

Unconstrained 3D Face Reconstruction

- supplementary material

1. Additional Subjects

To further demonstrate the performance of our proposed algorithm across a variety of conditions, we present a larger set of individuals processed through the Bing and Picassa pipeline as expressed in the main paper. Note that for these individuals, the photo collections contain images mainly within the $+/- 30$ degrees yaw due to the lack of profile images returned through the Bing API and the deficiency of Picasa in recognizing the individual with extreme poses. By increasing the number of side view images, we can better achieve the advantages of the landmark-based 3D template warping and improve the profile view of the reconstructions.

We bring attention to a few small points, but mainly leave the figures to speak for themselves.

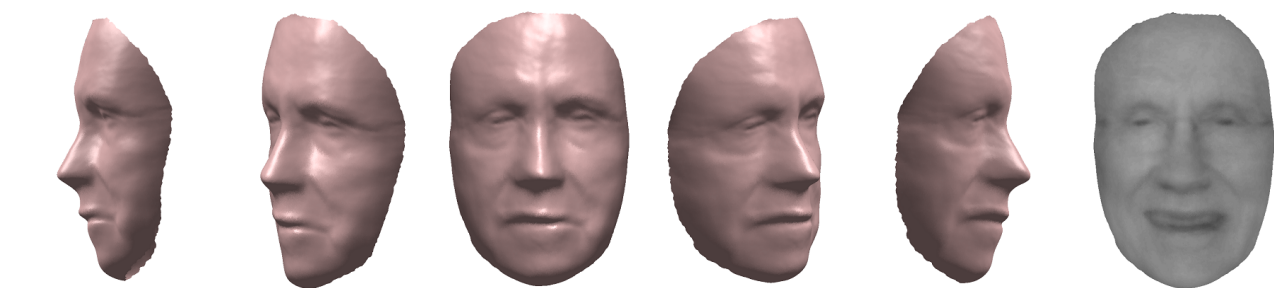
1. Most reconstructions are convincing, and the identity is easily recognizable.
2. The method captures prominent wrinkles in the faces of Harry Reid and Robin Williams.
3. We capture the vertical indentations above the eyes on Leonardo DiCaprio.
4. Vin Diesel's common use of sunglasses appears in his reconstruction.
5. Jim Carrey's extreme expression variations cause the reconstruction to fail.
6. The high amount of specularities on Denzel Washington creates issues as well.

Overall, our unconstrained 3D face reconstruction produces compelling results for a variety of individuals.

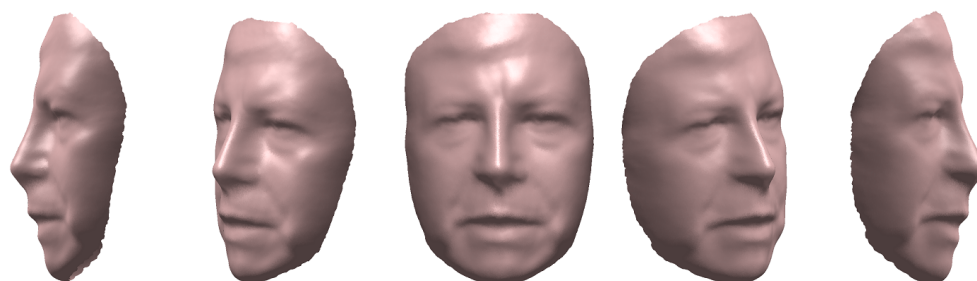
2. Videos

We also include video files in the supplemental material demonstrating the deformation throughout the iterative procedure. The videos begin with the landmark-based deformation. The first iteration has a large change from the template, and subsequent iterations mainly refine the fine details of the face, as described in Section 3.2. Another

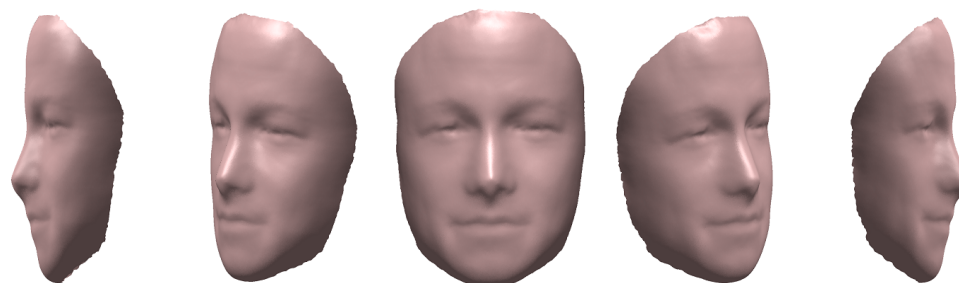
large change is present when the use of photometric normals is added (Section 3.4). Again, a large change occurs during the first iteration of photometric constraints, and future iterations refine the nose, mouth, and eye regions.



Harry Reid



Rick Snyder



Joseph Gordon-Levitt

Figure 1. Visualization of many successful examples.

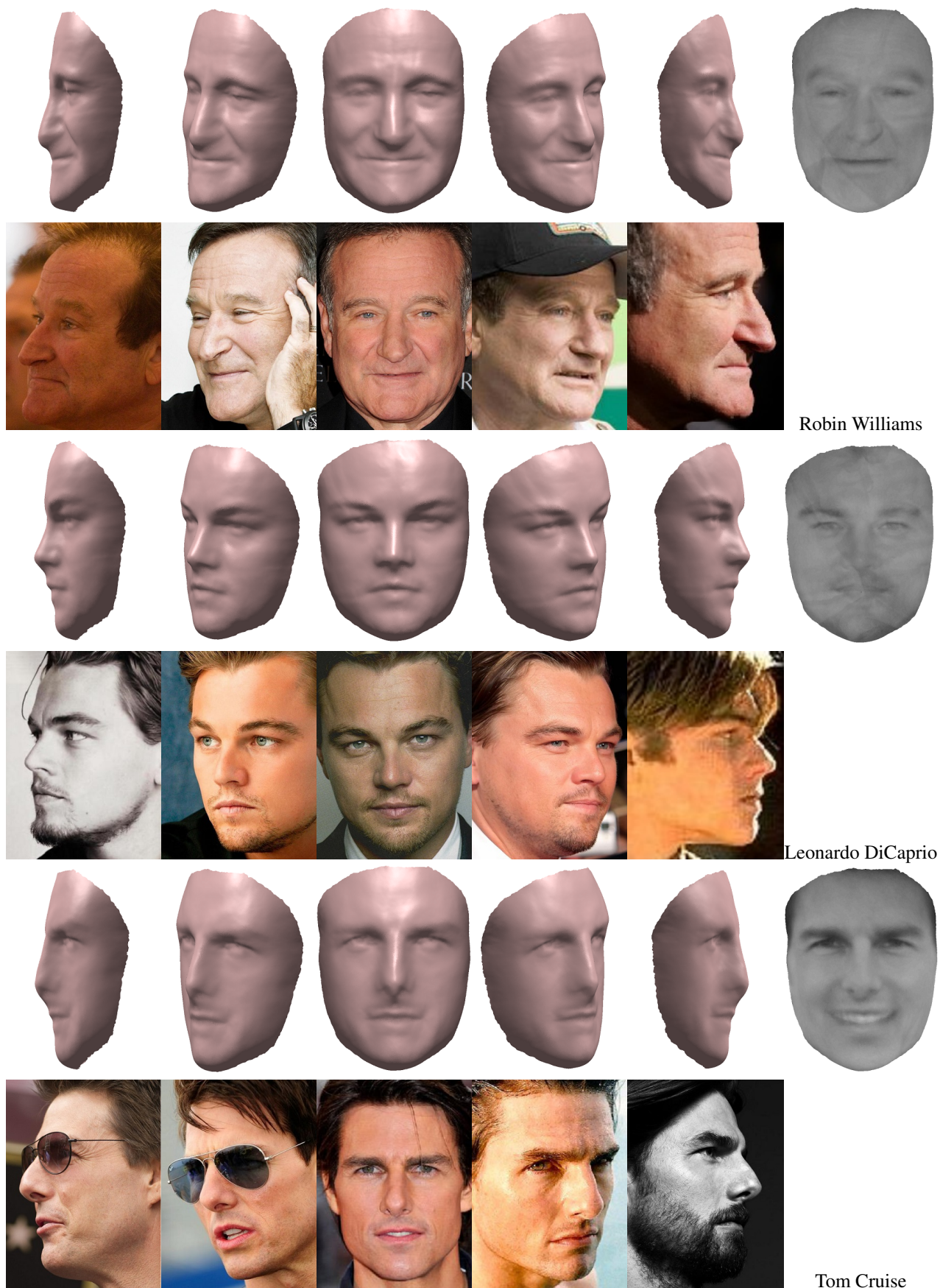


Figure 2. Visualization of many successful examples.



Figure 3. Visualization of many successful examples.



Figure 4. Visualization of difficult examples.