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Course: CS-537 Interactive computer Graphics

Due Date: March 21, 2017

Paper: Simulation of wrinkled surfaces.

Author: James F. Blinn

The paper on Simulation of wrinkled surfaces presents a method of using a texturing function to perform a small perturbation on the direction of the surface normal before using it in the intensity calculations. According to the paper, for a particular picture element, the direction of the surface normal at that picture element is the prime component for calculating the intensity of that picture element. The paper also describes the Normal vector perturbation which is defined in terms of a function which gives the displacement of the irregular surface from the ideal smooth one. The author uses the above Normal vector perturbation to derive the bump functions. One more method of generating bump functions by using the image synthesis algorithms which uses depth buffers to perform the hidden surface comparisons. General method of bump generating functions depends on video frame buffer technology and its standard painting program. According to the author, an interesting feature of the perturbation calculation is that its amount does not change with the scale at which it is drawn. Scale changes due to the object moving nearer or farther from the viewer in perspective space do not affect the size of the wrinkles, only scale changes applied directly to the object. The result of author's technique is that the image made with this technique look convincingly wrinkled and gives really nice effect to the interaction of the bumps, even though if they are illusionary. Even, while using this algorithm with animation, the bumps looks quite convincing and real. The bumps only come from some playing with the parameters used in intensity calculations.

The content of the research paper was very interesting and indulging. The author surely presented something new to the table. The author was successful in explaining his thoughts everywhere, with necessary description and derivations. The author, also tried to prove his work with the necessary images and output produced using his algorithms.

As a fan of animation and designing, this is an area of my interest. The author amazed me with his research paper by depicting that how we can handle bumps and textures in images and also how can we can his algorithm in animation also.

The overall idea of author's research paper was nice and proved it very well, however the research paper did lack somewhere. The research could have been a little more descriptive. The author only covered the main aspects and left some minute details. The biggest hole in this

paper was that, the author did not cover the future work of his algorithms and also didn't talk about any of the drawback of his algorithm.

There is another article which I found online, which describes the simulation of wrinkled surfaces in more detail and also talks about some of the future work and drawbacks of this algorithm. [Link](#)