Introducing AnyFoot from Sharp Shape - Brief

Sharp Shape, All rights reserved. July 2015

1. Introduction

AnyFoot is a 2D-to-3D processing program that bridges the desire for a low-cost 2D foot scanner and our Automated Orthotic Manufacturing System (AOMS®).

2. Background

Sharp Shape has been installing AOMS and making 3D foot scanners for more than 22 years. During this period, many customers asked us for a low-cost and portable foot scanner that didn't need to operate at the high accuracy of our 3D foot scanner. This desire became magnified after some 2D foot scanners came to the market in recent years.

Although we did some R&D work in the 2D-to-3D field many years ago, we terminated the work because of unsatisfactory results. The advances of technology in recent years gave us the tools to tackle this issue from a different angle. After our recent hard work, we feel that we can present a much better program to the market. Producing carved orthoses from 2D scanners has now become more possible. Still, this is the beginning of a new era and more tests are needed.

Figure 1: 2D Foot Scanner and Foot Image

3. Descriptions

There are three major components in the new technology: the 2D scanner, the 2D-to-3D processing software and the automated orthotic production system. Because Sharp Shape's Automated Orthotic Manufacturing System (AOMS) is widely used and a commercial scanner can be found easily and inexpensively, what we are missing is the 2D-to-3D processing software. AnyFoot solves the missing link. AnyFoot reads the 2D foot images which must be in the BMP format and converts them into the 3D RAW files that can be accepted by AOMS.

The concept of AnyFoot is innovative in that Sharp Shape does not need to provide foot scanners; instead, customers buy off-the-shelf commercial scanners from a computer store. These scanners are usually very inexpensive compared with a 3D foot scanner. The Canon scanner that is shown in Figure 1 costs around $60. Sharp Shape provides consultation on what to buy. In order for the scanner to be used in scanning feet, the scanner needs to be rearranged (modified) to suit the need of foot scanning. As an example, we built the stand that is shown in Figure 1 to support the scanner. Customers can use their imagination to design their own stands. Sharp Shape provides consultation on how to build the stands.

The scan should take place in a controlled environment. Otherwise, the quality of the image will become degraded so that the 2D-to-3D purpose cannot be achieved. Sharp Shape provides consultation on the requirements of the controlled environment. After the images are processed in the AnyFoot software, the 3D height information can be extracted. A sample screen shot is shown in Figure 2. A shading view of the 3D foot is shown in Figure 3. Note that even in the controlled environment, the 2D-to-3D approach is not as accurate as the 3D approach in the way that the color and light intensity of the foot affects the resulting height distribution.
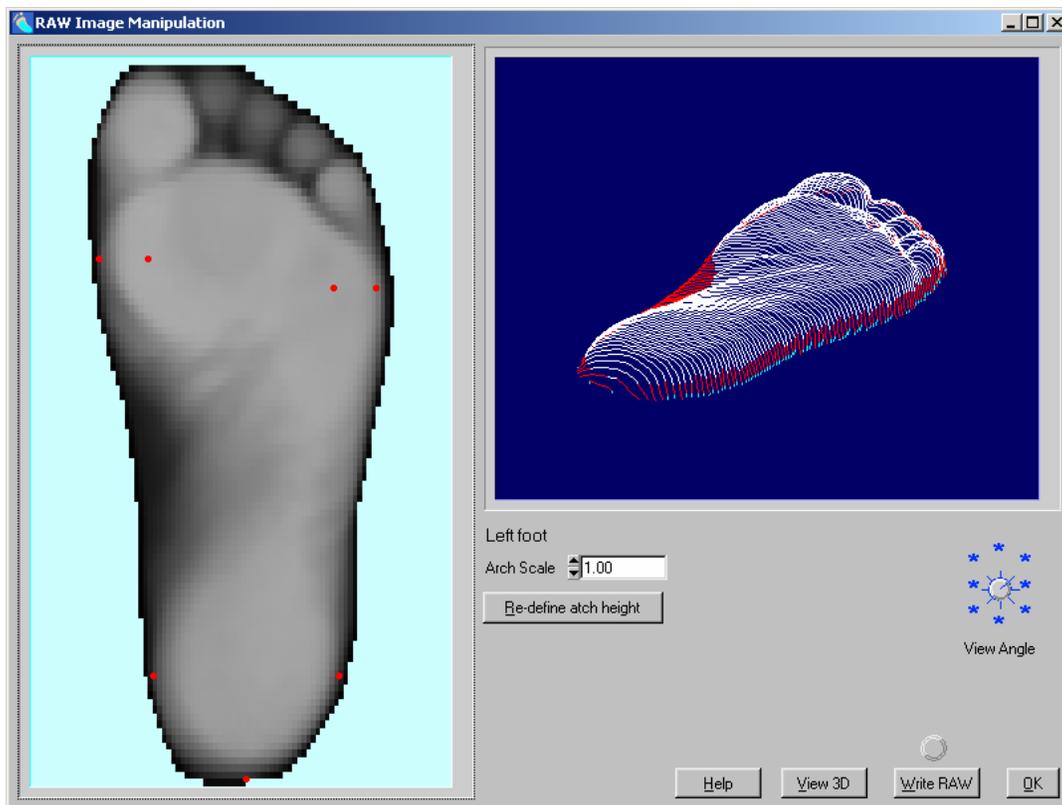

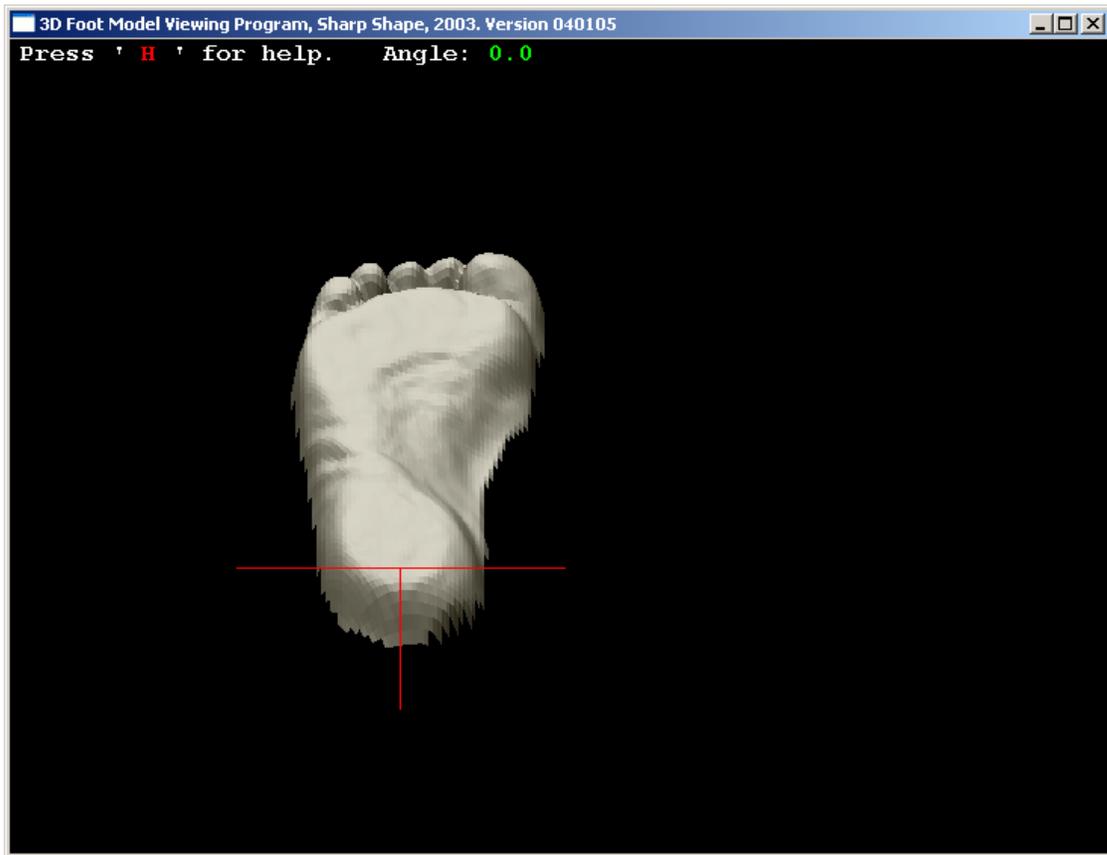Figure 2: 3D Foot Image Extract from 2D Image

Figure 3: Solid 3D Foot View

If you are interested or you have questions, please contact us at sharpshape@comcast.net. -- End of File --