

Interpolation of geometric data sets is of central importance in Computer Aided Geometric Design. Nowadays there is a growing demand to extend the known methods based on points to new methods which rely on other types of geometric objects such as circles and spheres.

Surface modeling based on such principles has already appeared in computer graphics and in the last few years, several scientific papers have been published in this topic. Popular CAD softwares (e.g. ZBrush[®], Spore[™]) seem to apply similar methods and these implementations are available for everyday users. The methods used in these applications, however, do not provide results good enough especially in those cases when we would like to join skinning surfaces to each other.

Joining of given geometric objects is an important part of surface modeling since in this way more complicated objects can be constructed than the starting forms. Therefore there is a persistent demand from both designers and users to use sophisticated methods which provide more freedom throughout the designing process.

We present an efficient algorithm for the joining and branching problem which gives visually much more satisfactory results than the presently available ones. Our method is also presented in our newly developed, user friendly modeling software based on projective geometry.

