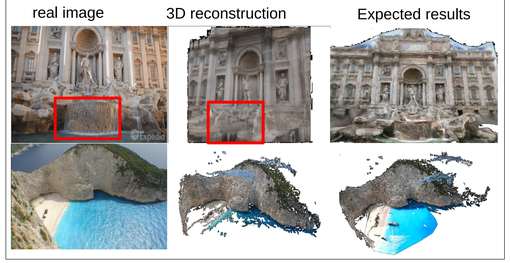
3D Reconstruction of Dynamic Textures in Crowd Sourced Data

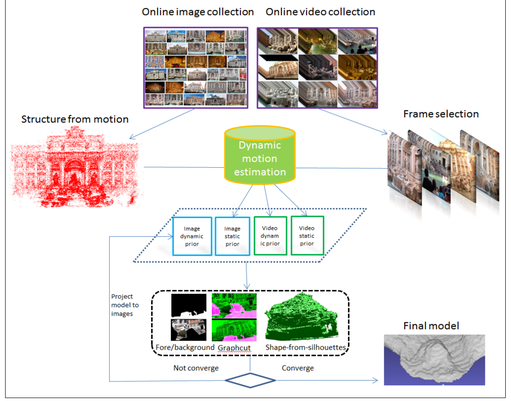
Dinghuang Ji, Enrique Dunn, and Jan-Michael Frahm
University of North Carolina at Chapel Hill

Introduction

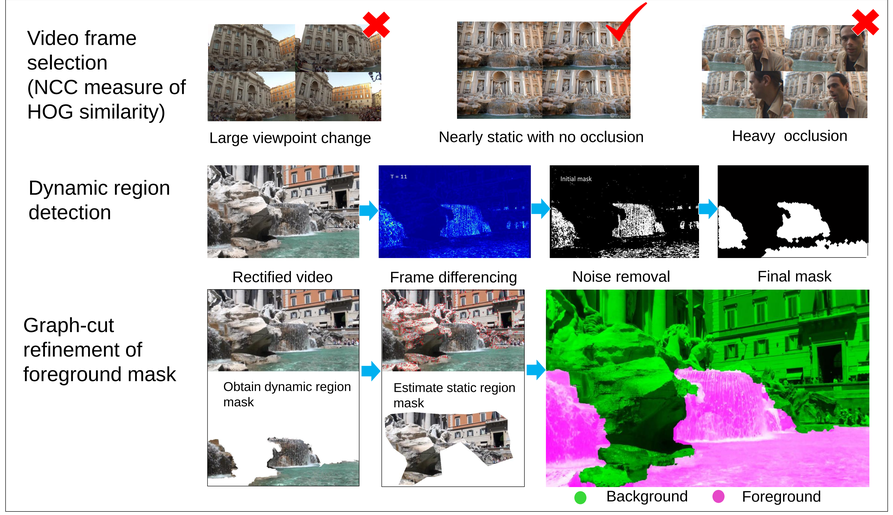
- **Problem**: Only static geometry of the 3D scene is currently modeled.
- **Goal**: Reconstruct the scene elements with dynamic appearance.
- **Solution**: Model geometry of scene regions having dynamic appearance, but constant shape, by segmenting dynamic video content from crowd source data and inferring geometry through shape-from-silhouette methods



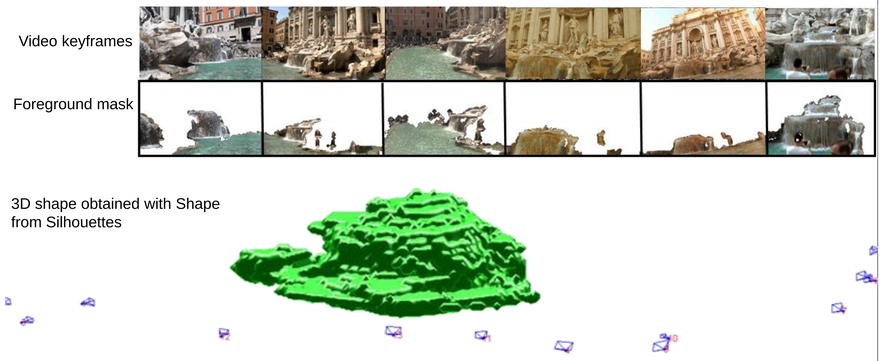
Overview



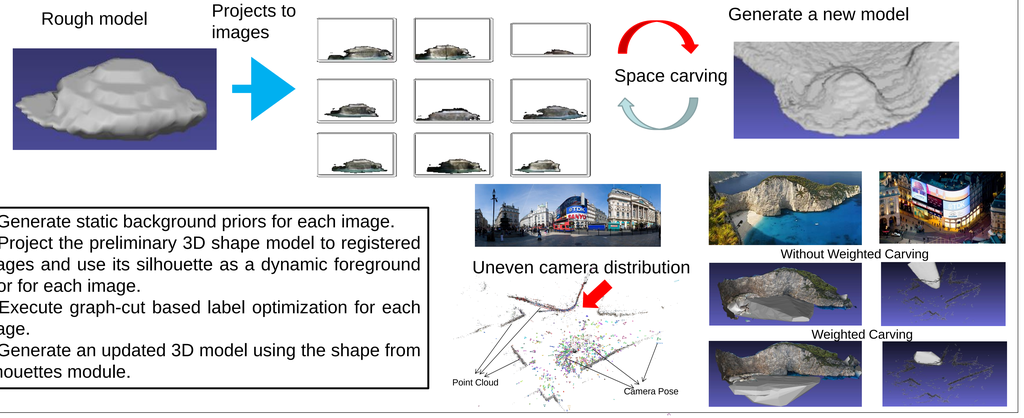
Dynamic Texture Segmentation



Rough model generation



Closed Loop 3D Shape Refinement

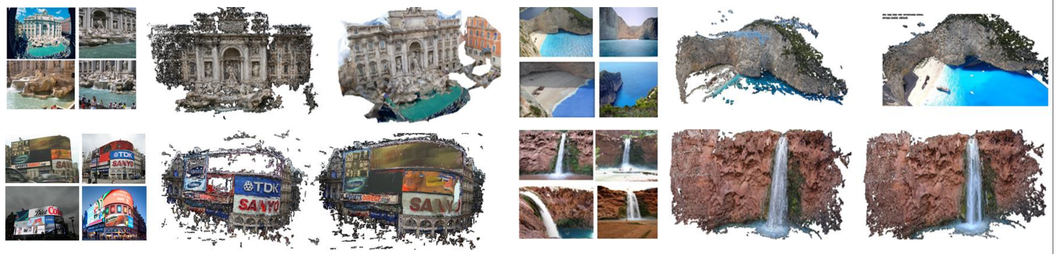


Experiments

- Datasets (download images from Flickr.com, videos from youtube.com)

Dataset	# Vids	# Keyframes	#Image	#Registered
Trevi Fountain	481	68629	6000	810
Navagio Beach	300	45823	1000	520
Piccadilly Circus Billboard	460	75983	5000	496
Mooney Falls	200	17850	1000	723

- 3D Reconstruction Results (Compared with PMVS[1])



[1] Furukawa, Y., Ponce, J.: Towards internet-scale multi-view stereo. Proceedings. of CVPR p. 1434 (2010)

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