

## TPA 3: Texture Transfer from Images to dress (shirt)

Increasingly, large repositories of 3D Models are being used in computer graphics and computer vision synthesis tasks. However, the rich textures of the real world objects are not captured in these 3D model repositories.

### Objective:

To develop an unsupervised method for texture transfer from a single image of a clothing apparel to a 3D model of a similar apparel. This involves the texture transfer for image-to-shape and shape-to-shape. An automated pipeline capable of transporting texture information from images of ecommerce apparel to 3D models of similar clothing apparel. The clothing texture in the image may be distorted due to many factors, including pose, illumination and geometry.

### Input:

-Wire frame mesh of Tshirt clothing apparel (e.g Tshirt of different types, Female and male Tshirt, Tshirts of different proportions etc).

-The images of the Tshirt with different textures.

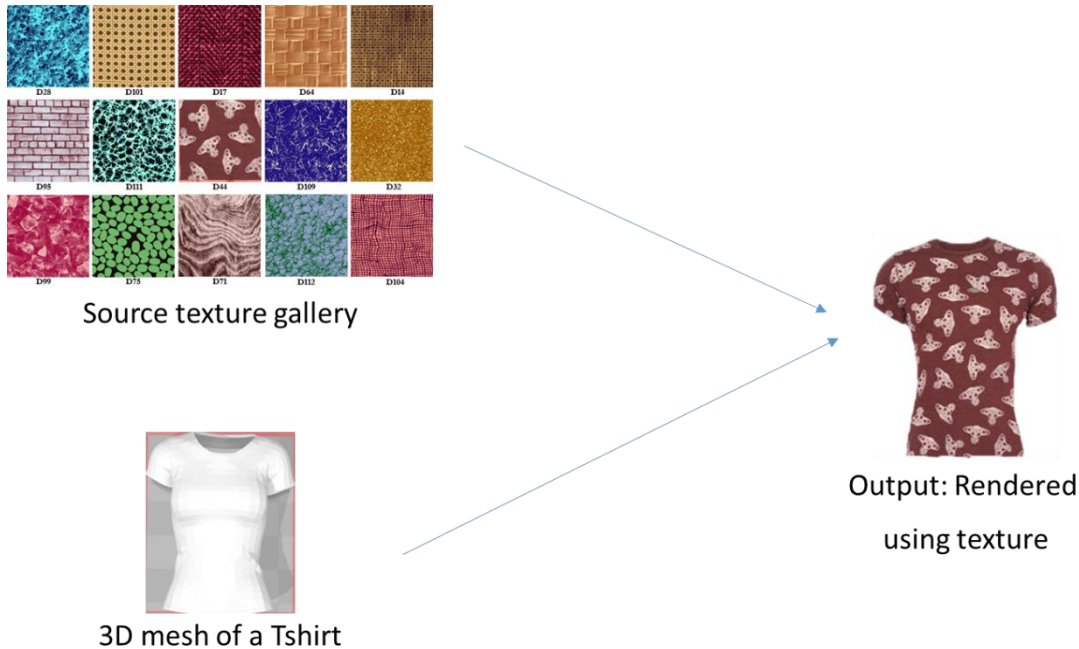
### Output:

3D models textured with the image texture.

Rendered image of the newly textured 3D model.

### Process to simulate:

- Process the images of the Tshirt to extract texture patches and transfer the texture to various similar 3D mesh objects.



## References:

- Wang, T. Y., Su, H., Huang, Q., Huang, J., Guibas, L., & Mitra, N. J. (2016). Unsupervised texture transfer from images to model collections. *ACM Trans. Graph.*, 35(6).
- Darabi, S., Shechtman, E., Barnes, C., Goldman, D. B., & Sen, P. (2012). Image melding: Combining inconsistent images using patch-based synthesis. *ACM Trans. Graph.*, 31(4), 82-1.
- Efros, A. A., & Freeman, W. T. (2001, August). Image quilting for texture synthesis and transfer. In *Proceedings Computer graphics and interactive* (pp. 341-346). ACM.
- Hueting, M., Ovsjanikov, M., & Mitra, N. J. (2015). CrossLink: joint understanding of image and 3D model collections through shape and camera pose variations. *ACM Trans. Graph.*, 34(6), 233.

Rendered  
using texture

## Code:

- Unsupervised Texture Transfer from Images to Model Collections - [http://geometry.cs.ucl.ac.uk/projects/2016/texture\\_transfer/](http://geometry.cs.ucl.ac.uk/projects/2016/texture_transfer/)