

Art Direction of **Street Fighter V**

- The Role of Art in Fighting Games -

CAPCOM, CO. LTD
TOSHIYUKI KAMEI

Agenda

1. Easy to Follow & Understand

- Importance of character silhouettes
- Character visibility / foreground and background color setting
- Characters and hitboxes (Collision)
- Applying knowledge from pixel era to 3D models

2. Create Personality with Artistic Accents

- Brushstroke Style
- Indirect Light
- Applying Capcom Illustrative style to 3D models

3. Conclusion

Introduction

**16 years experience as
Technical Artist**

Art Director on Street Fighter **IV** & **V**

Has worked at
DIMPS Corporation.
GREE, Inc.
CAPCOM Co., Ltd.



考え方

PHILOSOPHY

Street Fighter V Concept

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e-Sports

Street Fighter V Concept

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Sharing Emotion

Street Fighter V Concept

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Easy to Follow & Understand

1.

Art Direction
Easy to Follow & Understand

Street Fighter Aesthetic

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Muscular

Street Fighter Aesthetic

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Outlandish

Character



A **symbol (indicator)**
which conveys information



Information from Game



Player Decision



Player Action



Process happens in a split second

ART in fighting games

is the singular element that can
**convey information to players in a
fraction of a second.**

1-1 : Character Silhouettes

Character Silhouette



Are They Easy to Read **During Battle?**

Character Silhouette

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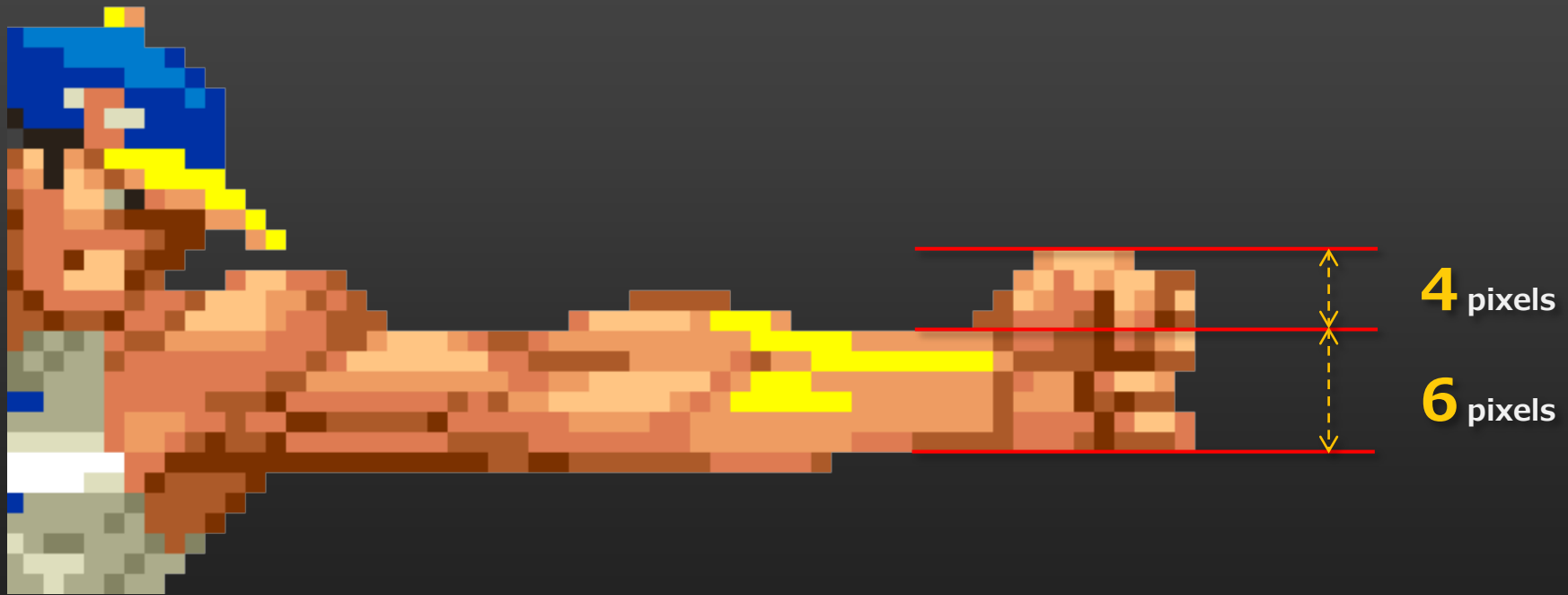


Pixel Era Character Silhouettes

Character Silhouette



Character Silhouette



Character Silhouette



Character Silhouette

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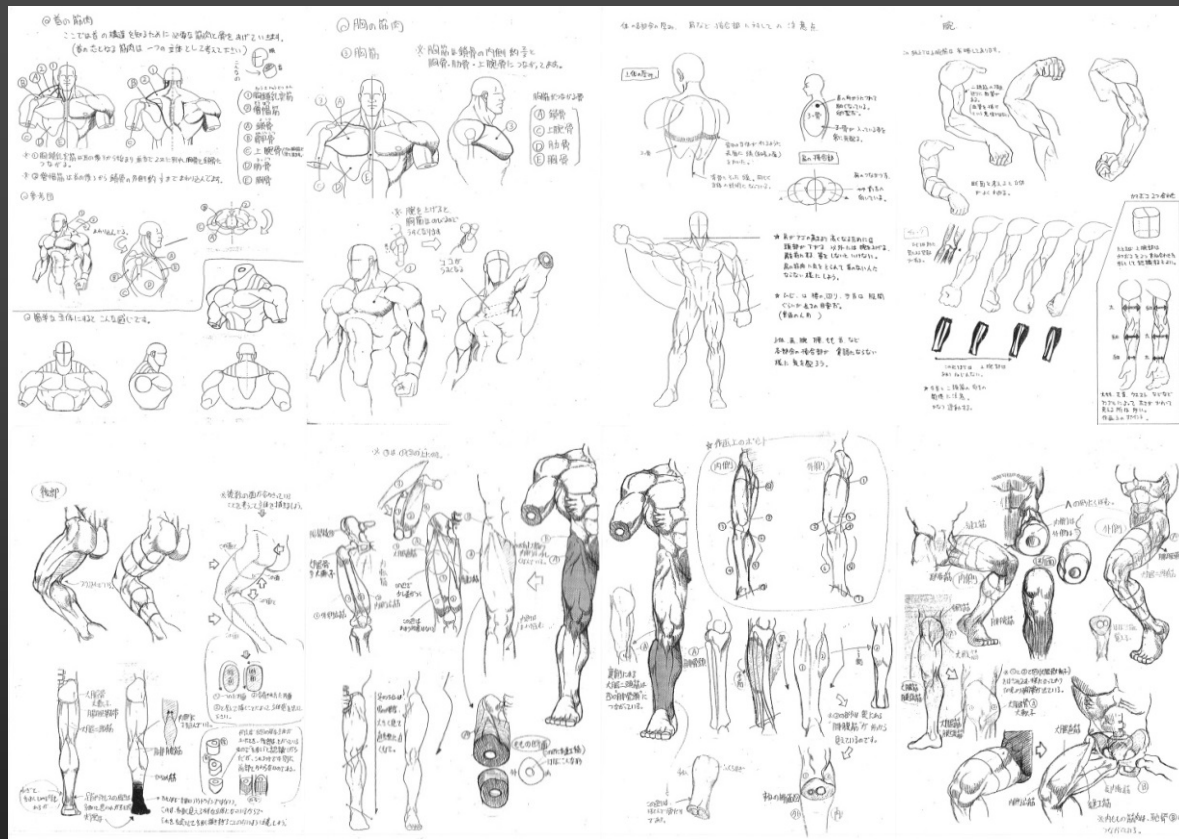


Anatomy: A “Strange” Guide for Artists

Human anatomy reference material created by veteran Capcom staff during the pixel art era.

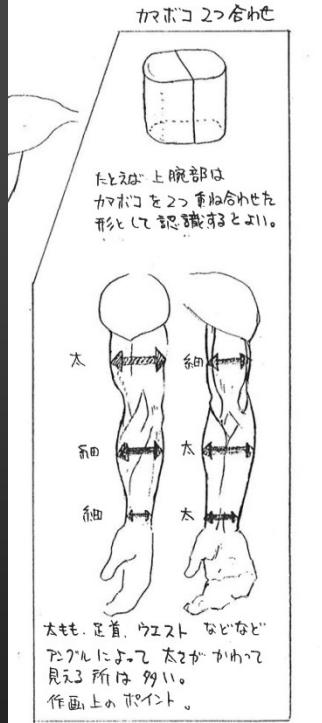
This guide outlines the most important anatomical features to exaggerate when making cool-looking pixel art.





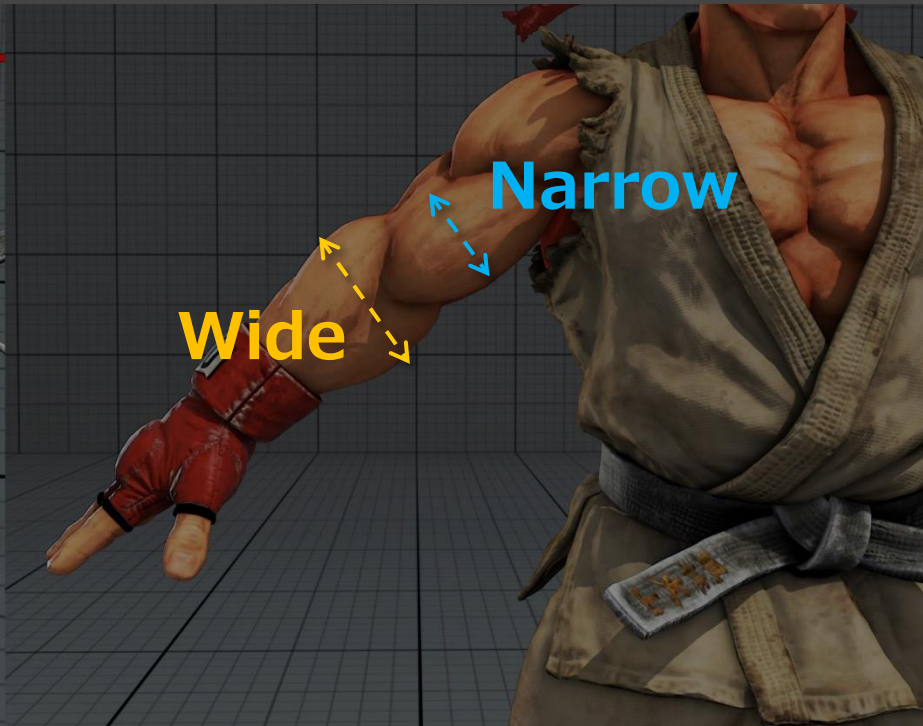
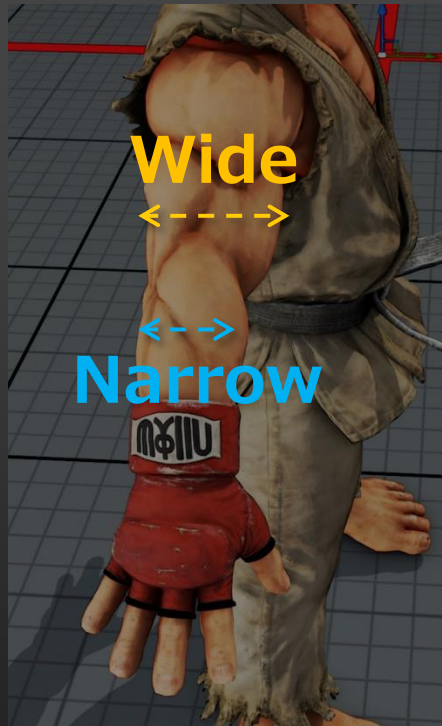
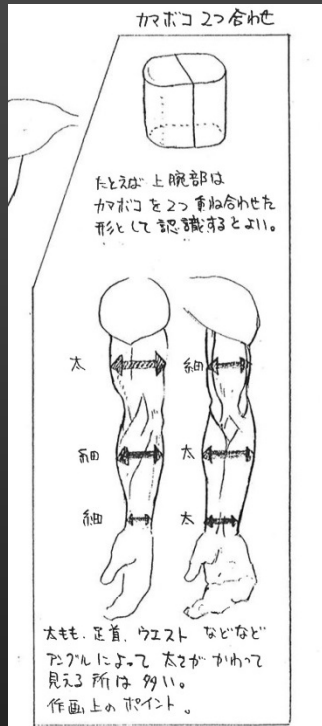
Inherited Knowledge of Important Anatomy for Pixel Art

Character Silhouette



Ex: Arm Silhouette Exaggeration

Character Silhouette



Ex: Exaggeration of Arm Silhouette

Character Silhouette



Comparison

Character Silhouette



**Realistic Proportions Proved Hard to
Read During Battle**

1-2 : Character Height

Character Height

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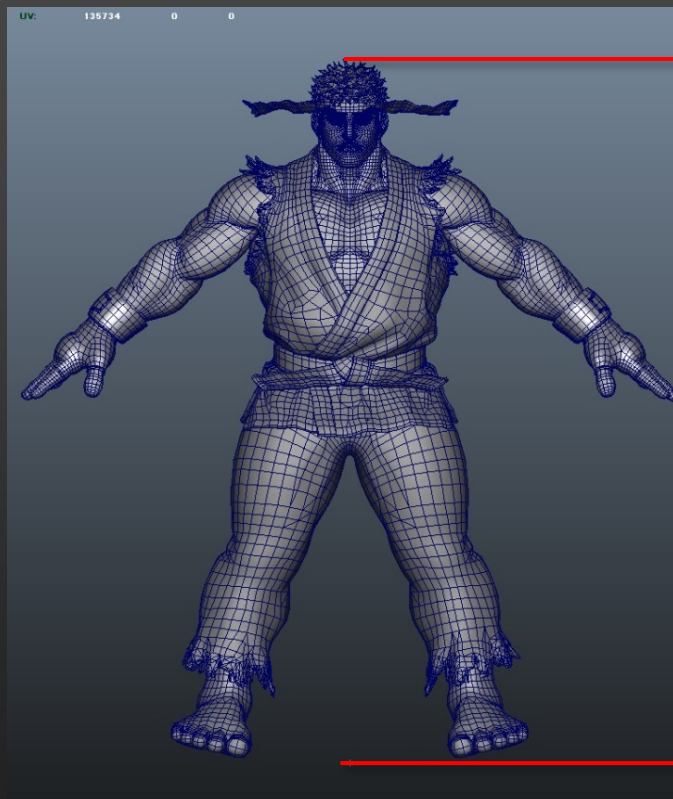


175 cm



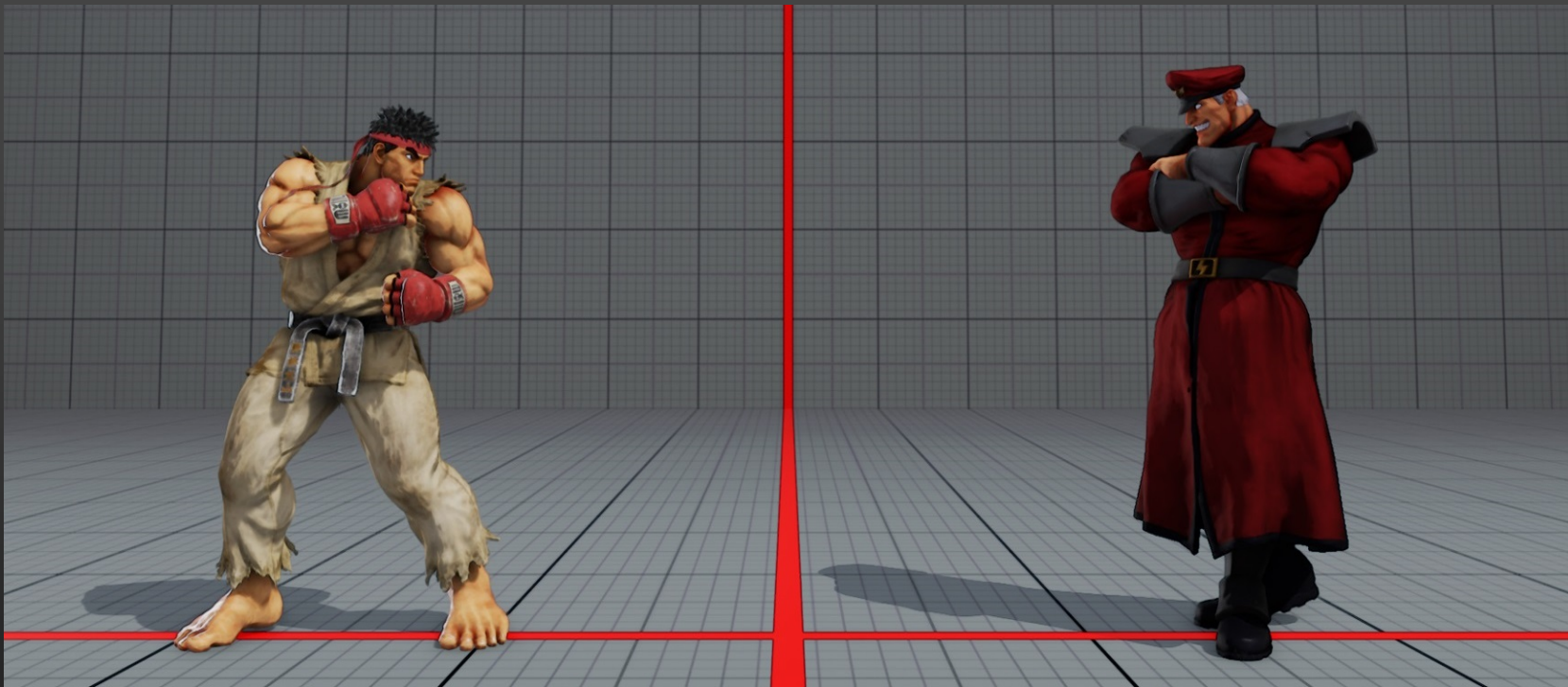
182 cm

Character Height



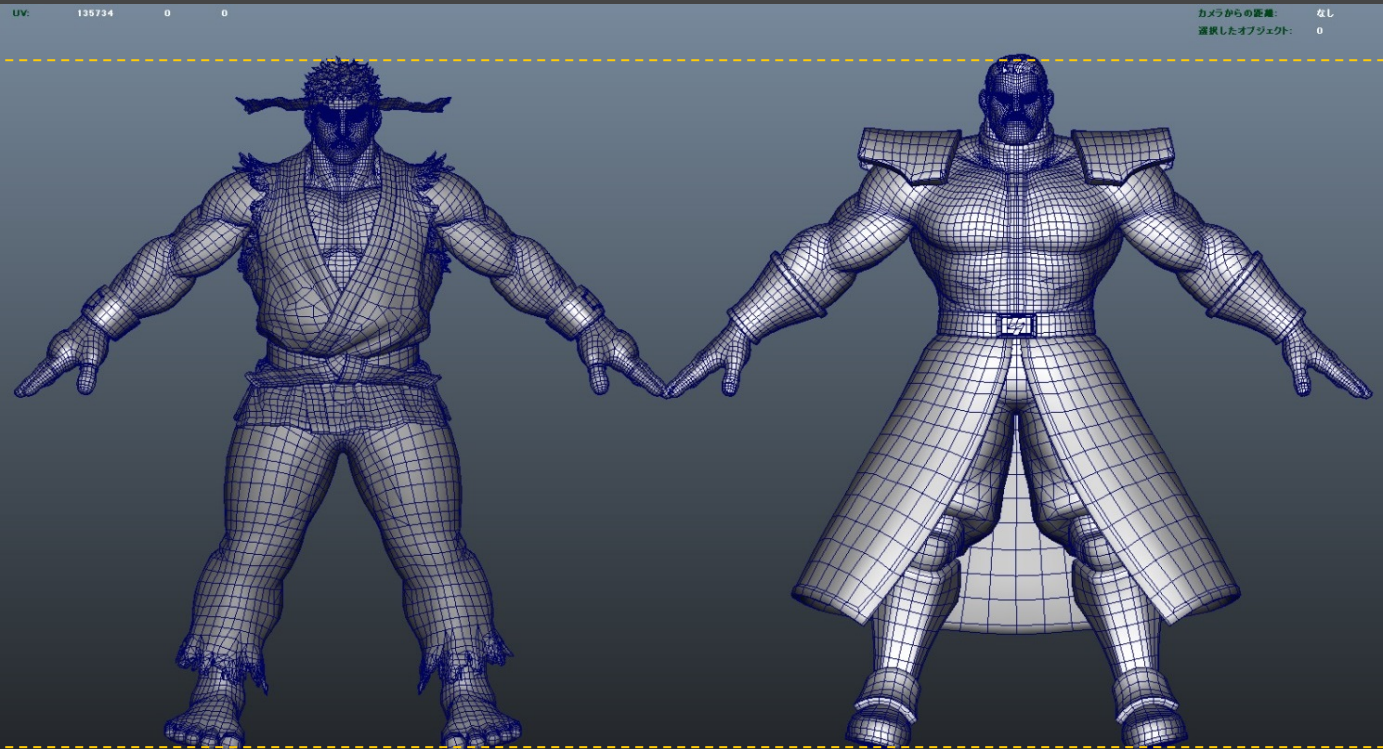
17.5 Grid Units

Character Height



Ultimately Decided **in Battle Camera**

Character Height



Practically the Same in DCC Tool

Character Height

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175 cm



182 cm

Character Height

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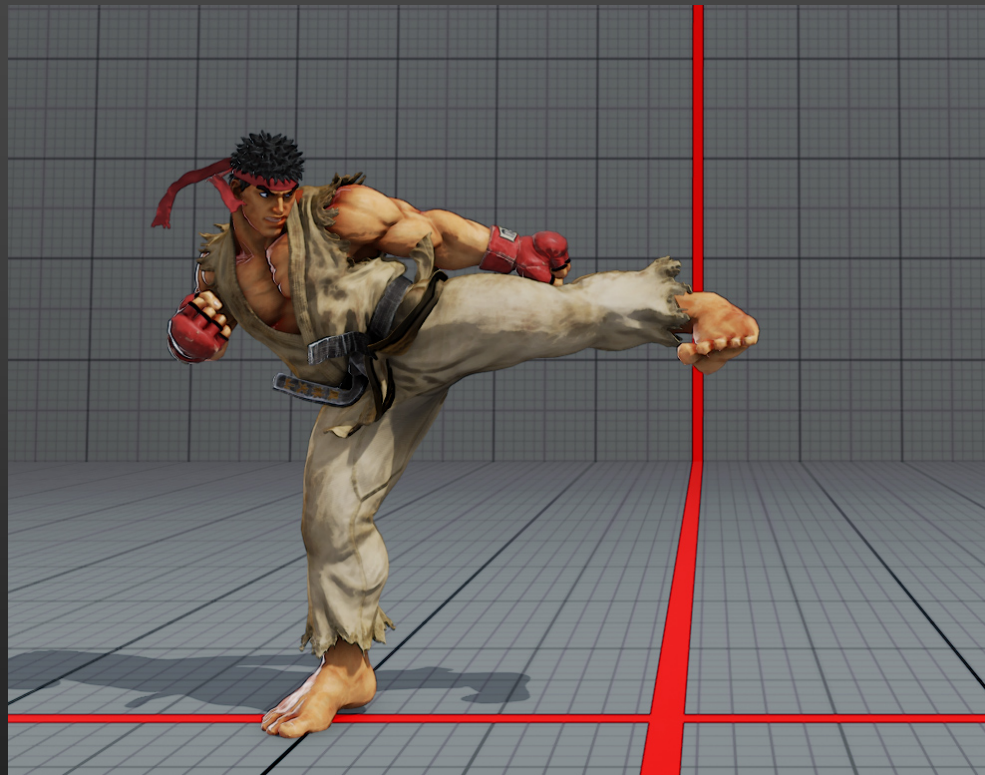
175 cm



182 cm

1-3 : Character Animation

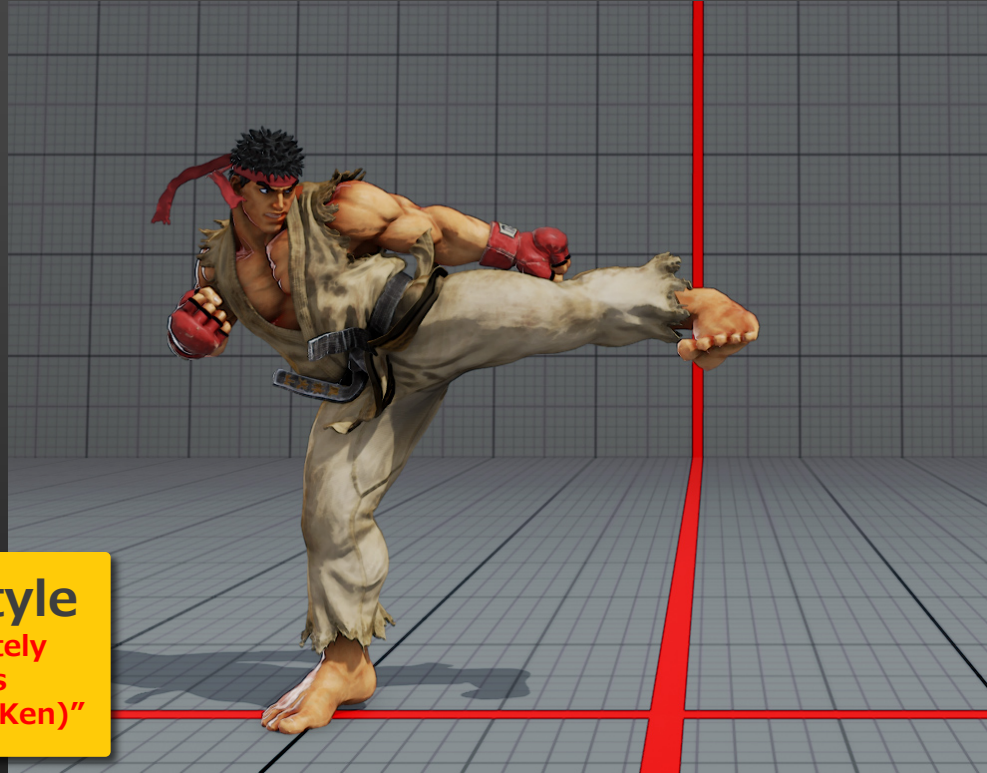
Animation



Motion must include key information

Animation

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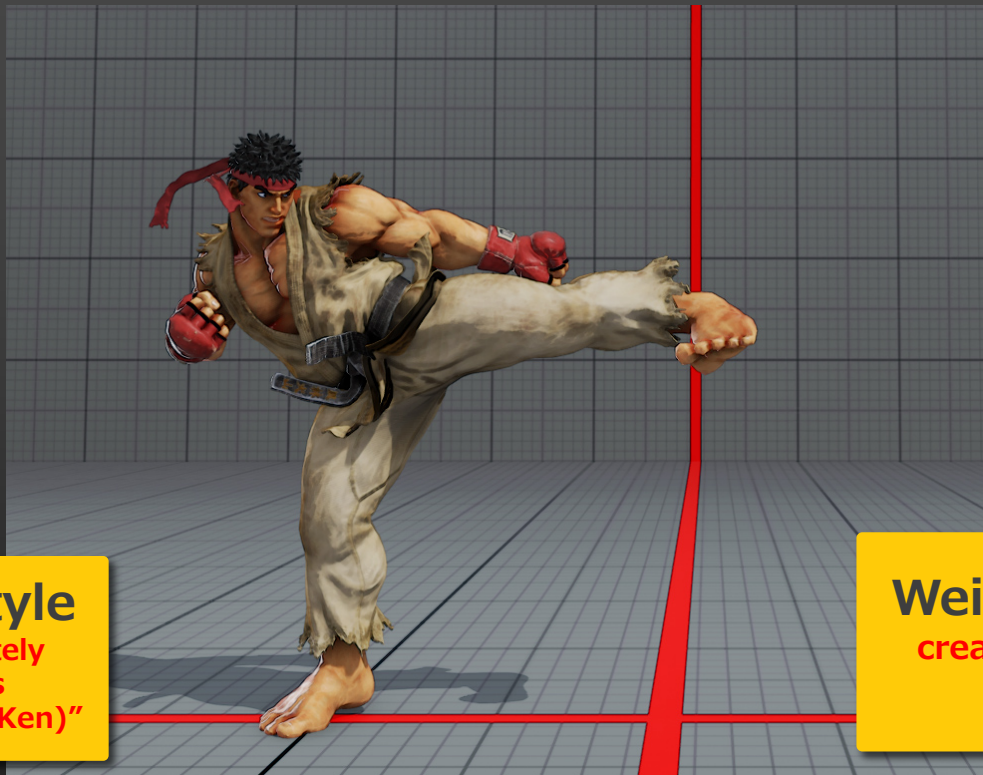
Fighting Style

Attack immediately
identifiable as
"Karate(Ansatsu - Ken)"

Motion must include key information

Animation

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Fighting Style

Attack immediately
identifiable as
"Karate(Ansatsu - Ken)"

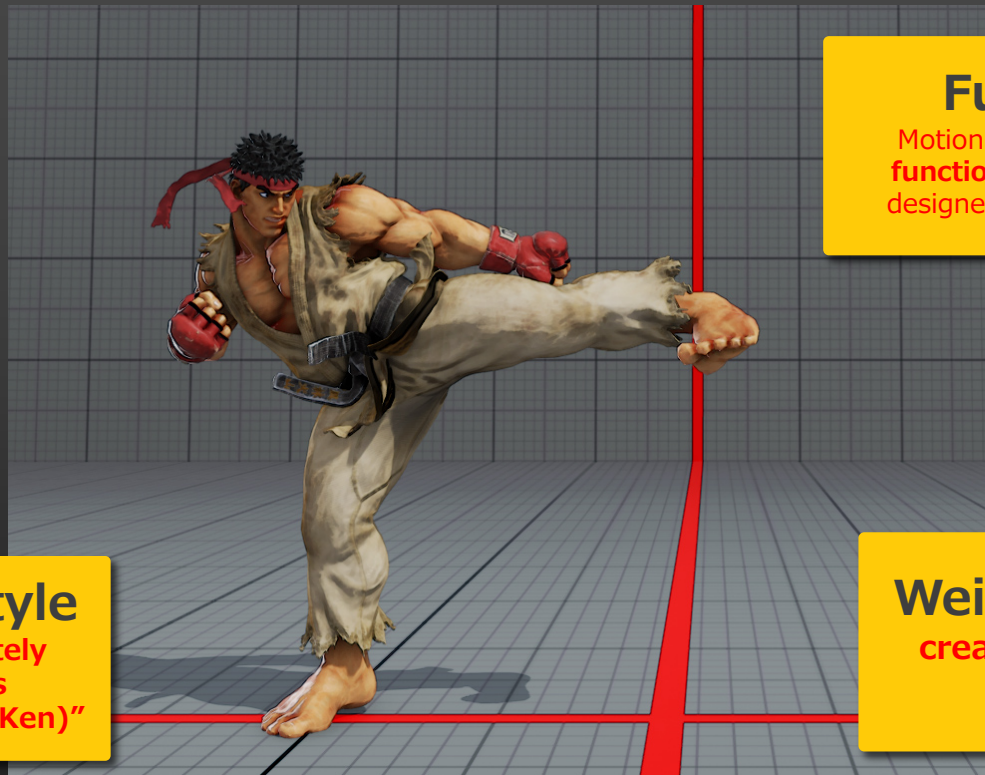
Weight & Rhythm

create right feeling and
coolness

Motion must include key information

Animation

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Function

Motion matches specific **function (hitbox)** game designers are looking for.

Fighting Style

Attack immediately identifiable as "Karate(Ansatsu - Ken)"

Weight & Rhythm

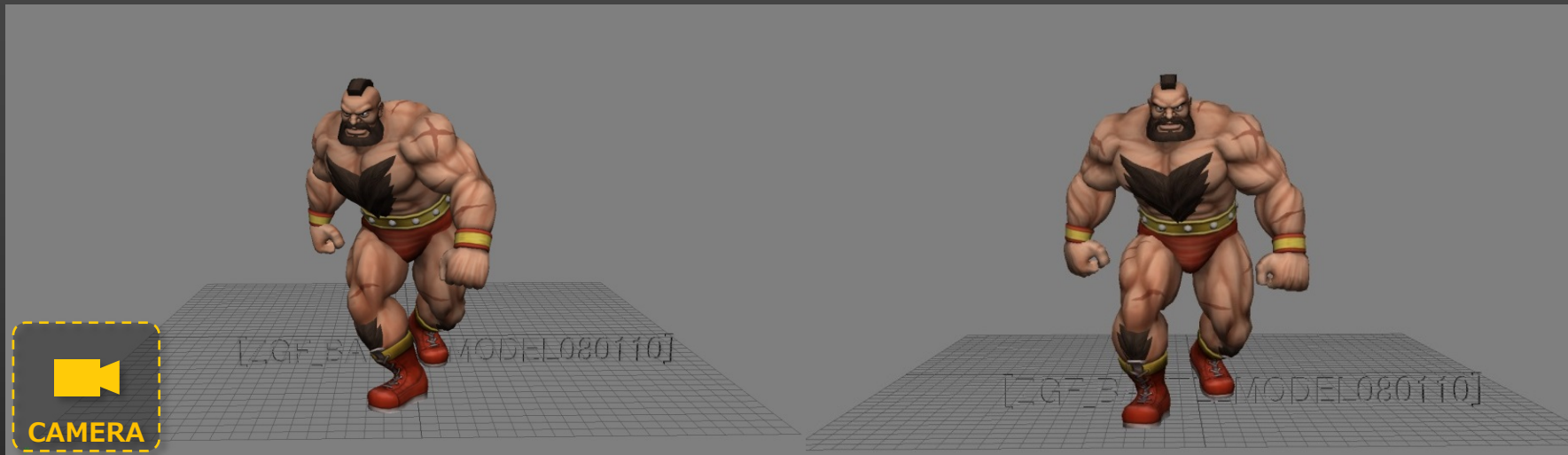
create right feeling and coolness

Motion must include key information

Animation

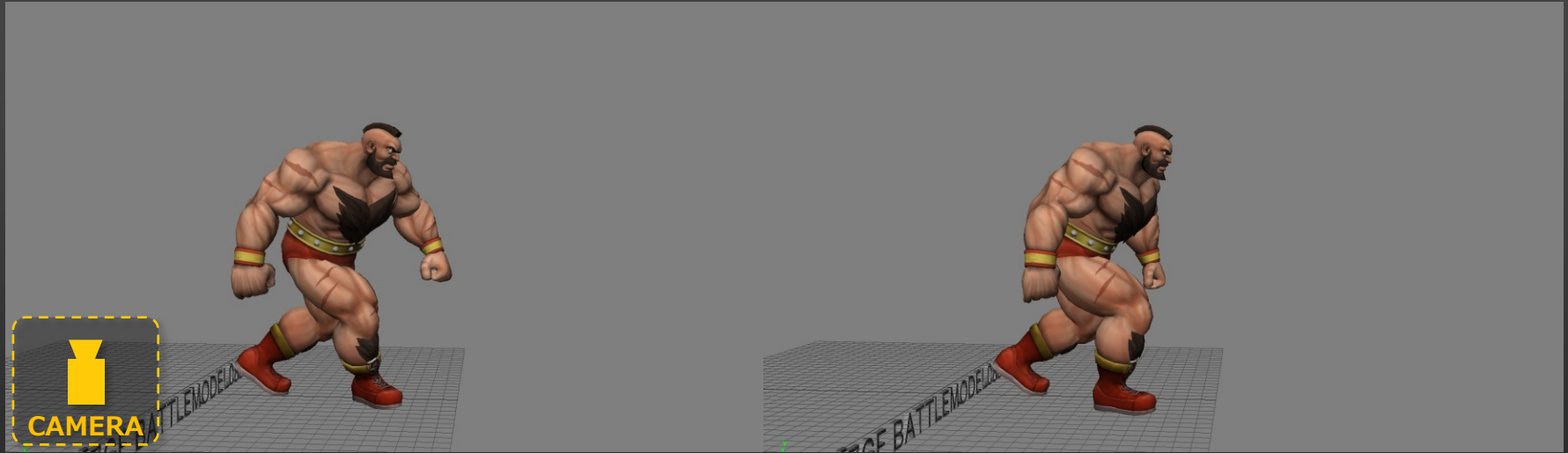


※ **Video** Reference



Fighting Game
Animation

Normal
Animation



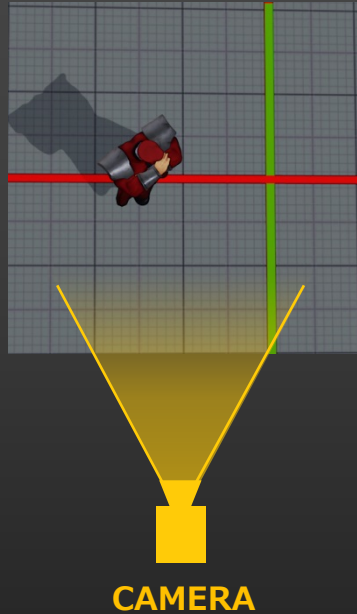
Fighting Game
Animation

Normal
Animation

The 5° Turn

Animation

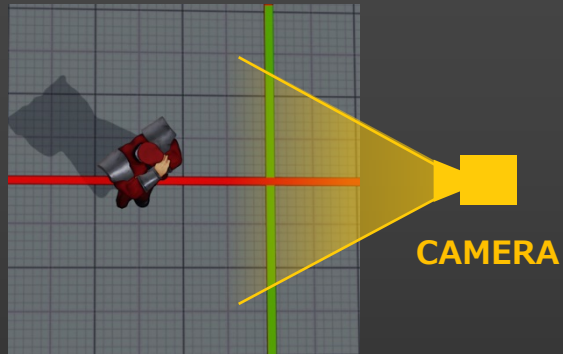
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M. Bison

Animation

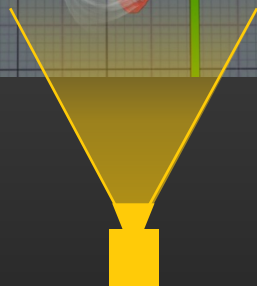
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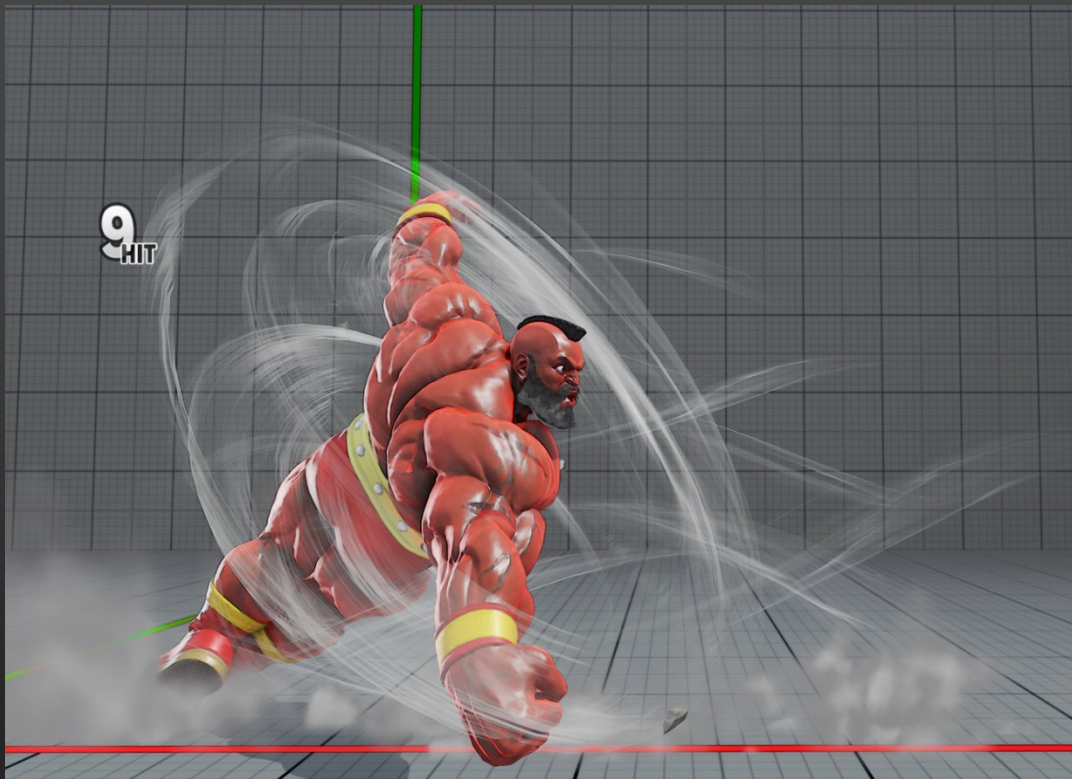
M. Bison

Animation

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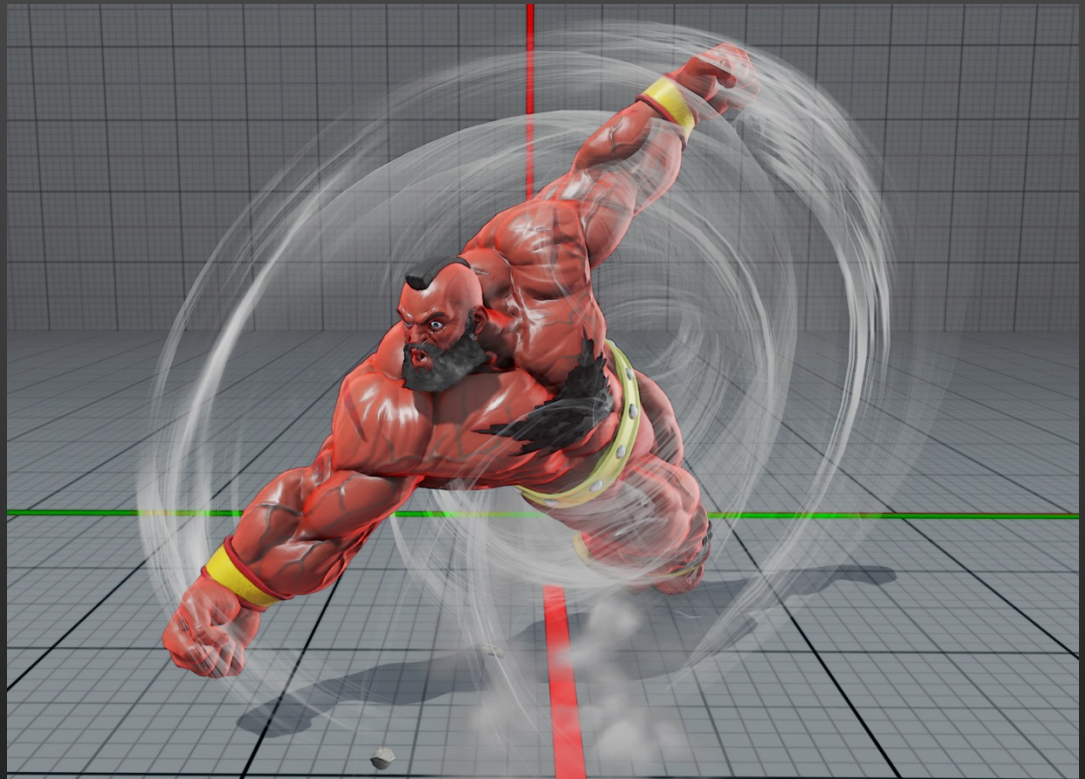
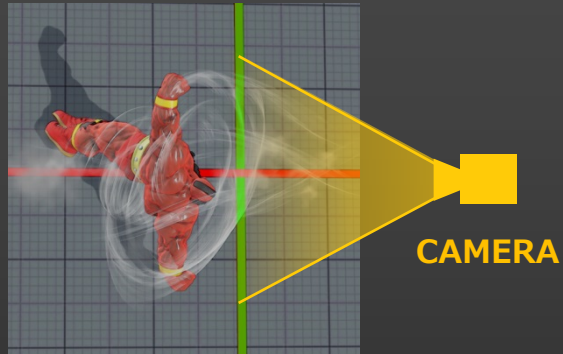
CAMERA



Zangief

Animation

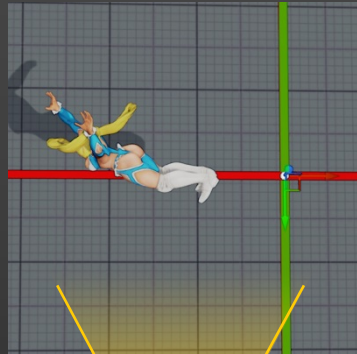
CAPCOM®



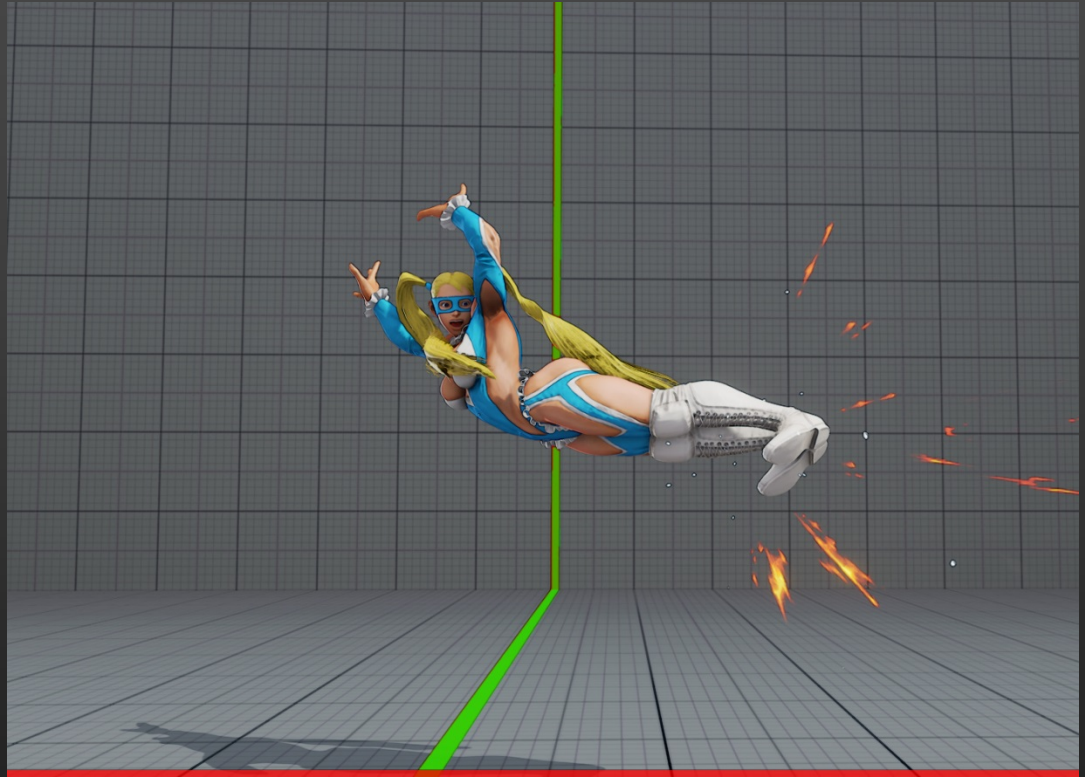
Zangief

Animation

CAPCOM®



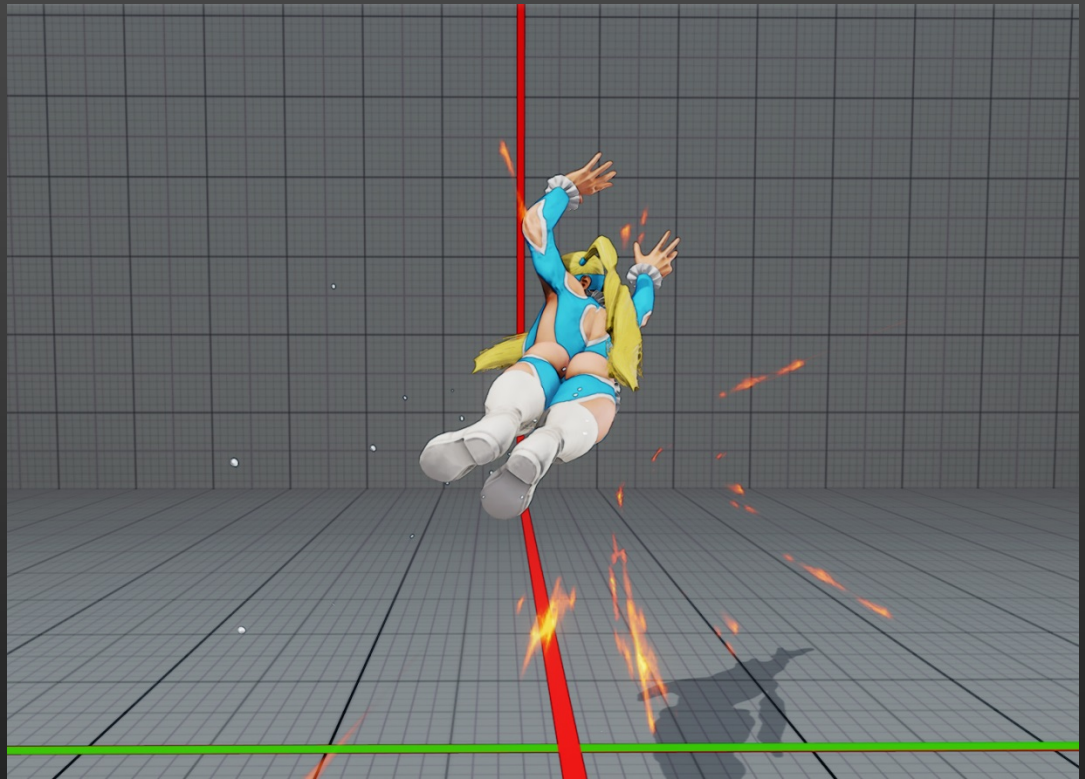
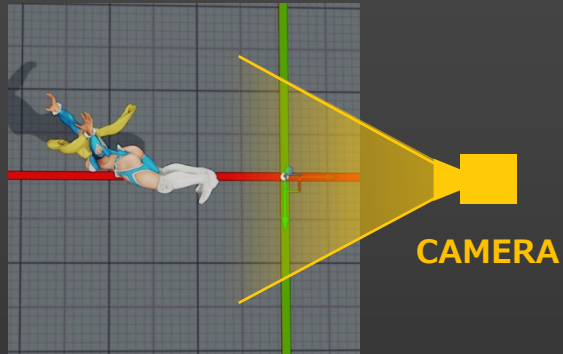
CAMERA



Rainbow Mika

Animation

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Rainbow Mika

Reviewing animation in
Battle Camera
is the most important.

1-4 : Cinematic Moves



Cinematic Moves

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※Video Reference

Memorable Cinematic Moves



Memorable Cinematic Moves

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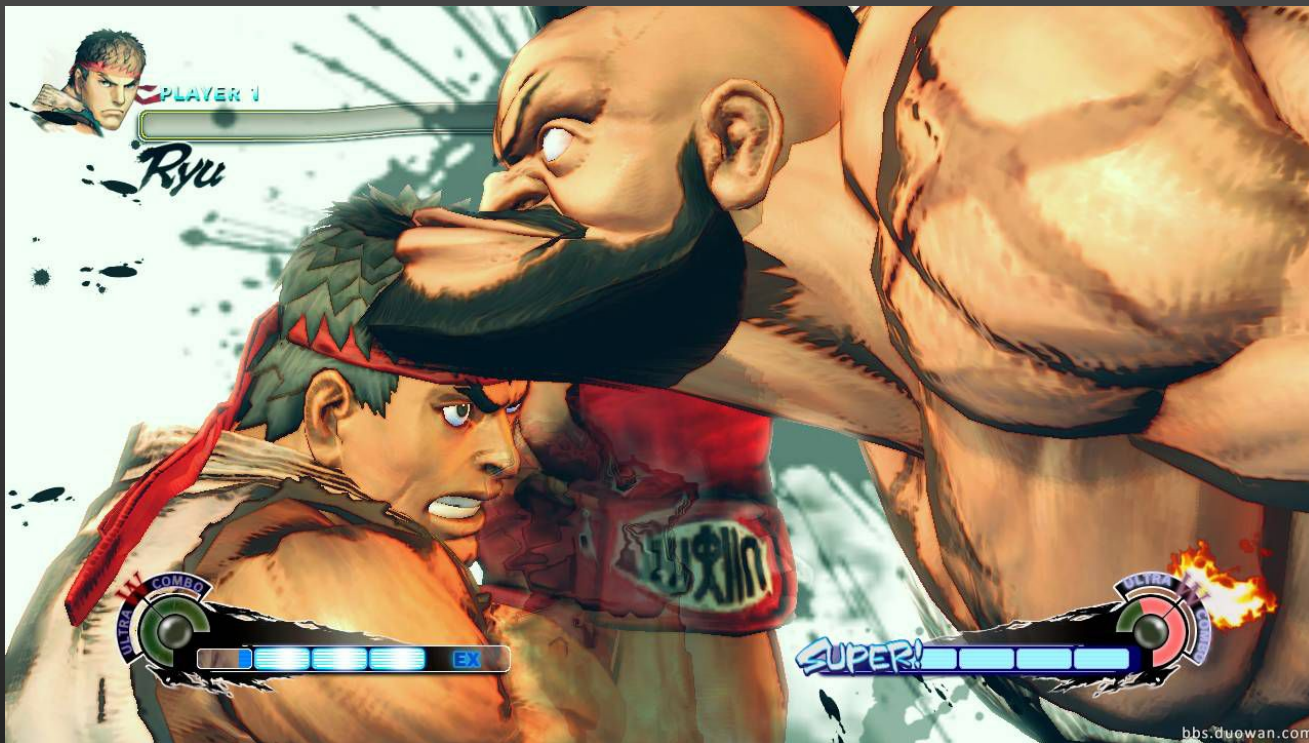


Memorable Cinematic Moves



Memorable Cinematic Moves

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Can it be described in a
single phrase?

Memorable Cinematic Moves

A sumo wrestler says
“Dog Pie”
while doing a head-butt!

Memorable Cinematic Moves

A man says “Yoga” while
breathing fire from his mouth!

Memorable Cinematic Moves

Cinematic moments that
can be put into words are important
when **sharing emotions**
with friends.

1-5 : Background (Stages)



Background (Stages)

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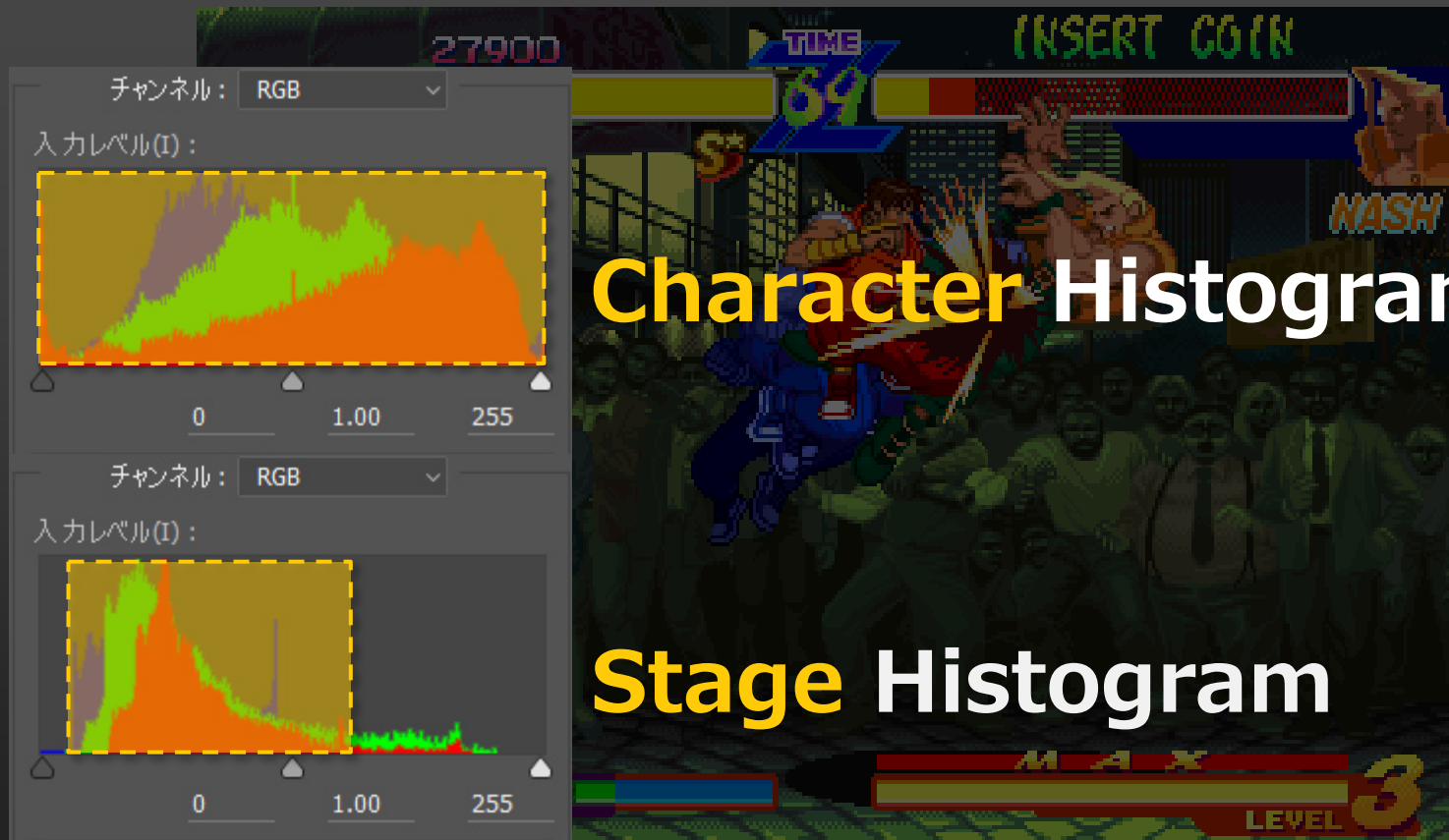
Character Histogram

Stage Histogram

Background (Stages)

Character Histogram

Stage Histogram



Multi-Color Grading



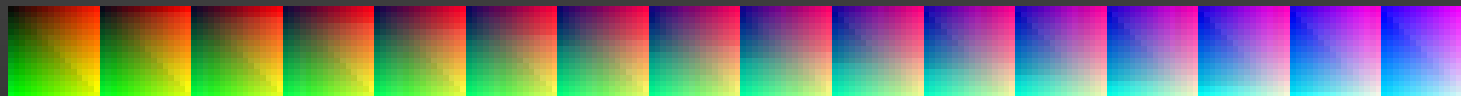
Multi-Color Grading **ON**

Multi-Color Grading



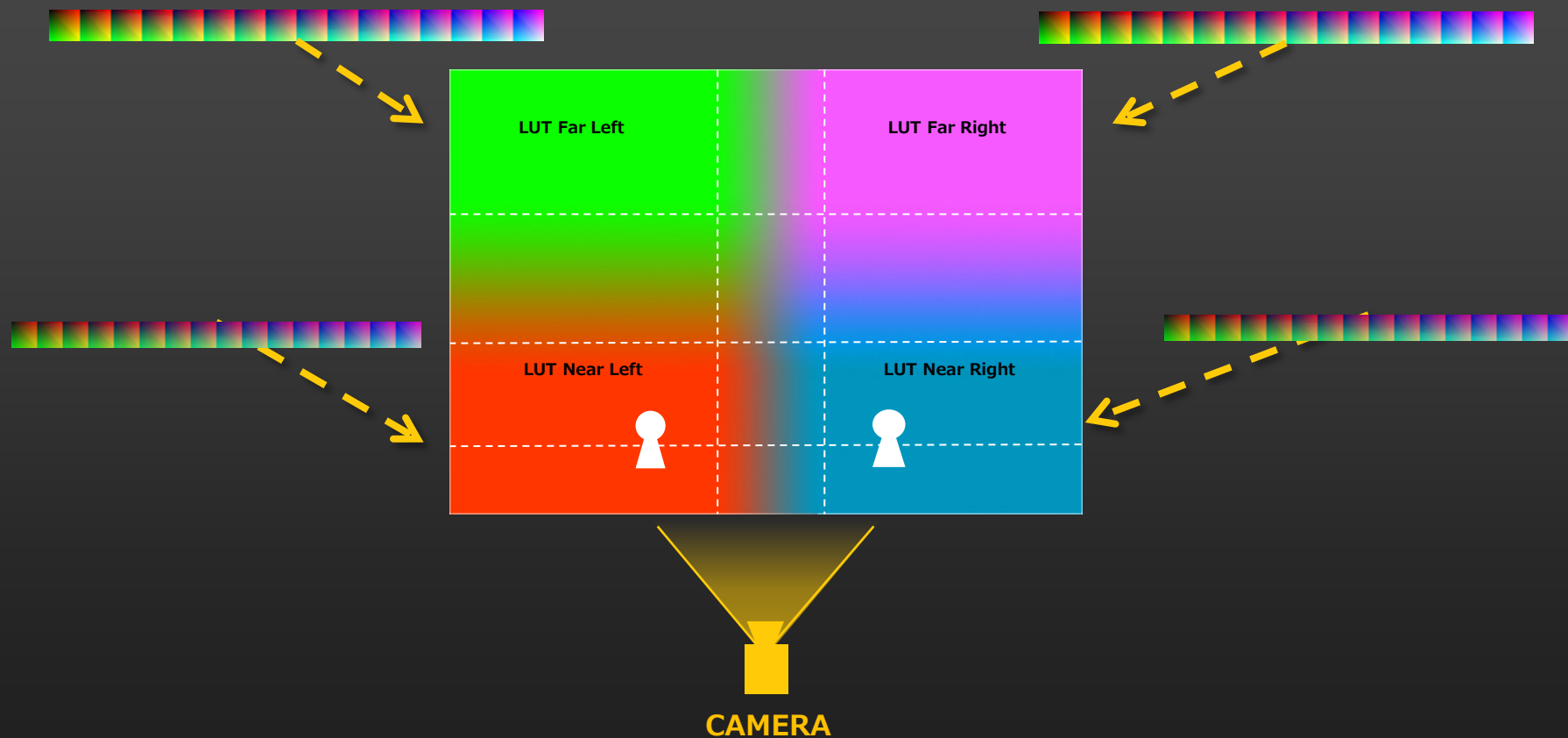
Multi-Color Grading **OFF**

Multi-Color Grading



Lookup Table (LUT)

Multi-Color Grading



Multi-Color Grading



Background (Stages)



1-6 : Camera: Field of View (FOV)



With 3D cameras **the view becomes more distorted near the edge of screen.** This can make it hard for players to read the action.



Edge of Screen



Mid Screen



Fix Projection = 0.0



Fix Projection = **1.0**



Fix Projection = **0.5** (Shipped Version)

Goal of Fix Projection

Stages = strong FOV for **Impact**
Characters = weak FOV for **Battle**

2.

Art Direction Create Personality with Artistic Accents



Target Visual



NPR (Non-Photorealistic Rendering)

Why NPR?

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Franchise History

Street Fighter always had beautiful illustrations.

Push Deformation

Tool to push character silhouettes, details, and coloring.



Final Result

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Rich Lighting + Painterly Accent

- i) Brushstroke (Painterly Accent)
- ii) Push Edges & Color Range
- iii) Color & Saturation Control

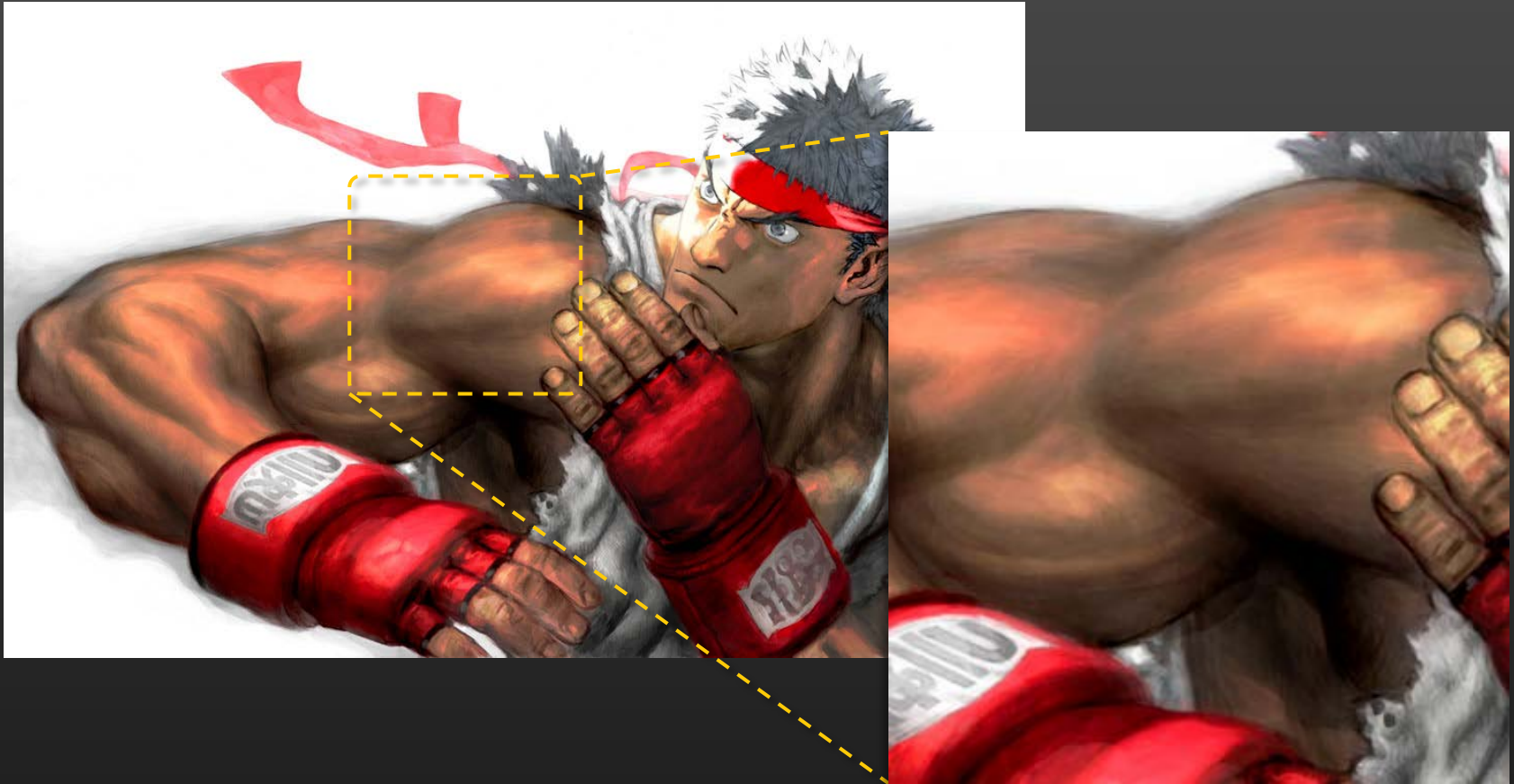


2-i : Brushstroke (Painterly) Style



Painterly Accent

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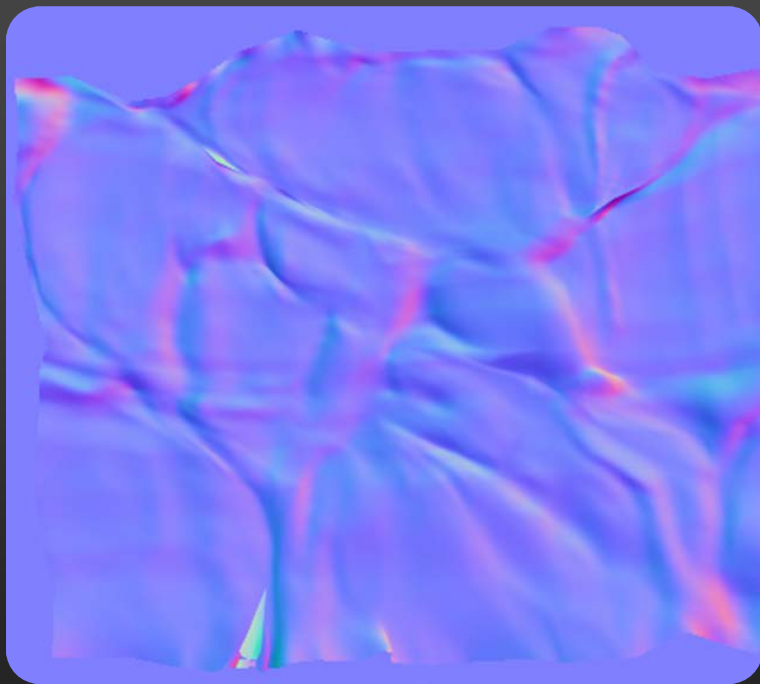
Adding Accent to Normal Map

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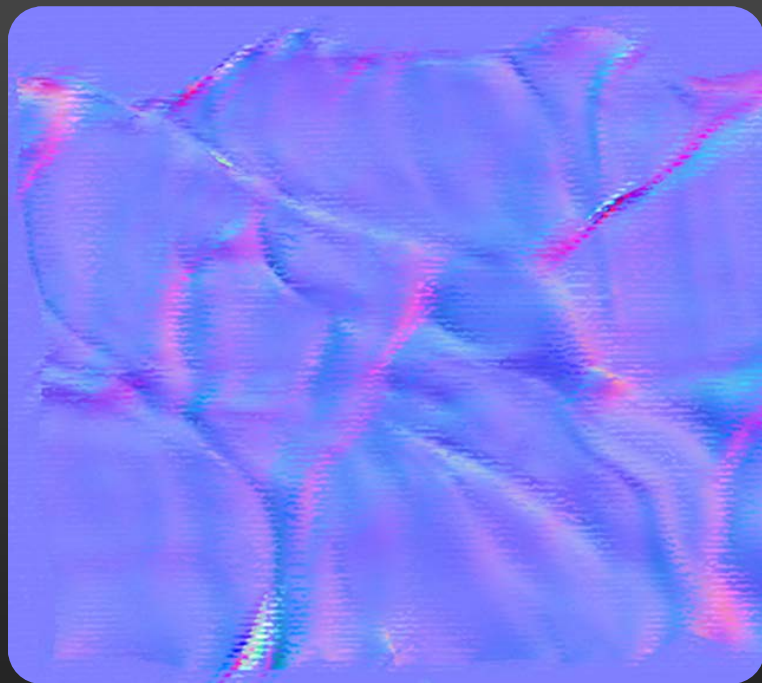


Painterly Style

Add 2D Filtering to Normal Maps



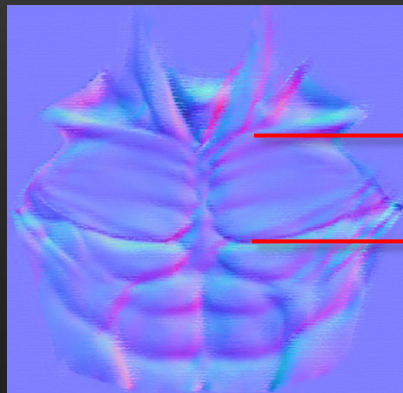
Texture Filter **OFF**



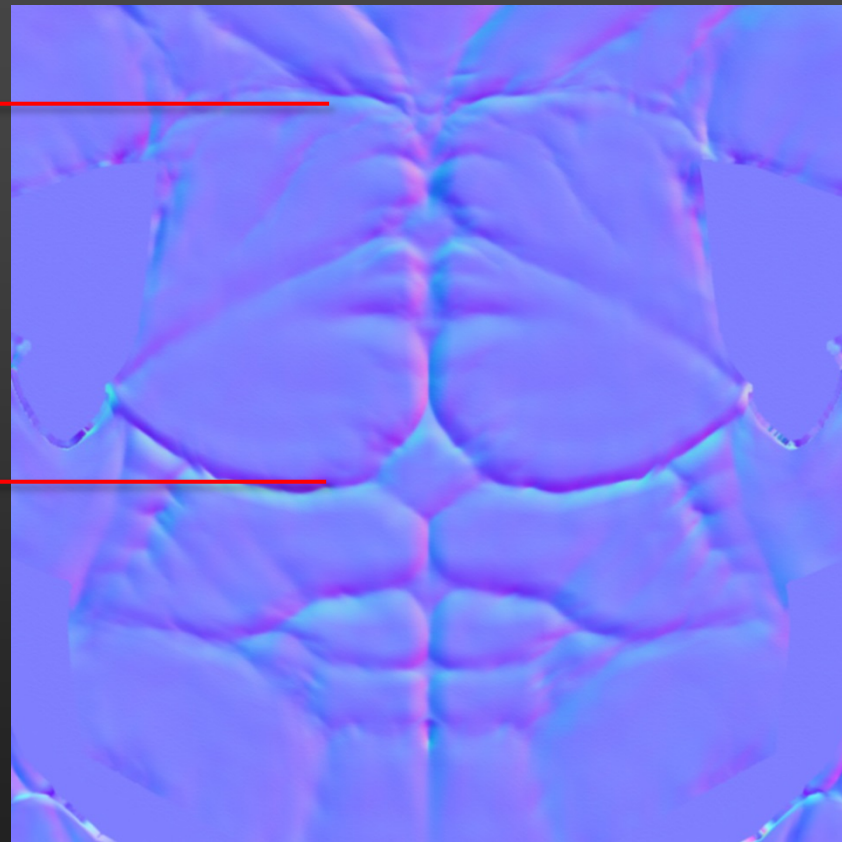
Texture Filter **ON**

Adding Accent to Normal Map

As texture resolution increases, space between bumps is larger



160 pixel



470 pixel

Adding Accent to Normal Map

CAPCOM®

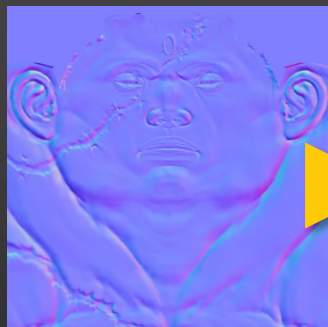


Tangent Space



Object Space

Process to Add Accent



1. Original Normal Map



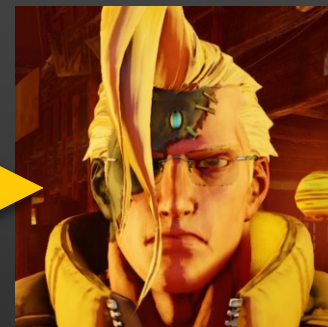
2. Converted Normal Map
(Tangent Space → Object Space)



3. Add Accent to Normal Map
(Snap Art Filter)



4. Reconvert Normal Map
(Object Space → Tangent Space)



5. UE4 Check
(Unreal Engine 4)

Adding Accent to Normal Map

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Object Space

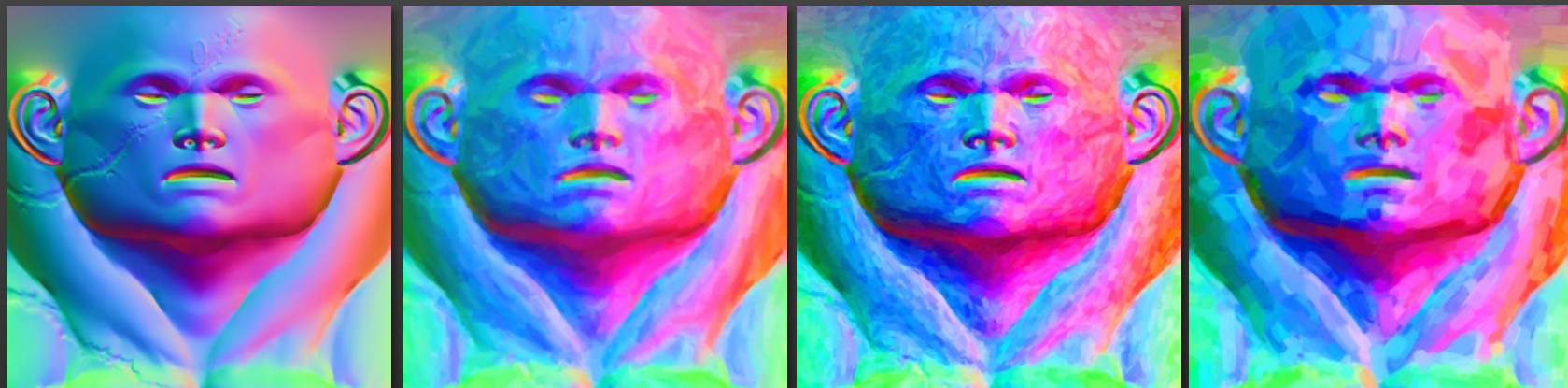


Touch Added



Why we utilized it:

Various painterly filters,
lots of parameters to tweak



Sharp

Rough

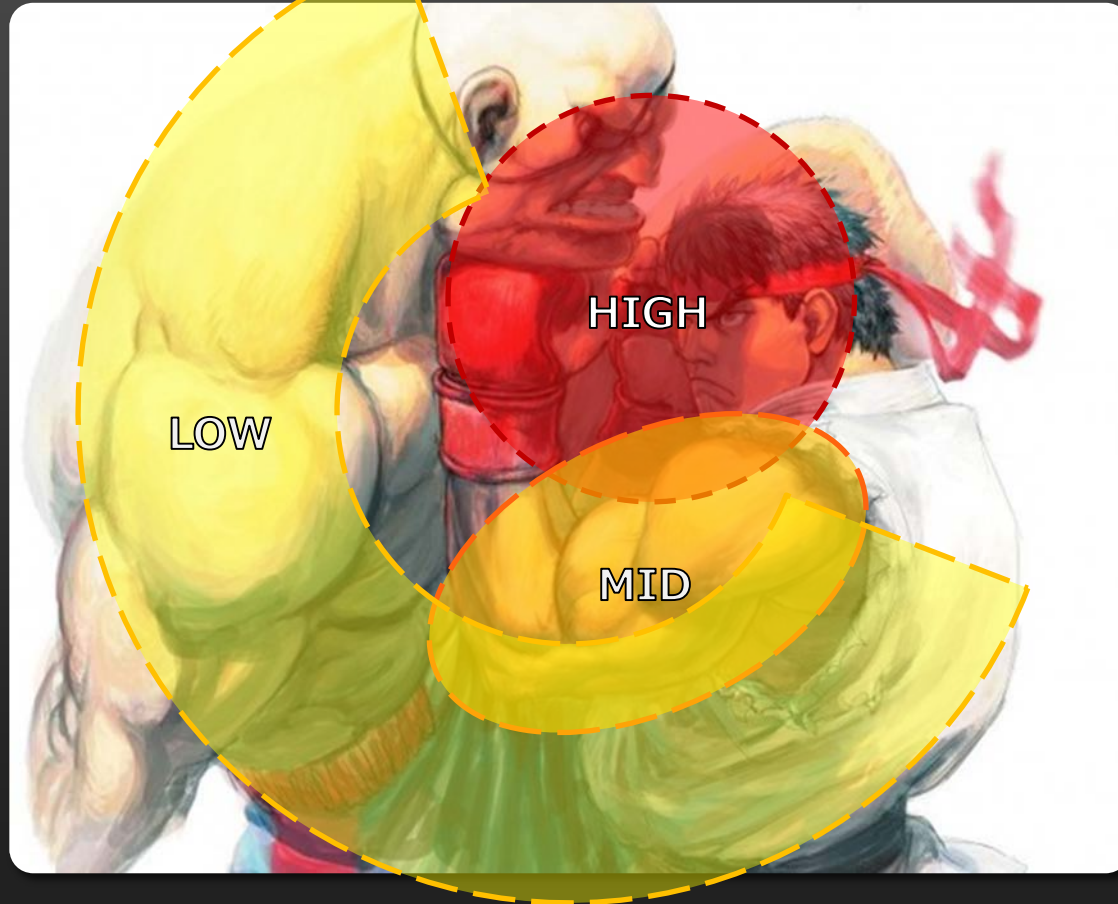
Information Density

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Information Density

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Painterly Accent **OFF**

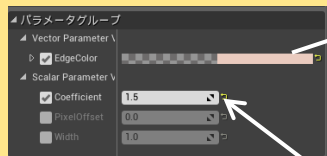


Painterly Accent **ON**



Painterly Accent **ON**

2-ii : Edge Filter



Adjust the
degree of
sharpness
**Recommend
1.5 range**

**Recommend
brightness
0.6 or more.**

Apply arbitrary color if there is a large range in RGB.



Edge Filter **OFF**



Edge Filter **ON**

Creates strong
Character Outline

Adds blurring to
Painterly Accent



Edge Filter **ON**

2-iii : Indirect Light

Enhance Indirect Light

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Add Color to Reflected Light

Enhance Indirect Light

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Add Color to Reflected Light

Lighting Process

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Pre-Lighting

**Basic Light
(Stationary)**

Indirect Light

Lighting Process



Pre-Lighting



Basic Light
(Stationary)



Indirect Light

2 Kinds of Indirect Lighting



Indirect Light
OFF



Indirect Lighting Cache
(**Bake**)



Enlighten
(**Realtime**)

3.

In Conclusion

Art in Fighting Games

Is singular element that can convey information to players in a fraction of a second.

Art in Fighting Games

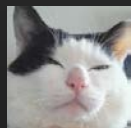
Is singular element that can convey information to players in a fraction of a second.

After this critical goal is achieved, we can create a unique visual style with personality.

What role does art play in games?

Thank You!!

Questions ?



Facebook

Toshiyuki Kamei