

# Character Customization of Soulcalibur 5 In-Depth

Shiro Tani  
NAMCO BANDAI Studios Inc.  
Shinagawa, Tokyo, JPN  
s-tani@nbsi.jp

## 1. Introduction

Recently, there is a growing need for character customization for the purpose of player's avatar. The character customization system was implemented for the fighting game "Soulcalibur" since the third of the game, and has evolved over time. Our latest iteration of Soulcalibur makes it possible to project color and normal textures to a character anywhere the player would like.

We present the following two points. First, we introduce the "Soulcalibur 5" character customization system as a whole which has been cultivated in the series. Second, we will explain some of the issues we faced in the texture projection to a character caused by the lack of affinity for the existing customization system, and provide practical solutions to them.

## 2. Character customization

We implemented the following points of character customizations, changing the size of the body parts (e.g., pectorals, thighs), equipping clothes and accessories, changing the color of body or equipment, and projecting color and normal textures to a character. Players are able to share their own characters in battles with other players. Furthermore players are able to share their character's photo which was taken in customization mode.



Figure 1. In-Game Screenshot of projected textures.

## 3. Implementation of the texture projection

The texture projection system was at variance with other customization system and requirements as a fighting game. Thus we need to solve the following issues.

First issue is the reconstruction of the texture projection. The customized character should be reconstructed from save data as well as opponent's data over the network. A character of our game has vast texture size from 10MB to over 20MB. Therefore we were not able to store or send all of the textures directly. For this reason, we stored meta-information of the texture projection – where the projection point is, what is projected, what the equipment is, etc. Players exchange the meta-information of the projection, and reconstruct the characters in their local environment.

Second issue is the re-editing. We should make it possible to re-edit the projected texture or size of the body parts thereby we enabled re-edit by reconstructing the character from the meta-information each time.

Third issue is the speed. As previously explained we should reconstruct the character frequently and display the reconstructed result as soon as possible. We implemented a fast DXT compression pipeline using the GPU.

Fourth issue is the artifacts. Projecting textures to the UV discontinuity area caused artifacts because of the difference between the projecting process and the fetching of the projected texture process. We suppressed the artifacts by expanding the edge of the projected area. The result of this algorithm is shown in Figure 2.

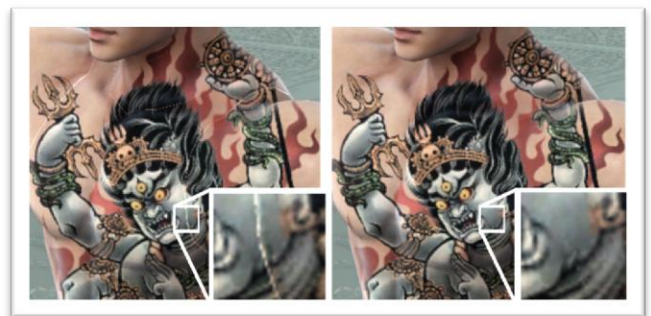


Figure 2. Result without expanding the edge (left),  
Result with expanding edge (right).

## 4. Conclusions

We presented the entire system of the character customization of our game. We also introduced the issues of the character customization system and provided the practical solutions to them.