Subject: Re: 3-D-representation of heights
Posted by Robert Smith on Wed, 04 Jun 1997 07:00:00 GMT
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Achim Hein wrote:
>
> Hi,
>
> I am looking for information or software to represent two images, one
> contains the amplitude information and the other 2-d-array contains the

Achim:
The red-green technique you refer to is called anaglyph, and is the cheapest (tho not the best) way of making 3-d images. I'm not aware of any "canned" programs for generating stereo pairs from the kind of images you describe, but typically the program to convert any sort of 3-d coordinate representation to stereo is less than a page of code. Try drawing the situation (seen from the top) with the 2 eyes observing different views of an arbitrary point hovering above a background (X,Z only, Y is invariant in stereo pairs). The trigonometry for determining where to put that point on the two images is straightforward. There are 2 tricks: start by placing the points in order of farthest away first, that way the nearer points which occlude farther points will write over them and you basically don't have to do any occlusion calculations; 2nd when you're done, scan the images for any missing points (whenever 2 points on the original image wind up in the same pixel in one of the final images, then there will be an empty pixel somewhare else. Fill these by interpolating in the X direction.
That's basically it. I've written this algorithm numerous times for various applications, and it's not hard. If you get stuck, e-mail me.
Incidentally, if this is for a high-end application, you might consider using lcd shutter glasses in place of anaglyph. These basically allow each eye to see only alternate frames of a video display, so you can put right- and left-eye images in alternate frames.
The advantage is full color images; the disadvantage is spending several hundred dollars per viewer.

Good luck

Bob

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