POSIBILITIES OF VIRTUAL SOLID CORECTION IN THE CASE OF SHOE LAST BY USING OF THE ANTROPOMETRICAL PARAMETERS

ALBU Adina[1], GANEA Macedon[2], MORAR Mariana[2], INDRIE Liliana[1]
[1]University of Oradea, Faculty of Textiles and Leatherwork,
[2]University of Oradea, Faculty of Management and Technological Engeneering,
adina_victoria@yahoo.com, calin@rdslink.ro

Key words: points, last, virtual, solid,antropometrical

After obtain the scaned last surface, we choose several important points from antropometrical parameters. This kind of points will be modified, acording with our desire, where is needed. The human foot, however, is a complex and flexible 3D shape that varies greatly from individual to individual.

In some cases modern digitizing equipment, computer numerically controlled (CNC) milling machines, computer aided design (CAD) software, and computer aided manufacturing (CAM) software is used to create the last. In other cases, traditional manual techniques are used. It should be expected that modern techniques, due to automation, would require far less skilled labor than traditional techniques; however this is not the case. Clearly the available modern systems must be deficient in some aspect.

Last measurements were made relative to critical points of foots to better quantify the quality of fit for a particular foot. Algorithms were created to design lasts automatically for feet those are irregular in measurements but do not exhibit major deformities. For feet that do not fall into this category, lasts are initially designed using the automatic techniques and then manual techniques are provided for further customization as needed. Methods were also developed for creating tool paths to guide CNC milling machines to create the lasts.

As long as the starting last is of an appropriate style for the intended foot, this should (in theory) create a last that can be used to make a shoe that is comfortable and orthopedically appropriate while maintaining the style and smoothness of the original last.

Traditionally, lasts would be made and modified by hand with tools such as chisels. With a CAD program however, a model of the last can be modified as necessary before actually manufacturing. Last models are created by modifying the geometry of existing lasts. Thus the use of CAD packages for last modification did not take hold until digitizing solutions such as the laser scanner became available. Most modern CAD programs are able to manipulate lasts by scaling and transformation.

To create the physical last, computer aided manufacturing (CAM) packages are used to convert the CAD model into numerically controlled (NC) code that will operate computer numerically controlled (CNC) milling machines. The specialized CAD systems mentioned above often incorporate a CAM system to provide a more streamlined solution.

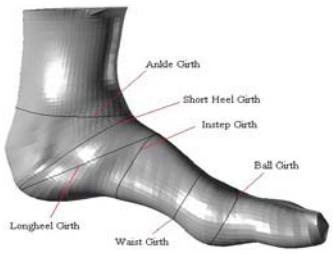

Figure 1- Girths

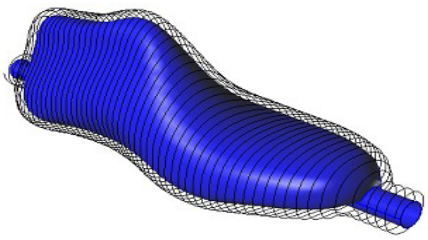

Figure 2 - Offset Mesh Tool path

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