This project presents two 3D imaging systems:

1. A stereo camera system that acquires a dense z-map for a scene. The prototype system demonstrates compositing of motion video and other real or even virtual segments, with full depth information and interaction between elements / actors in each segment. New algorithms considerably minimize occlusion and boundary overreach problems.

2. A real-time rangefinder that utilizes a dual-laser and single camera to calculate and display range information at video frame rates. A specially developed VLSI sensor with photodiodes integrated at the pixel level function as analog / digital micro-rangefinders, processing range data from an emitted laser for all pixels in parallel. The prototype demonstrates real-time range quantification of objects randomly selected by a user.

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