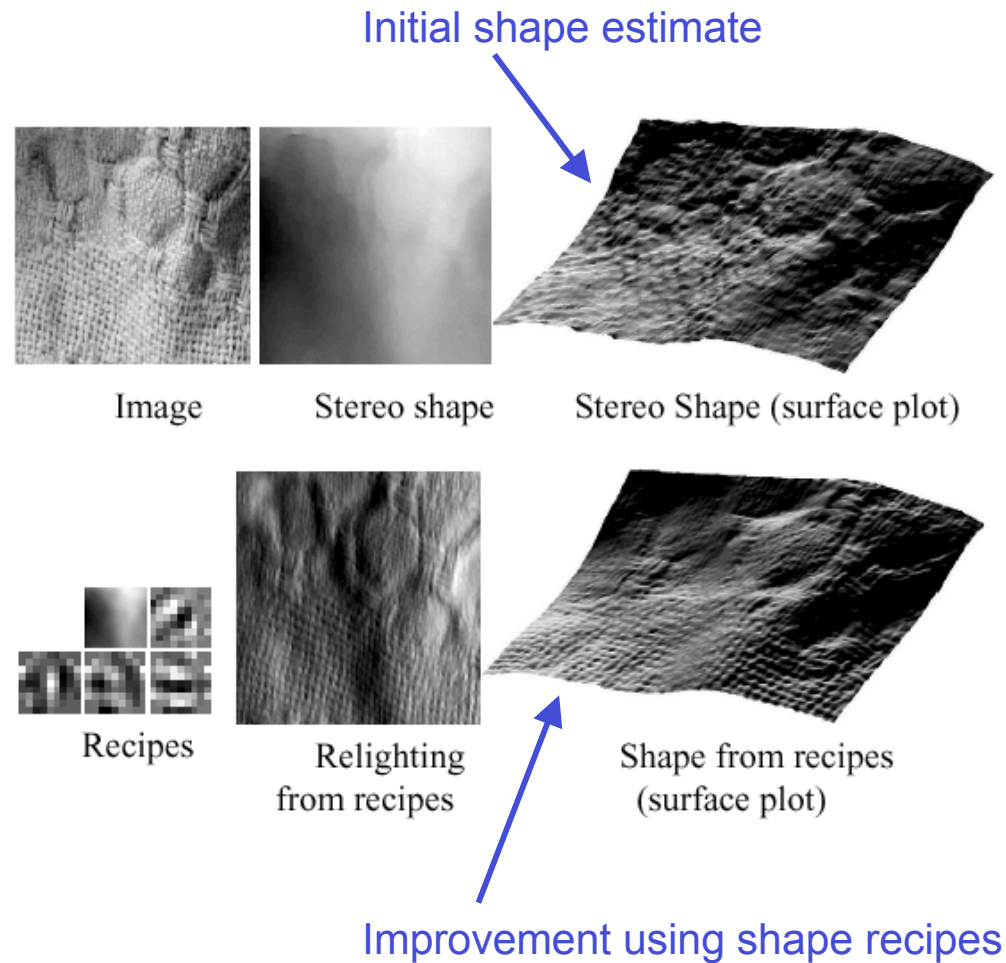
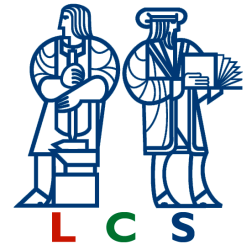


Project Overview

- **Part I, Example-Based Image Synthesis:** Using a large training database, apply an example-based approach to problems of image and shape synthesis, for texture synthesis and image super-resolution.
- **Part II, Shape Recipes:** improves 3-d shape estimates by learning transformations between bandpassed images and shapes. (Shape estimation is a common interest we discovered through our meetings.)





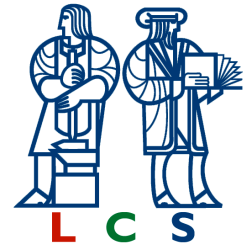
Progress Through December 2002

- Delivered example-based texture synthesis code (in Matlab) and example-based super-resolution code (in C) to Onozawa-san and Sato-san of NTT.

-Sato-san applied super-resolution code to view-interpolation task for image-based rendering, showing improved resolution without observable artifacts.

- Developed “shape recipes”: method to improve initial estimates of shape using relationship between image and shape learned from initial shape estimate.

-Matlab code delivered to Sato-san. Applied shape recipes technique to shape estimates from visual hull, data supplied by Sato-san.



Research Plan for the Next Six Months

- **Shape recipes:** Extend shape recipes method to images where occlusion and reflectance changes are dominant (beyond the shading changes where shape recipes currently work best).
 - Using data from Onozawa-san and Sato-san, this may allow improved image-based rendering view interpolation, or allow data collection from fewer views with the same image quality.
- **Example-based image synthesis:** For video sequences, training-based super-resolution methods are difficult. Goal: exploit the *Laplacian-shaped priors* for the histograms of image subbands in both still and video image super-resolution.
 - A shape-recipes shape representation should allow inference of high resolution subbands with a much smaller training set than is currently required.