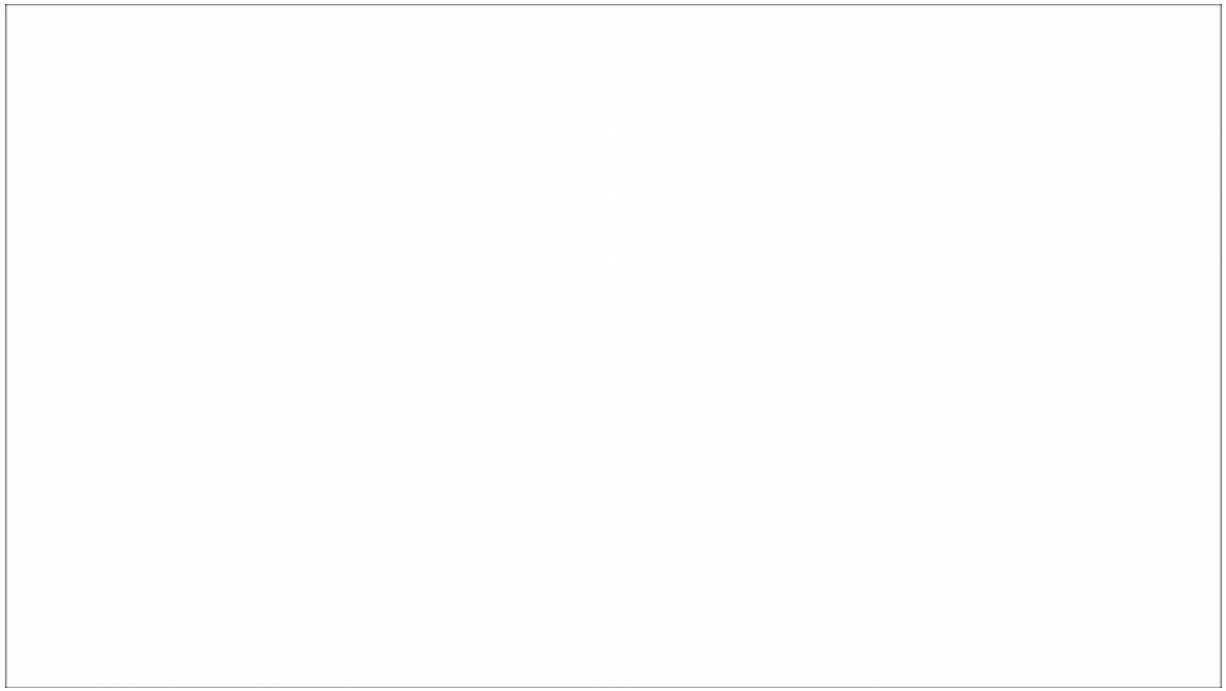
Trick #02 – RESPONSIVE ANIMS

IDLE **ATTACK**

Trick #02 – RESPONSIVE ANIMS

POSE 1 **HIT** **ANTIC** **POSE 1**

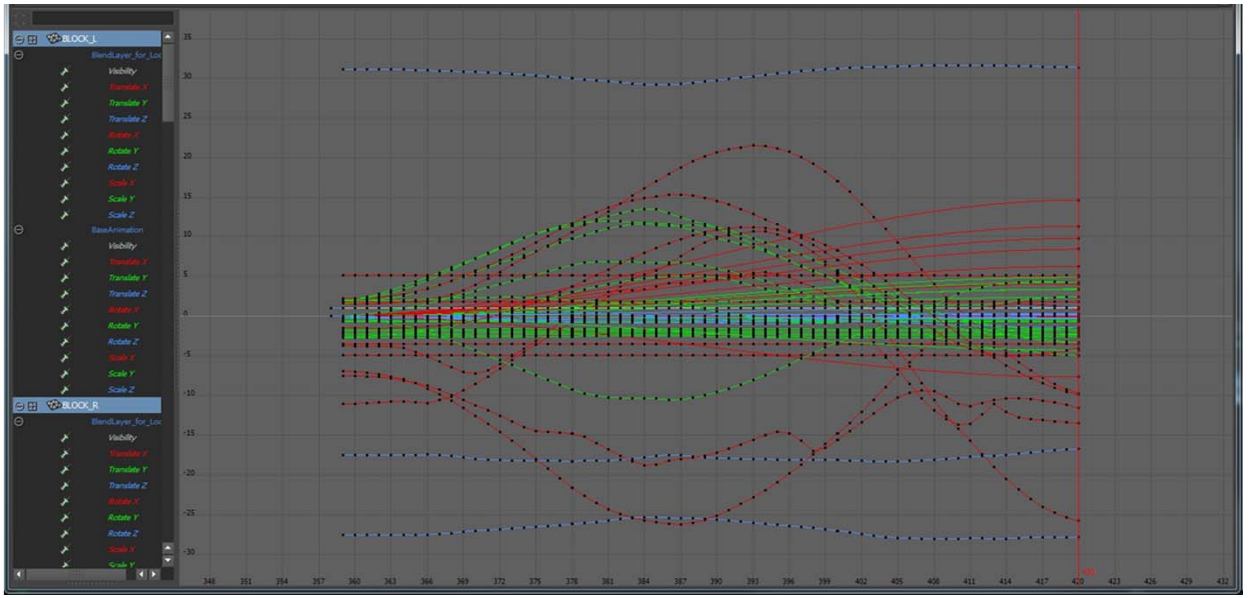
Trick #02 – RESPONSIVE ANIMS



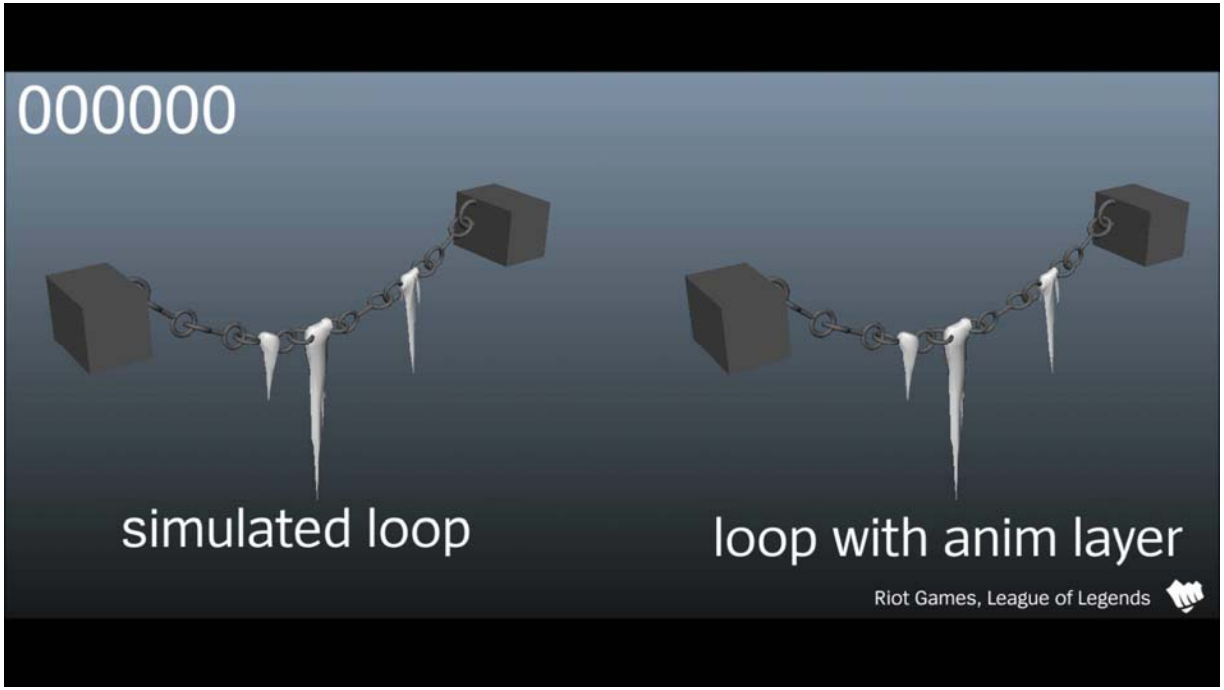
Trick #03 – LOOPING DENSE ANIMS

Simulated chains in our game

Trick #03 – LOOPING DENSE ANIMS



Trick #03 – LOOPING DENSE ANIMS



SIMON UNGER

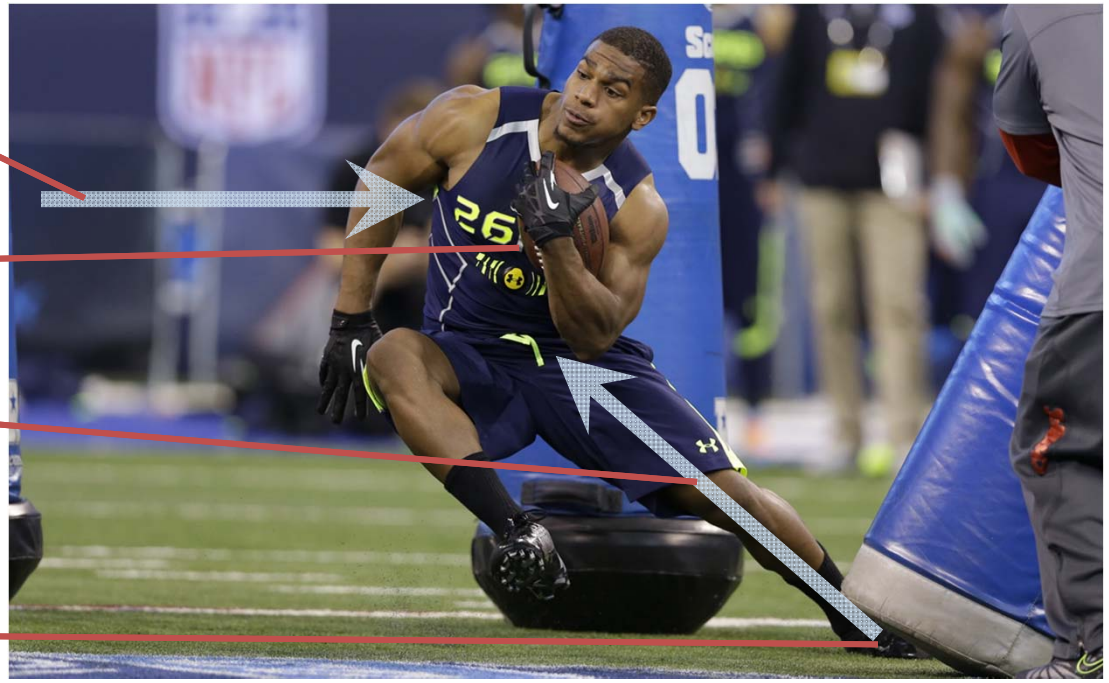
Tip #01 – Force > Weight

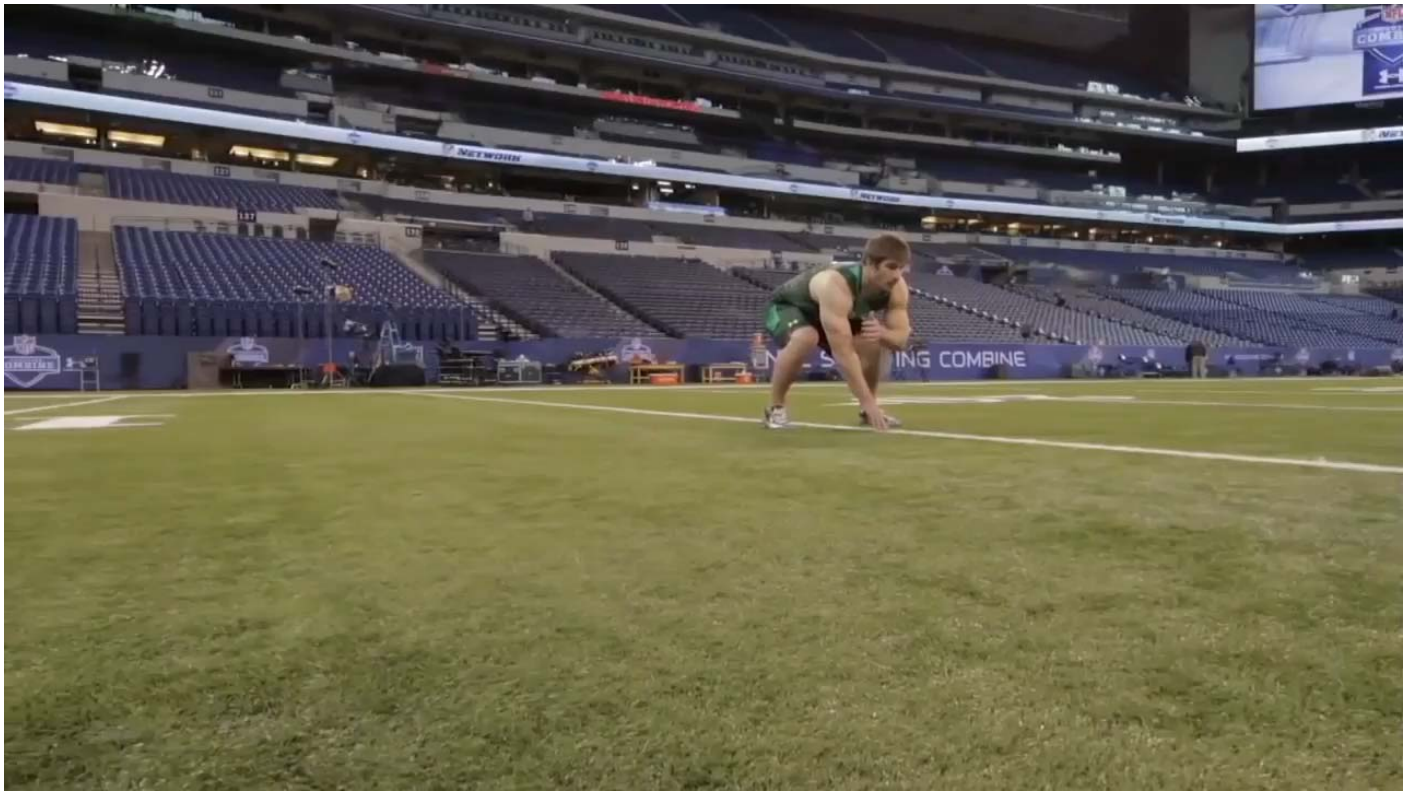
Direction of movement

Center of mass

Direction of force on body

Contact point




ING COMBINE

NAME
PLACE CARTON IN ROOM
Living Room
Boys Room
Dining Room
Girls Room
Basement

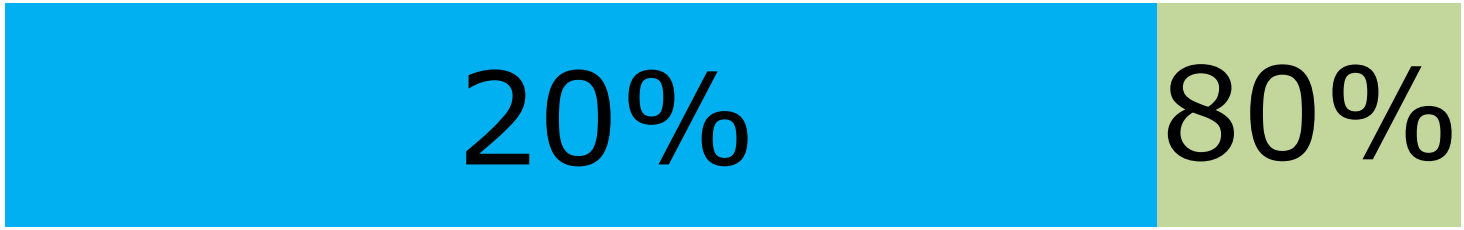
NAME
PLACE CARTON IN ROOM
Living Room
Boys Room
Dining Room
Girls Room
Basement

coldeportes
REPÚBLICA DE COLOMBIA

coldeportes
gravity
force!
gravity

Tip #02 – Use Metrics!!

Tip #02 – Use Metrics!!



Tip #02 – Use Metrics!!

These need to be
fully awesome

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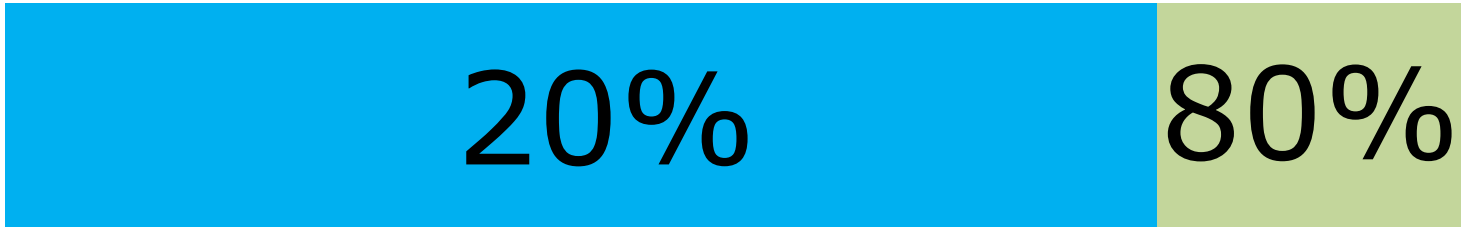
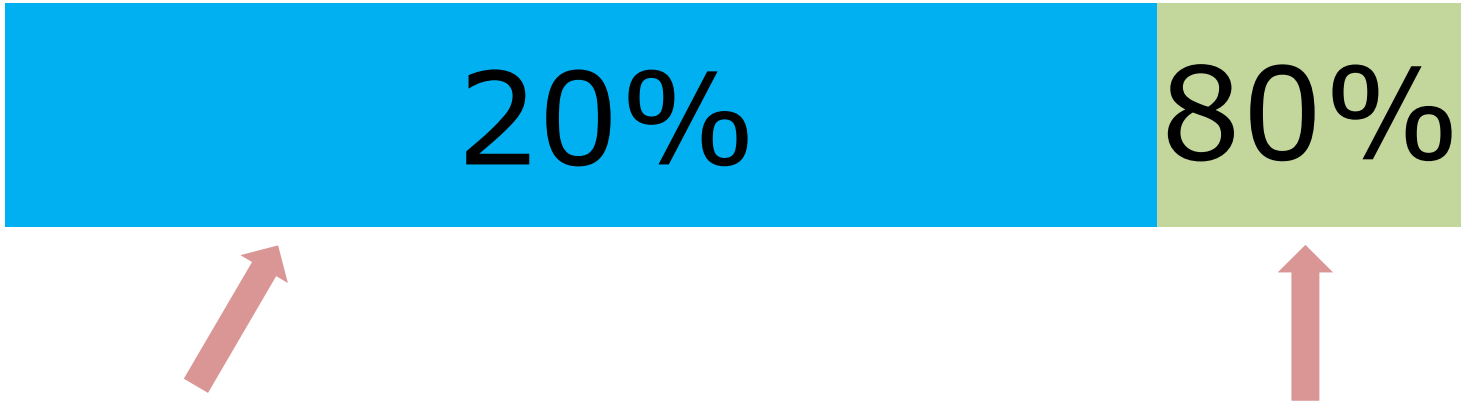


These need to be **fully** awesome

These can just be pretty awesome

Tip #02 – Use Metrics!!



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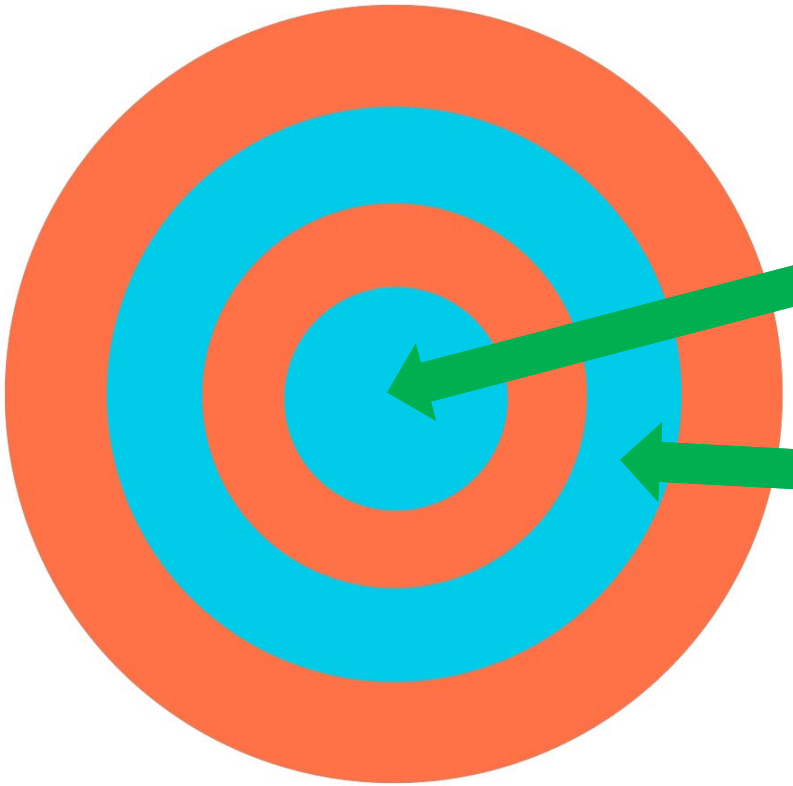
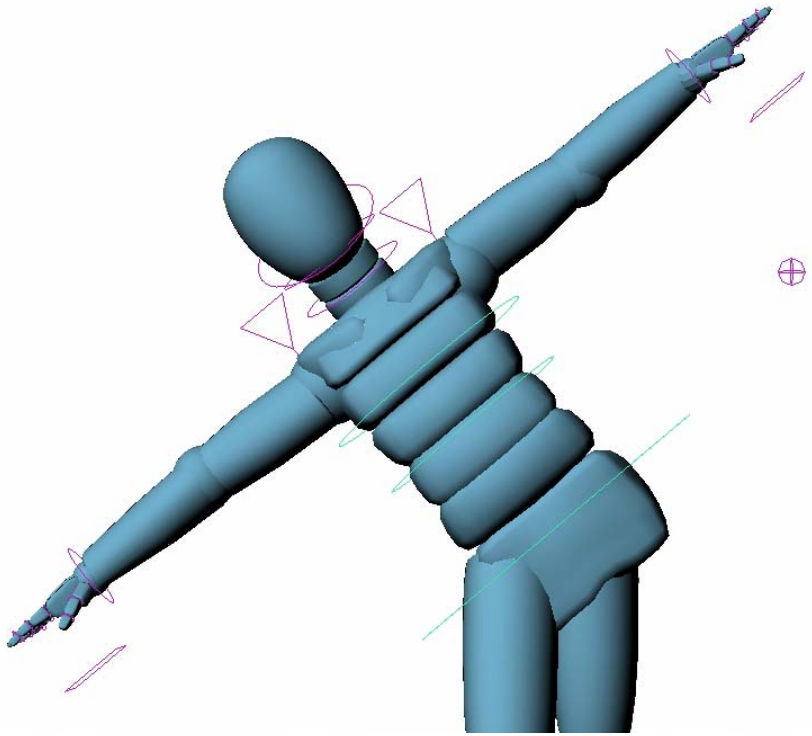


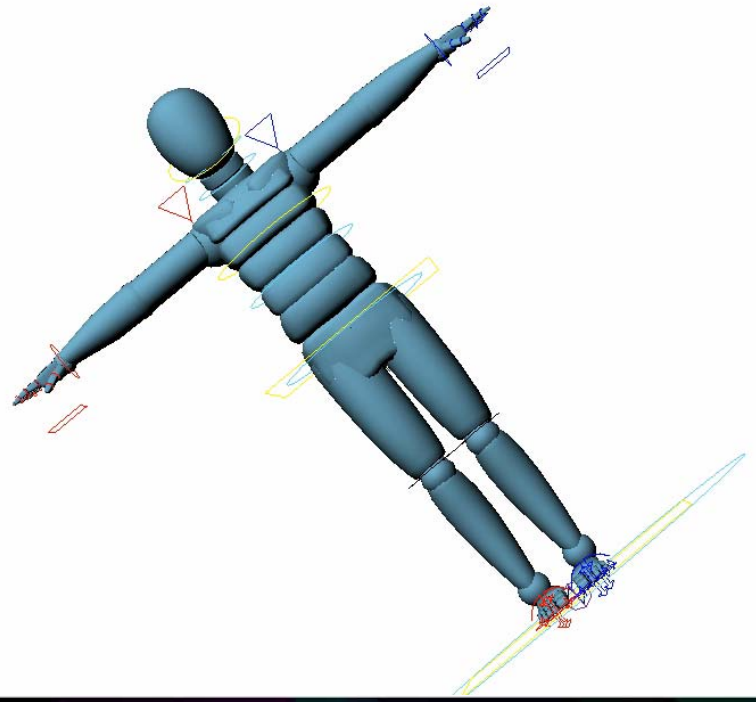
primary gameplay
(win condition)

everything else

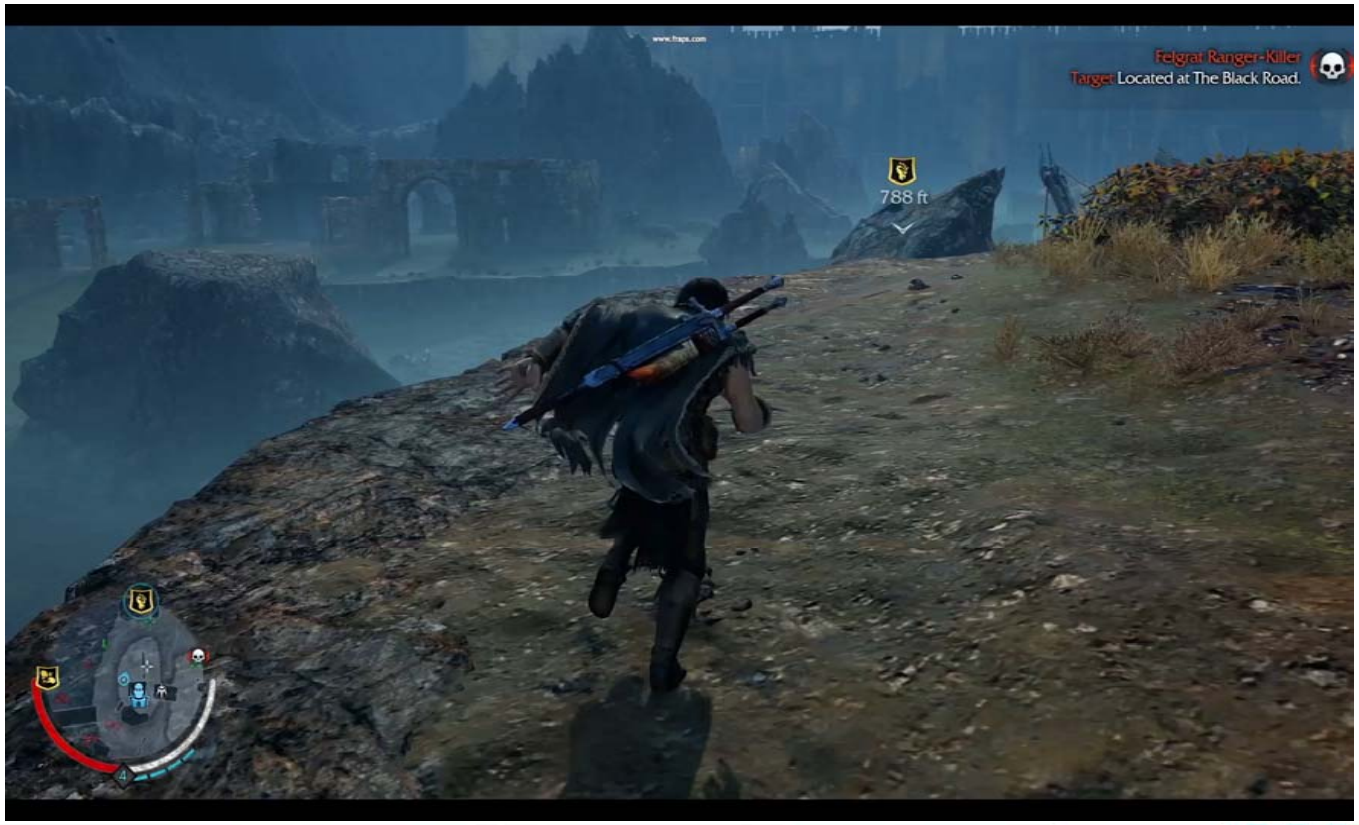
Tip #03 – Head Movement > Hip Movement!



Tip #03 – Head Movement > Hip Movement!



Tip #03 – Head Movement > Hip Movement!



Tip #03 – Head Movement > Hip Movement!

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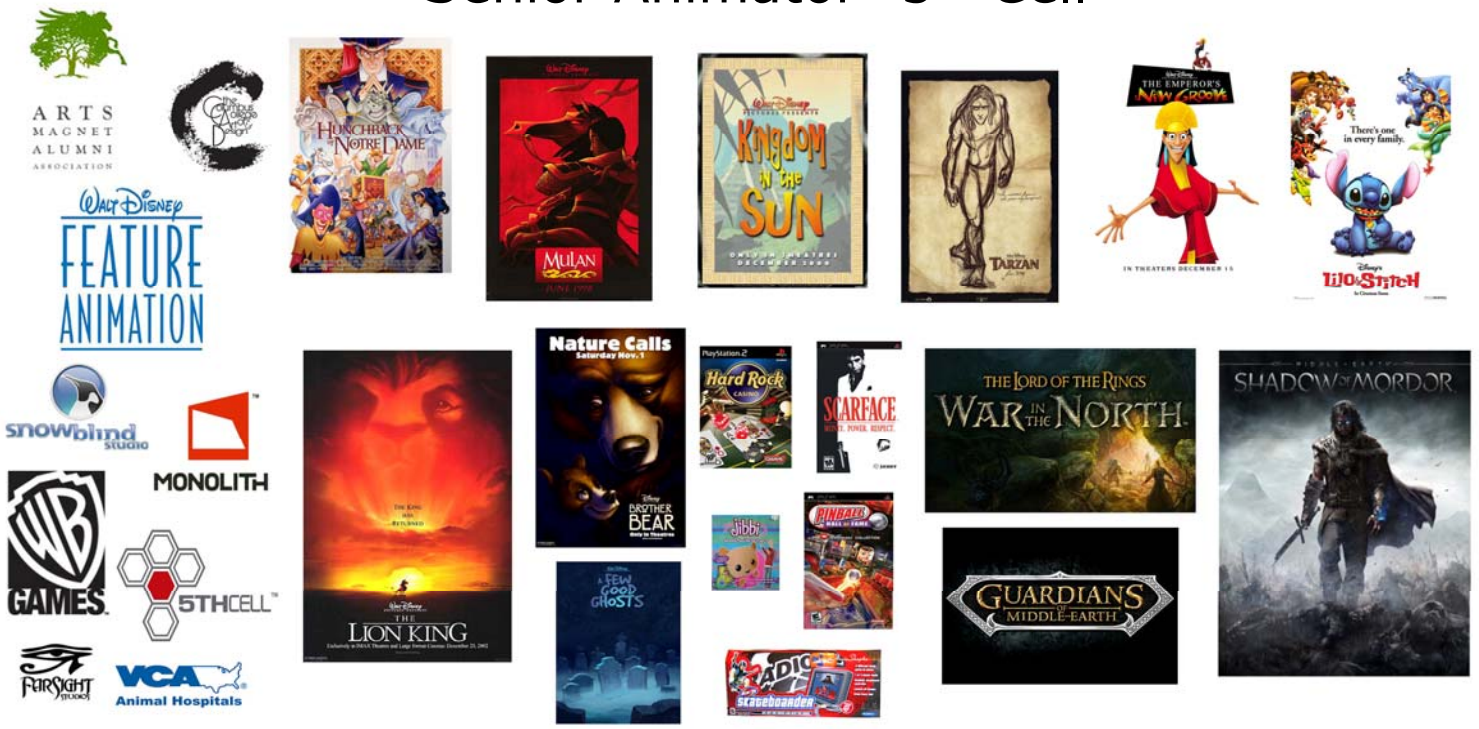
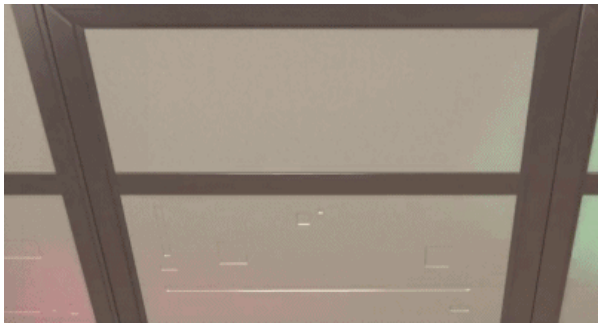
Amy Drobeck-Jones

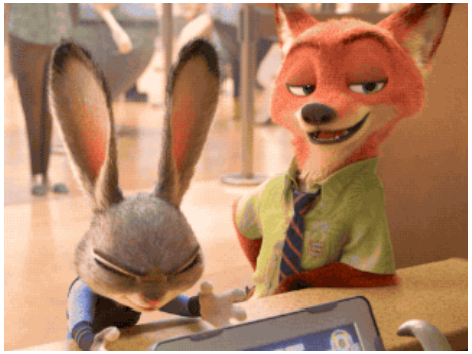
Senior Animator- 5th Cell



Break It

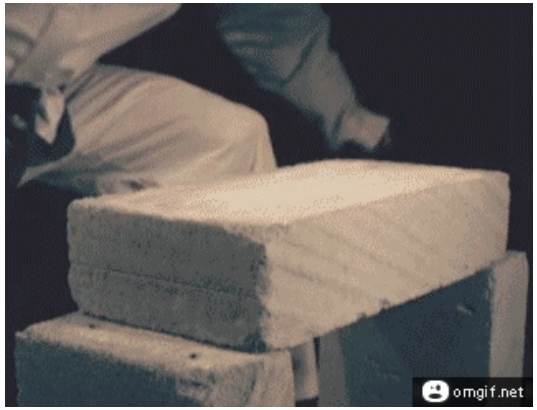
Smears and Multiples





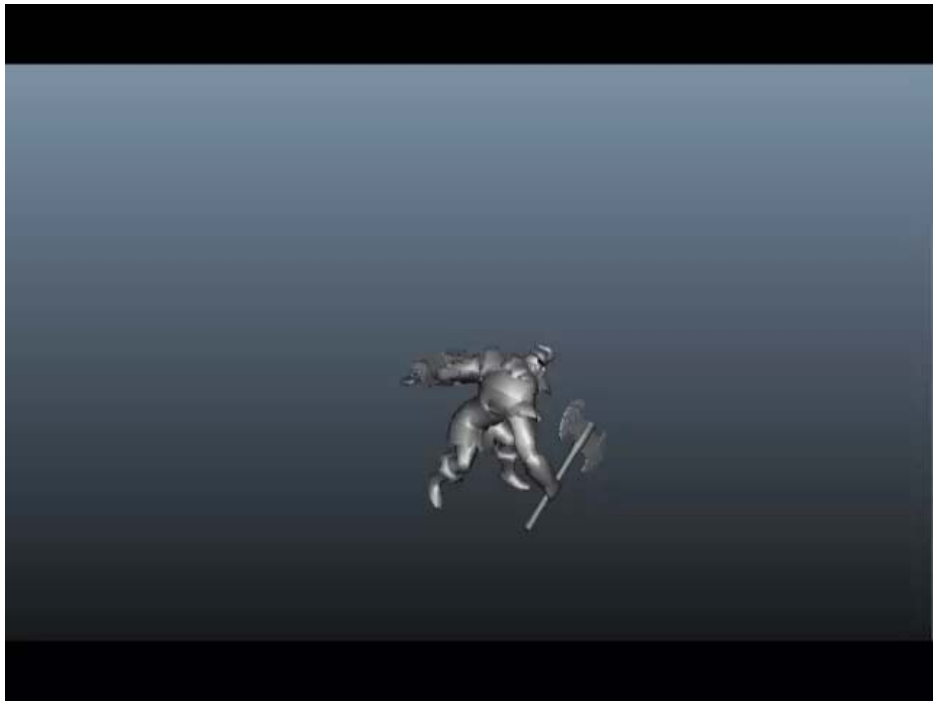
Break It

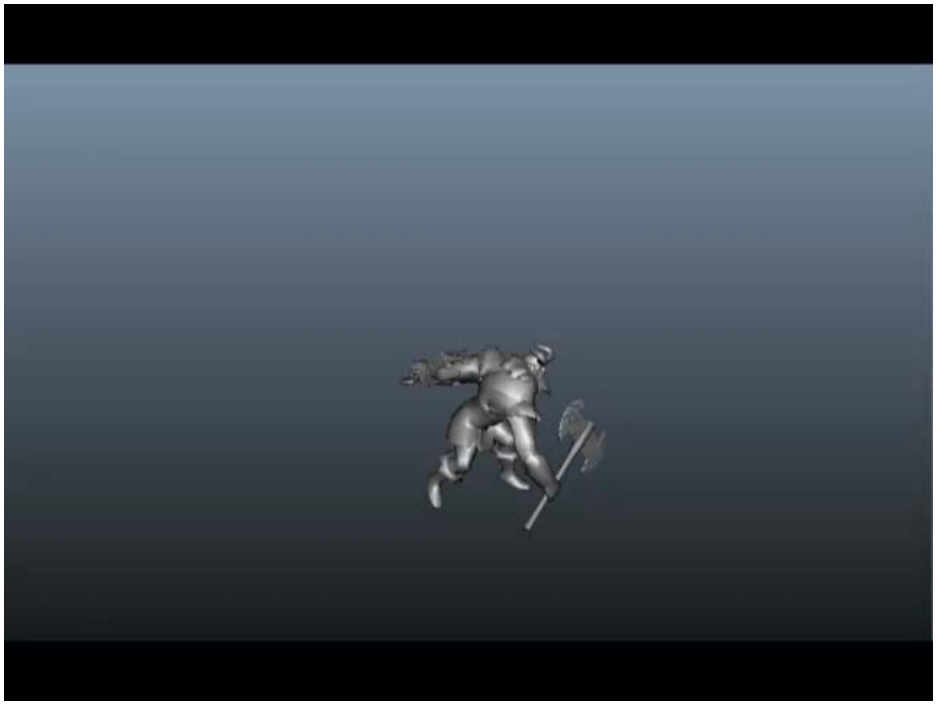
Bones, cartilage and ligaments- They can do a lot more than you expect



Break It

Intuitive Exaggeration



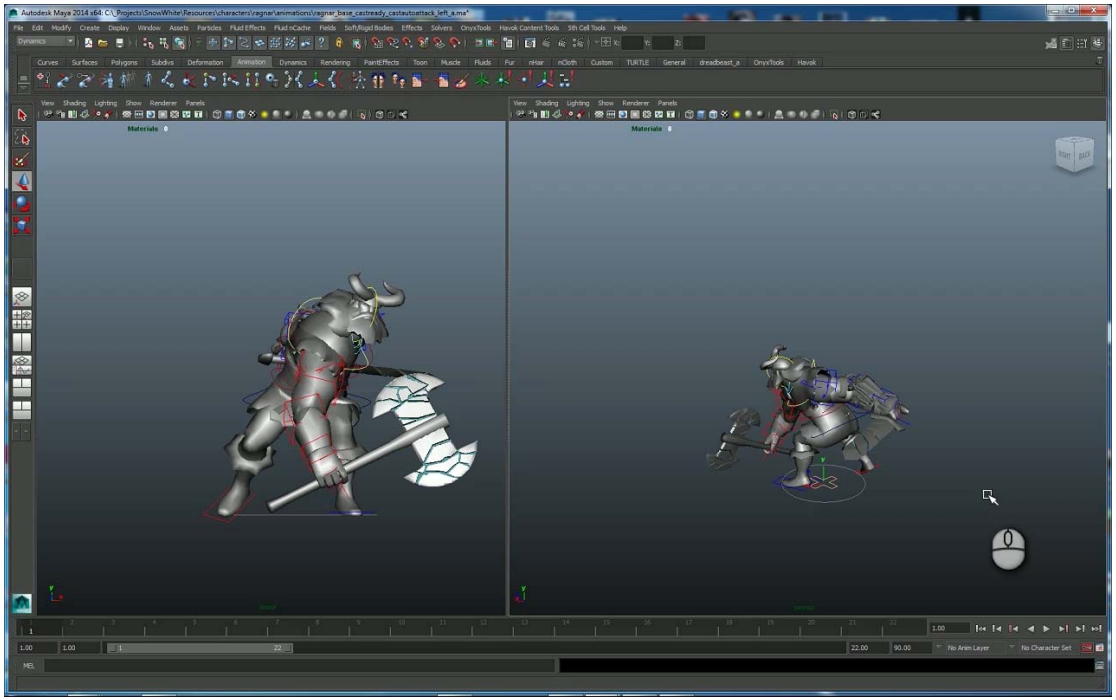


Keeping Track of Arcs

Editable motion trails for checking cycles

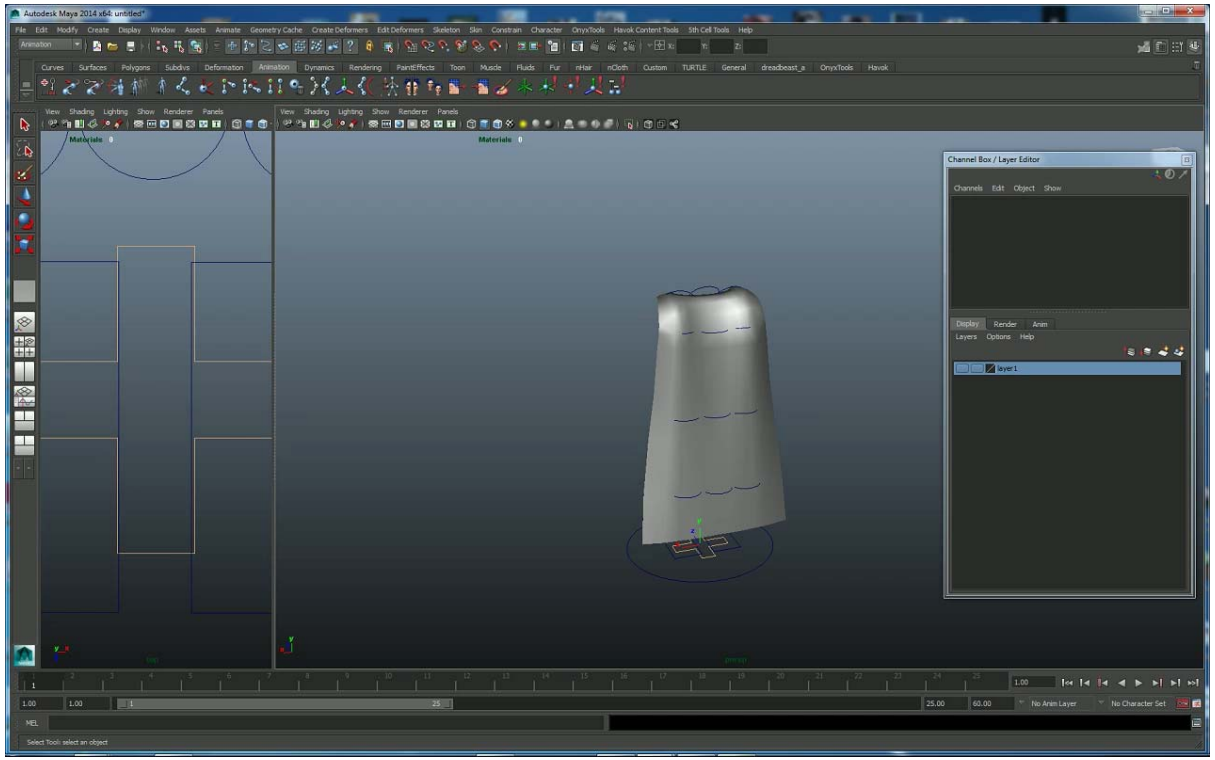
Keeping Track of Arcs

Editable motion trails for checking weapon arcs



Simple Block-in and Layer Example

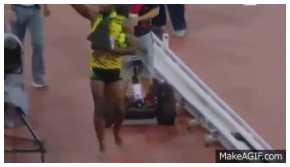
4 Key frame sample with an animation layer to add finesse

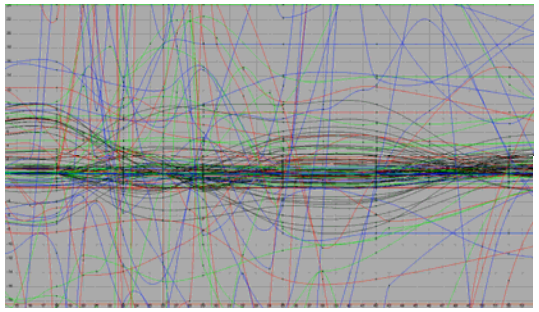


That’s all folks!

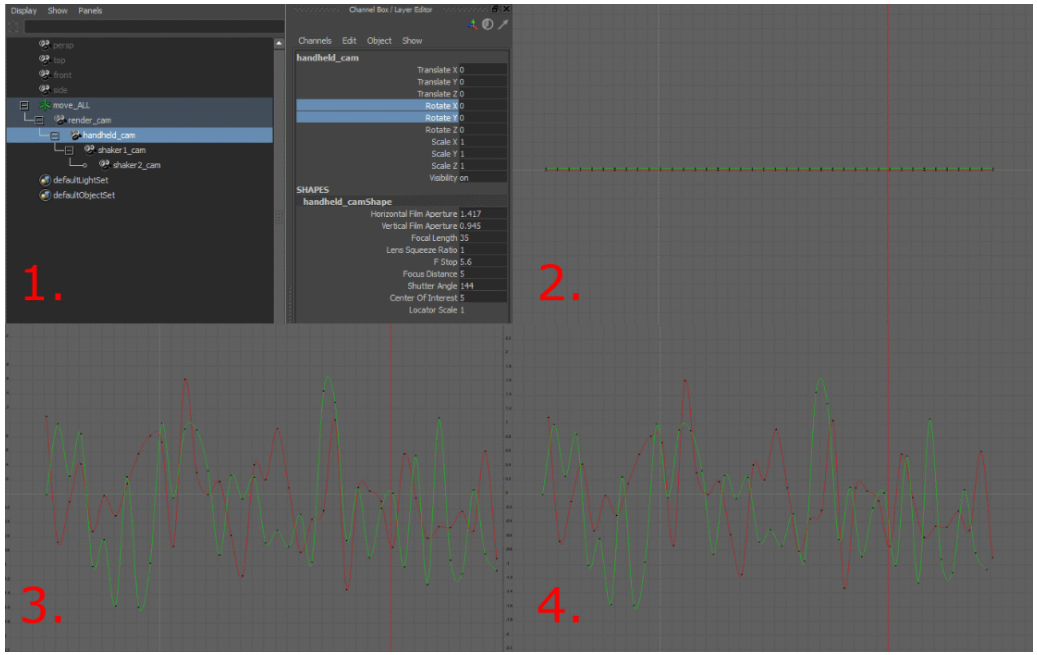
JEAN-DENIS HAAS

Trick #01 – HANDHELD CAMERA

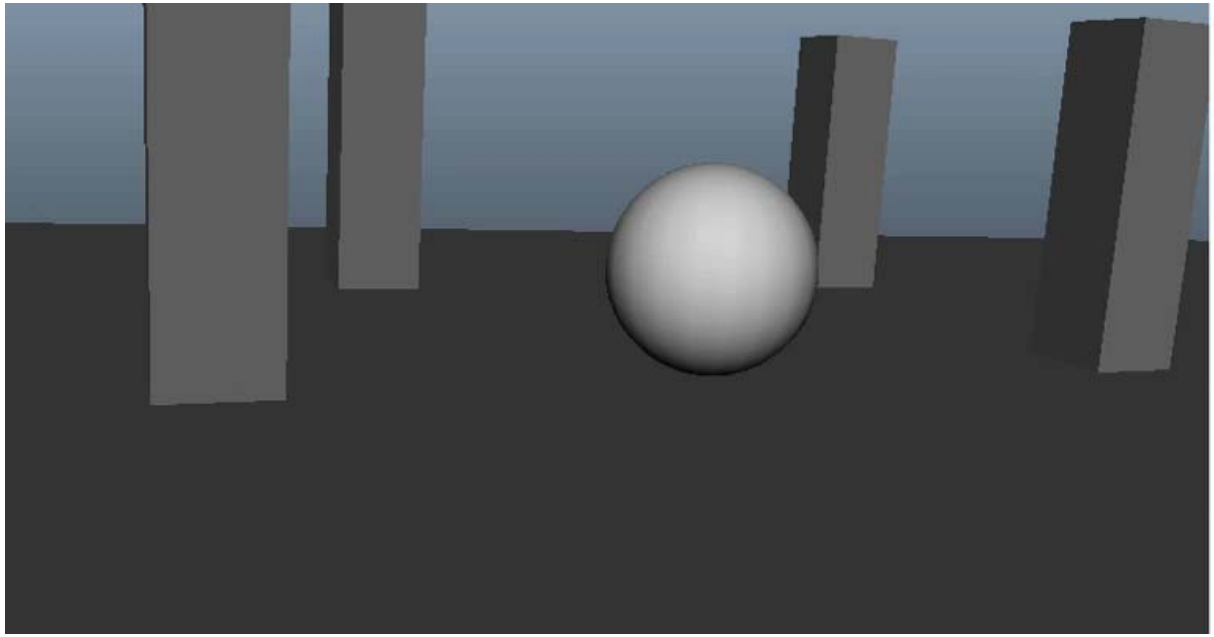




Trick #01 – HANDHELD CAMERA



Trick #01 – Handheld Camera



Trick #02 – REDUCE BLUR

Trick #02 – REDUCE BLUR

Trick #03 – ACT/SOUND IT OUT

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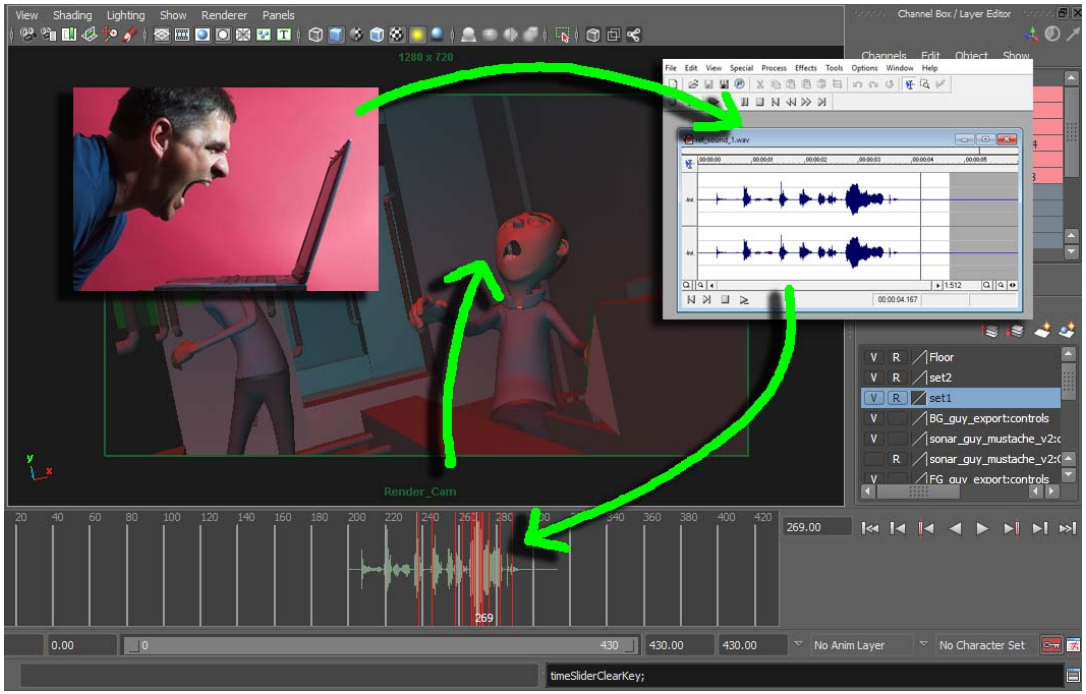


Trick #03 – ACT/SOUND IT OUT

BILLY HARPER

Trick #1 – **SIMPLE** RE-TARGETING

USE ONE ANIMATION LAYER AND YOUR OWN ANIMATOR'S SENSE OF POSING TO "RETARGET" MOCAP

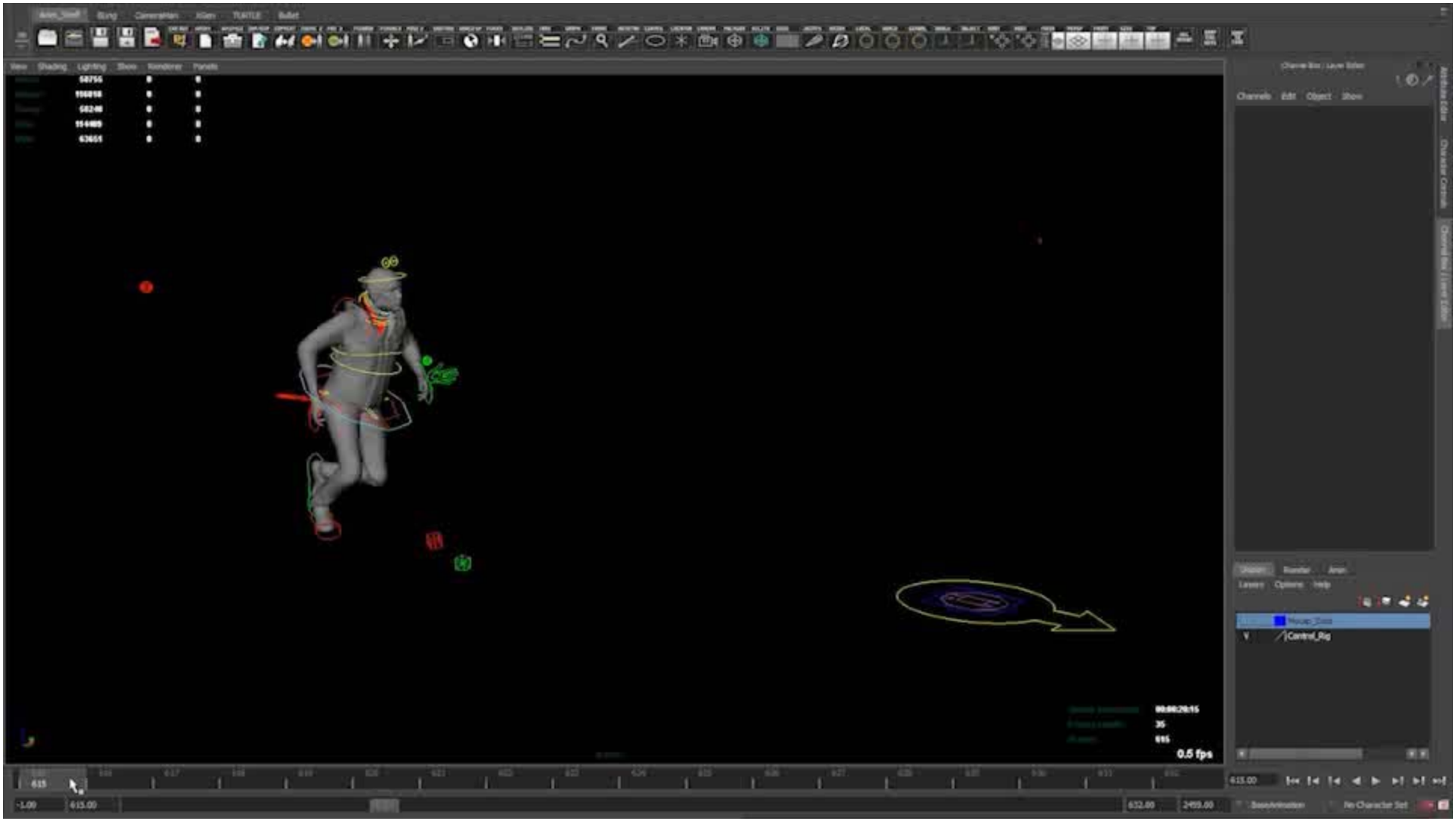
- Pick an important frame where registration is critical
- Put all your controls on one animation layer
- Re-pose your character on that one frame.
- Sometimes it requires multiple frames, but I've been amazed at how many times it just requires one.

Original Mocap on human scale character.

Trick #2 – Cleaning Up Data

MOTION PATHS+CONTROL RIG=GOODNESS

- Use for Cleaning up Ugly Mocap Data
- Good for Multi-Person Heavy Contact Data
- More Intuitive than Motion Trails
- Better for Visualizing Arcs
- Easy to Write Tools to Automate


0.5 fps

Trick #3– Fresh Eyes

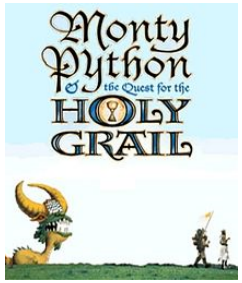
See Your Animation With Fresh Eyes

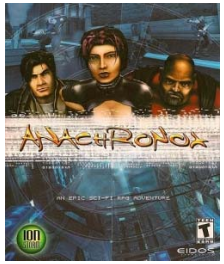
- Flip your play blast horizontally and also play your animations backwards to get a fresh/new perspective on your animation.
- Use the 7 key to view the silhouette of your pose. This is especially helpful for game animation where you can't predict HOW the viewer will see your poses.

JAY HOSFELT

@HosFross

EPIC GAMES

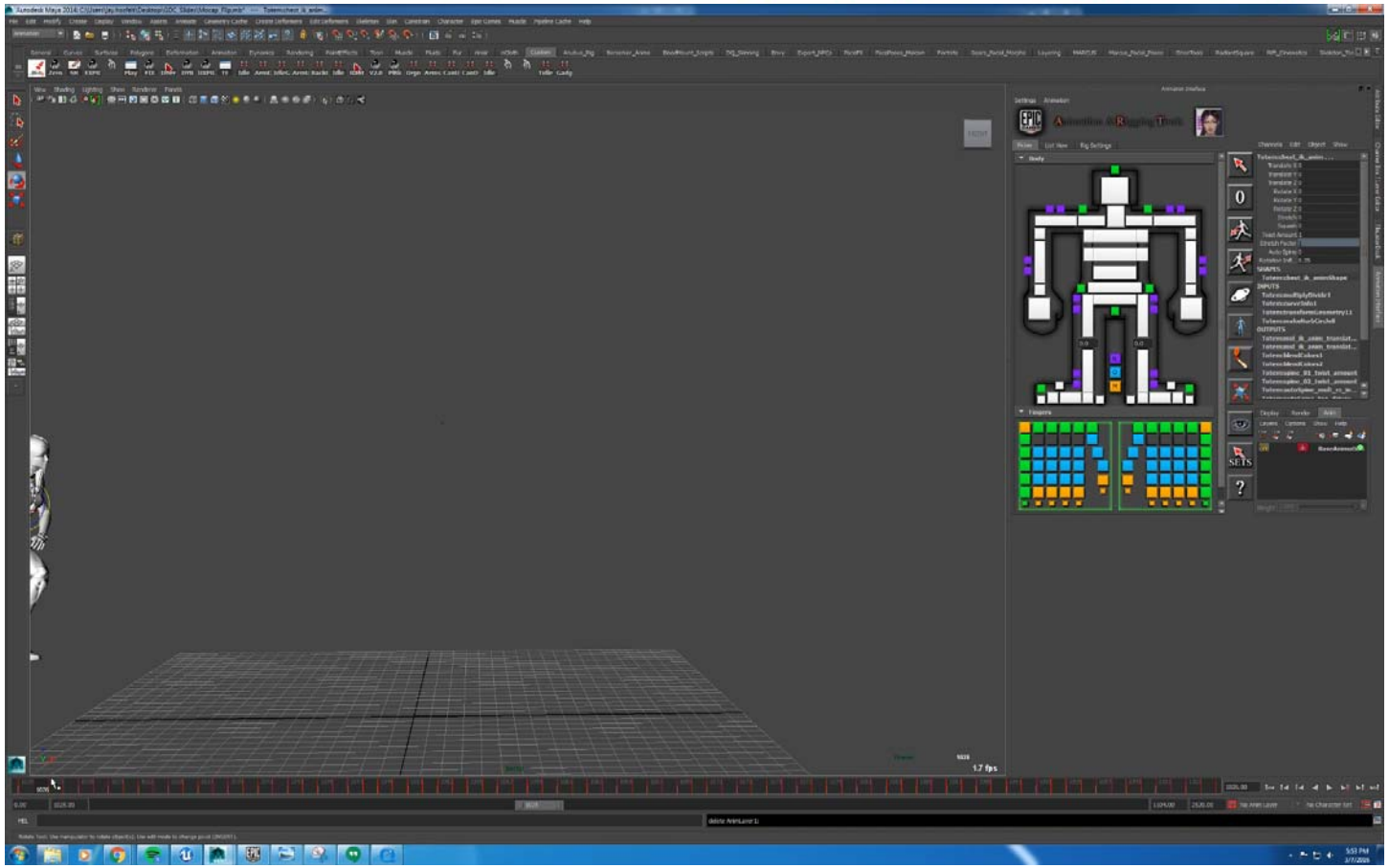




Trick #1 – Getting a manageable workflow for dense animation

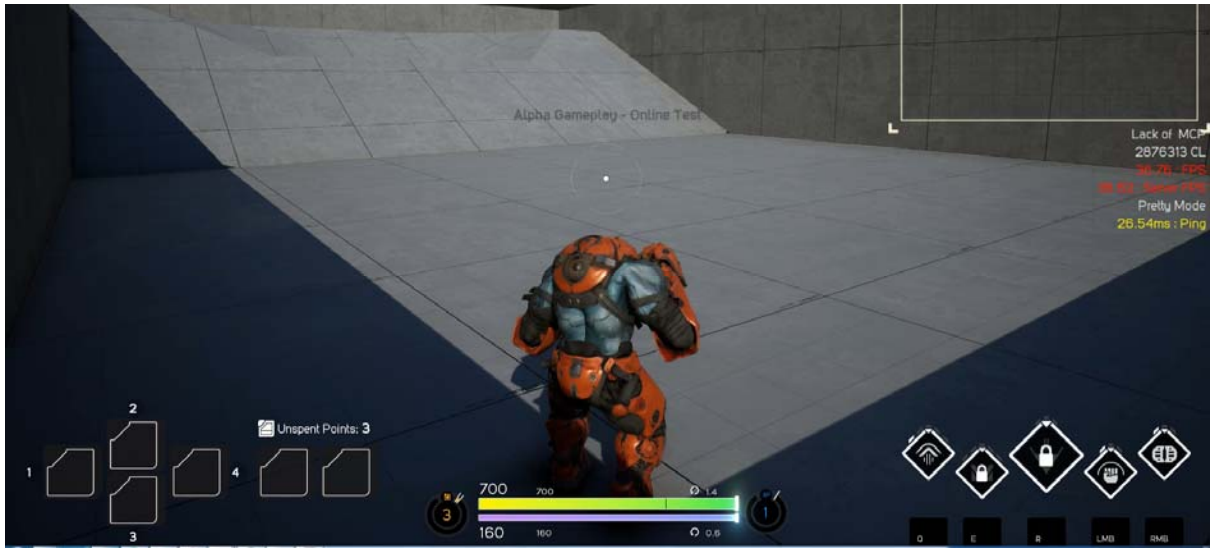
1. Select Controls
2. Create Anim Layer
3. Set to Override
4. Set Weight to 0
5. Set keys you want.
6. Set weight to 1
7. Review anim
8. Rinse repeat

Thanks Brad!!



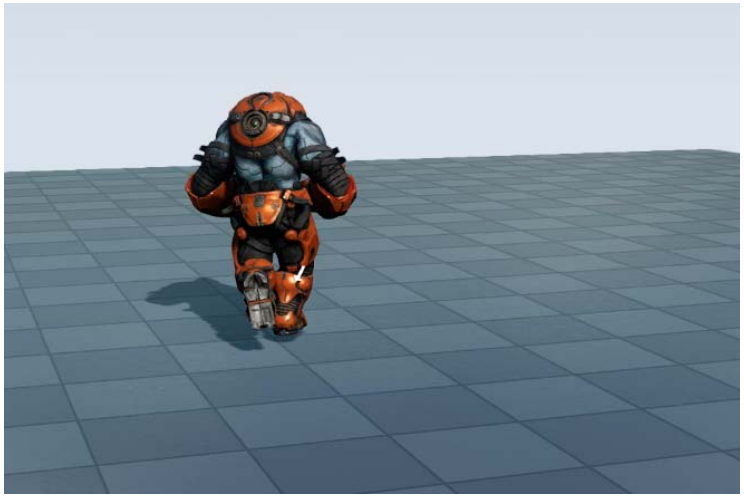
Trick #2 – Upper-body animation

Problem: Designers like the fast input speed and freedom of upper body animations, but it looks ugly.



Trick #2 – Upper-body animation

Solution: Counter-rotate strafe animations so hips can swivel while still running the same direction.



Trick #2 – Upper-body animation

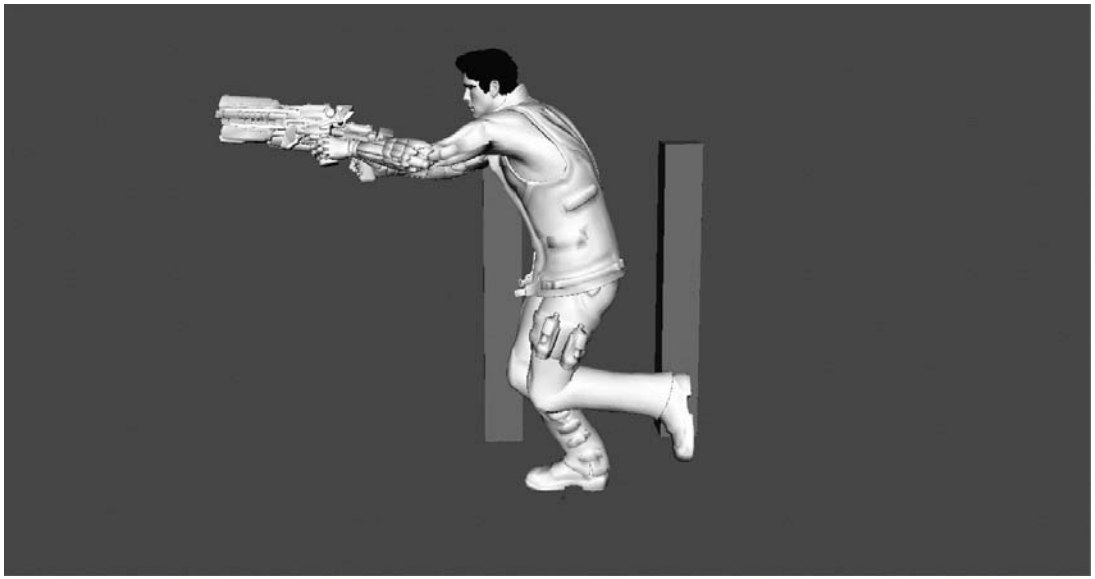
Solution: Combine the new lower hips with the upperbody

Trick #3- Back it out the right way

Many games need “in place” cycles.

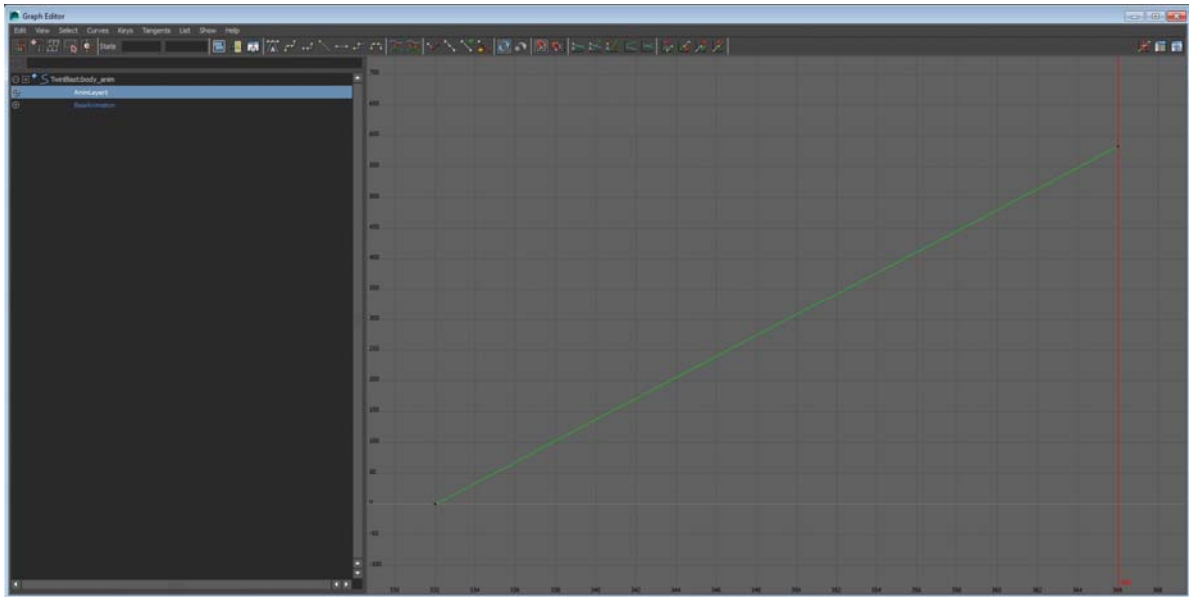
Trick #3- The wrong way

Many times animators delete the curve on the forward axis.



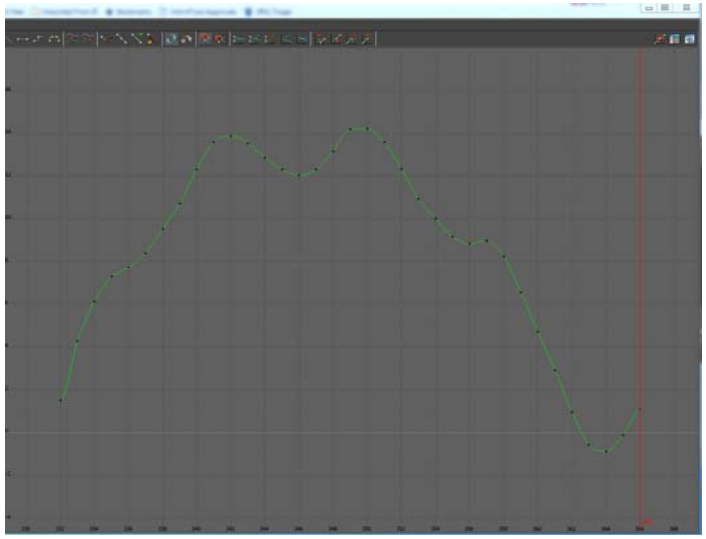
Trick #3- Back it out the right way

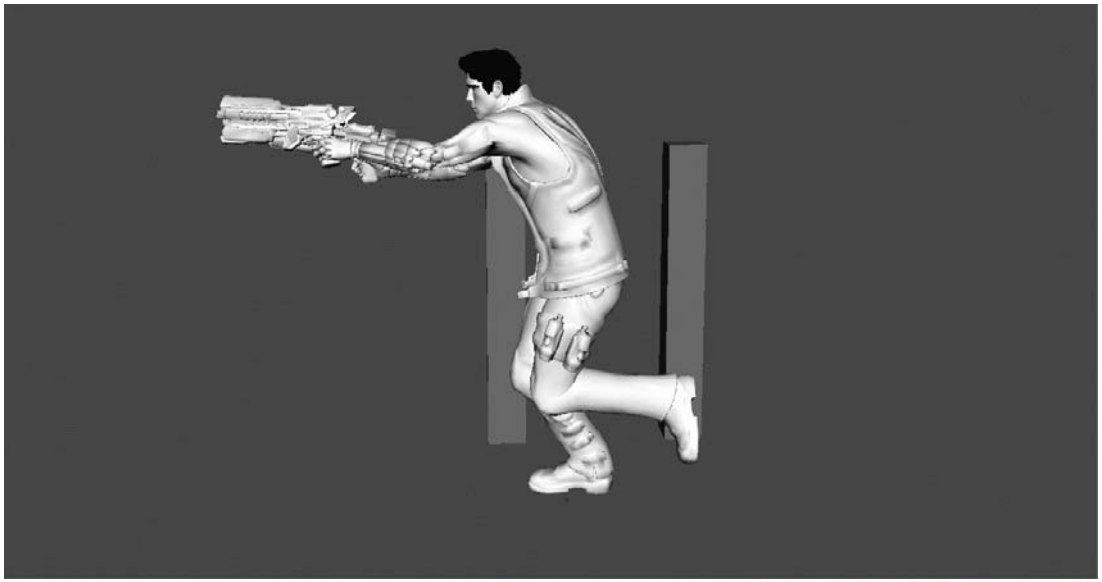
Subtract the trajectory your game engine will add.



Trick #3- Back it out the right way

What's left is the natural variance of forward and back motion.





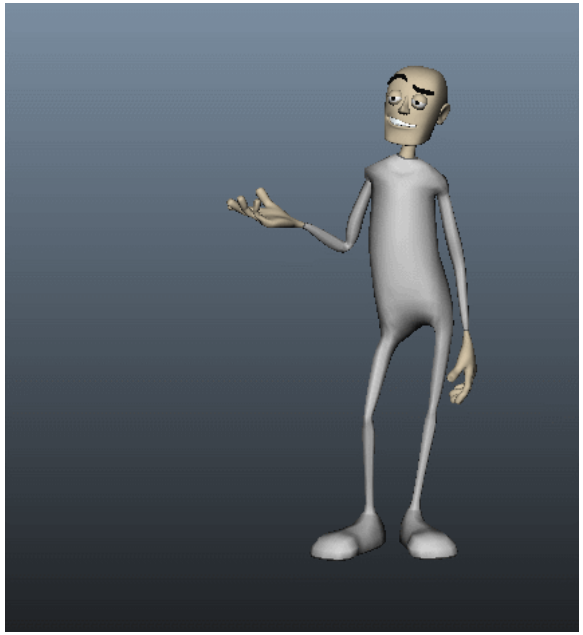
THANK YOU

WANT MOAR? *SPEEDROUND!!!!*

*SPEED*TIP #01 – ALEX

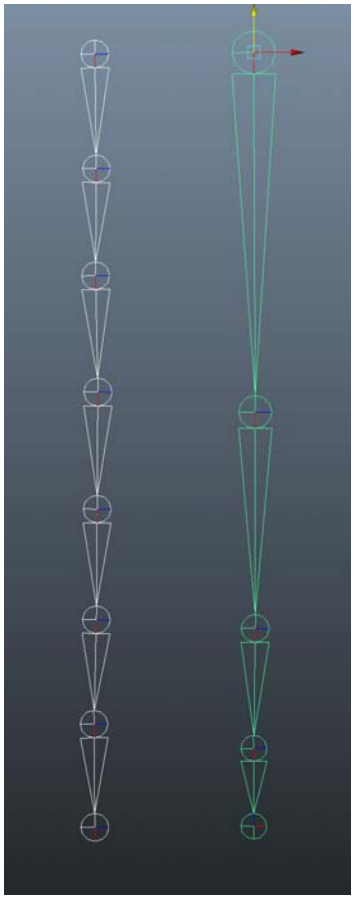
Speedround Tip #02 – Use geometry in your scene for reference!

SPEED TIP #03 – JD



Speedtip #04

- When optimizing bone chains for dangly bits, cloth, etc. use golden ratio type placement rather than equidistant bone lengths.



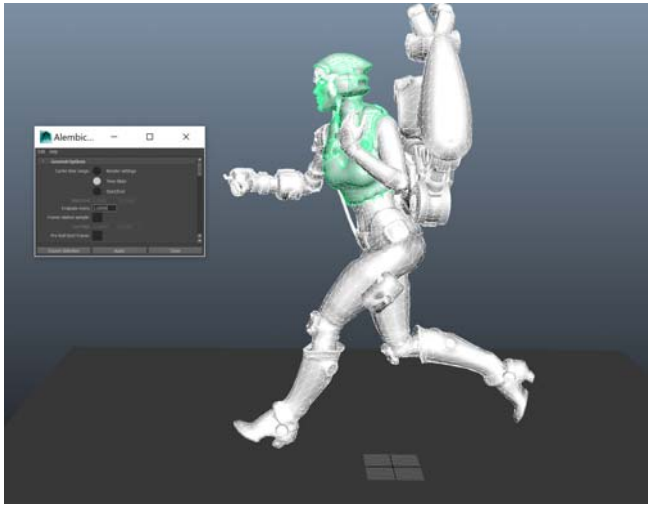
*SPEED*TIP #05 – ALEX

Speedround Tip #06 – Learn to code!

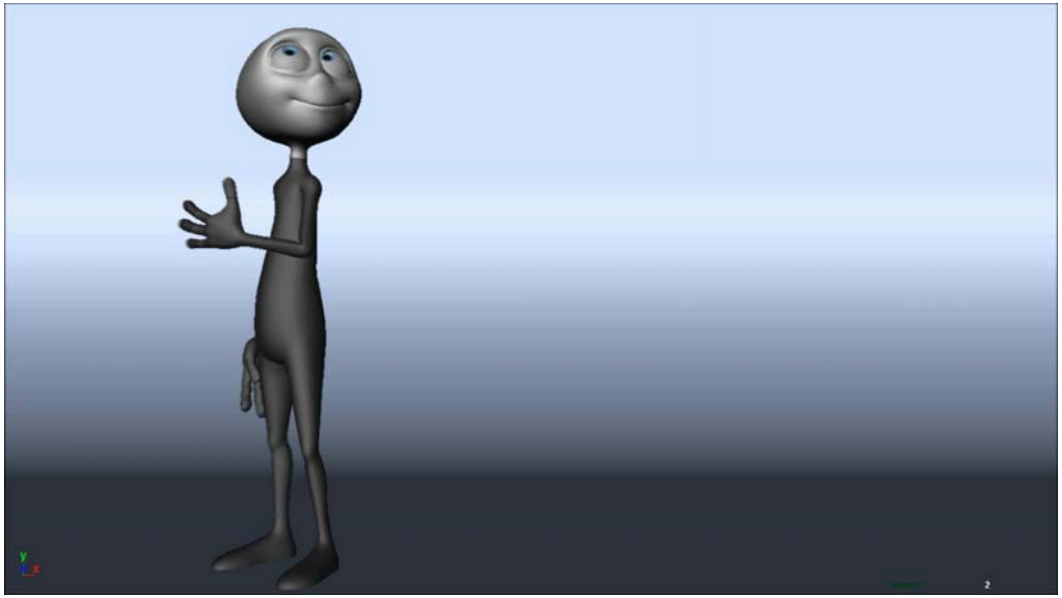
*SPEED*TIP #07 – JD

Speedtip #08

- Use things like Alembic/GPU cache to bring in reference animations. It beats referencing in expensive rigs.



*SPEED*TIP #09 – ALEX



*SPEED*TIP #10 – JD

*SPEED*TIP #11 – ALEX

*SPEED*TIP #12 – JD