

The thesis deals with algorithms of computer graphics which exploit advanced techniques of textures mapping with the aim of improving the projection of details of wrinkled surfaces. The evolution and architecture of modern graphic cards are described. There is the description of basic characteristics of the Cg language for graphical accelerators too. Algorithms for simulation of wrinkled surfaces such as normal (bump) mapping and parallax mapping are described in detail including the explanation of basic terms and principles. Extra focus is laid on the method named displacement mapping and its application on modern graphical cards. The thesis describes possible improvements of the above mentioned methods with a view to problem of implementation of displacement mapping method. Part of the work is a program that visualizes methods including improvements. There is a discussion on results obtained from testing the program on different graphical cards. All the methods and their improvements are compared with respect to both the projection quality and the speed of processing.