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Supplementary Materials for A Lighting Robust Fitting Approach of 3D Morphable Model For Face Reconstruction

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1 Introduction

The supplementary materials provide additional experiment. The details of comparison can be found in the body of submitted paper.

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List of Figures

1 Comparison of accuracy of recovered shape. Rows from top to bottom, (a): input images; (b): Reconstruction result based on feature points [1]; (c): reconstruction of proposed approach; 4
2 Comparison of robustness of proposed approach against pose variation. Columns (from left to right) show: (a) input images; (b) Novel pose by the method in[4] based on feature points; (c) Novel pose by the method in[4] based on the proposed approach. 6
3 Comparison of robustness of illumination model to lighting. Columns (from left to right) show: (a) input images; (b) fitting results given by Phong's model [3]; (c) fitting results given by the proposed approach without specular reflectance [2]; (d) fitting results given by the proposed approach. 7
4 Comparison of the accuracy of shapes recovered from the first 11 frontal pose input in Fig. 3. Columns (from left to right) show: (a) novel pose given by Phong's model [3]; (b) novel pose given by the proposed approach without specular reflectance [2]; (c) novel pose given by the proposed approach; (d) contours of (a)(red line), (b)(green line) and (c)(blue line), respectively; (e) and (f) are the magnified details of column (d). 8
5 Comparison of robustness of illumination model to lighting. Columns (from left to right) show: (a) input images; (b) fitting results given by Phong's model [3]; (c) fitting results given by the proposed approach without specular reflectance [2]; (d) fitting results given by the proposed approach. 9
6 Comparison of the accuracy of shapes recovered from the first 11 frontal pose inputs in Fig. 5. Columns (from left to right) show: (a) novel pose given by Phong's model [3]; (b) novel pose given by the proposed approach without specular reflectance [2]; (c) novel pose given by the proposed approach; (d) contours of (a)(red line), (b)(green line) and (c)(blue line), respectively; (e) and (f) are the magnified details of column (d). 10
7 Comparison of robustness of illumination model to lighting. Columns from left to right: (a)input images; (b)fitting results given by the Phong's model [3]; (c)fitting results given by the proposed approach without specular[2]; (d): fitting results given by the proposed approach; 12
8 Comparison of inferred frontal view from the 11 profile pose images in Fig. 7. Columns (from left to right) show: (a) inferred frontal view given by Phong's model [3]; (b) inferred frontal view given by the proposed approach without specular reflectance[2]; (c) inferred frontal view given by the proposed approach. 13
9 Comparison of robustness of illumination model to lighting. Columns from left to right: (a)input images; (b)fitting results given by the Phong's model [3]; (c)fitting results given by the proposed approach without specular[2]; (d): fitting results given by the proposed approach; 14

10 Comparison of inferred frontal view from the 11 profile pose images in Fig. 9. Columns (from left to right) show: (a) inferred frontal view given by Phong's model [3]; (b) inferred frontal view given by the proposed approach without specular reflectance[2]; (c) inferred frontal view given by the proposed approach. 15

2 Comparison with the feature points based approach

Here, we provide another comparison between our fitting results and the results based on features points [1].

Fig. 1 Comparison of accuracy of recovered shape. Rows from top to bottom, (a): input images; (b): Reconstruction result based on feature points [1]; (c): reconstruction of proposed approach;

3 New Profile View From Frontal Image

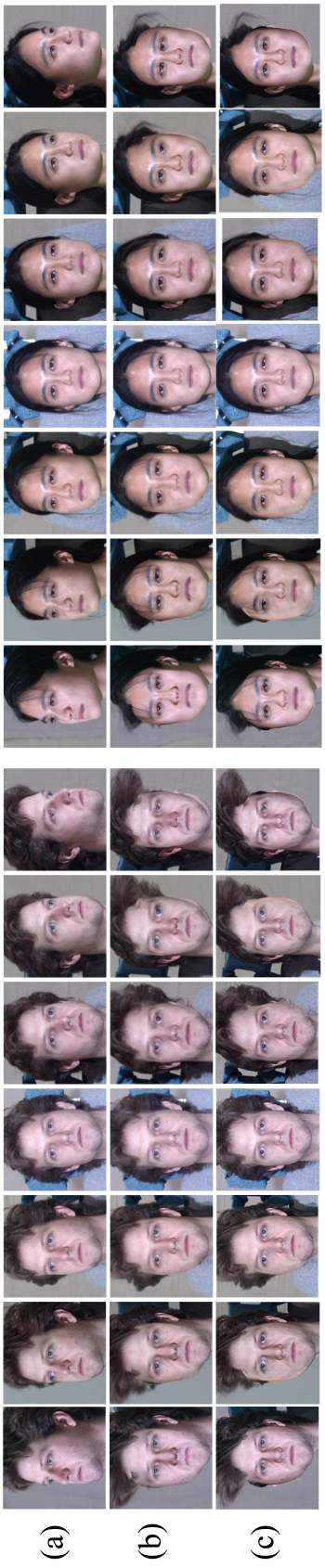

Fig. 2 Comparison of robustness of proposed approach against pose variation. Columns (from left to right) show: (a) input images; (b) Novel pose by the method in[4] based on feature points; (c) Novel pose by the method in[4] based on the proposed approach.

Fig. 3 Comparison of robustness of illumination model to lighting. Columns (from left to right) show: (a) input images; (b) fitting results given by Phong's model [3]; (c) fitting results given by the proposed approach without specular reflectance [2]; (d) fitting results given by the proposed approach.

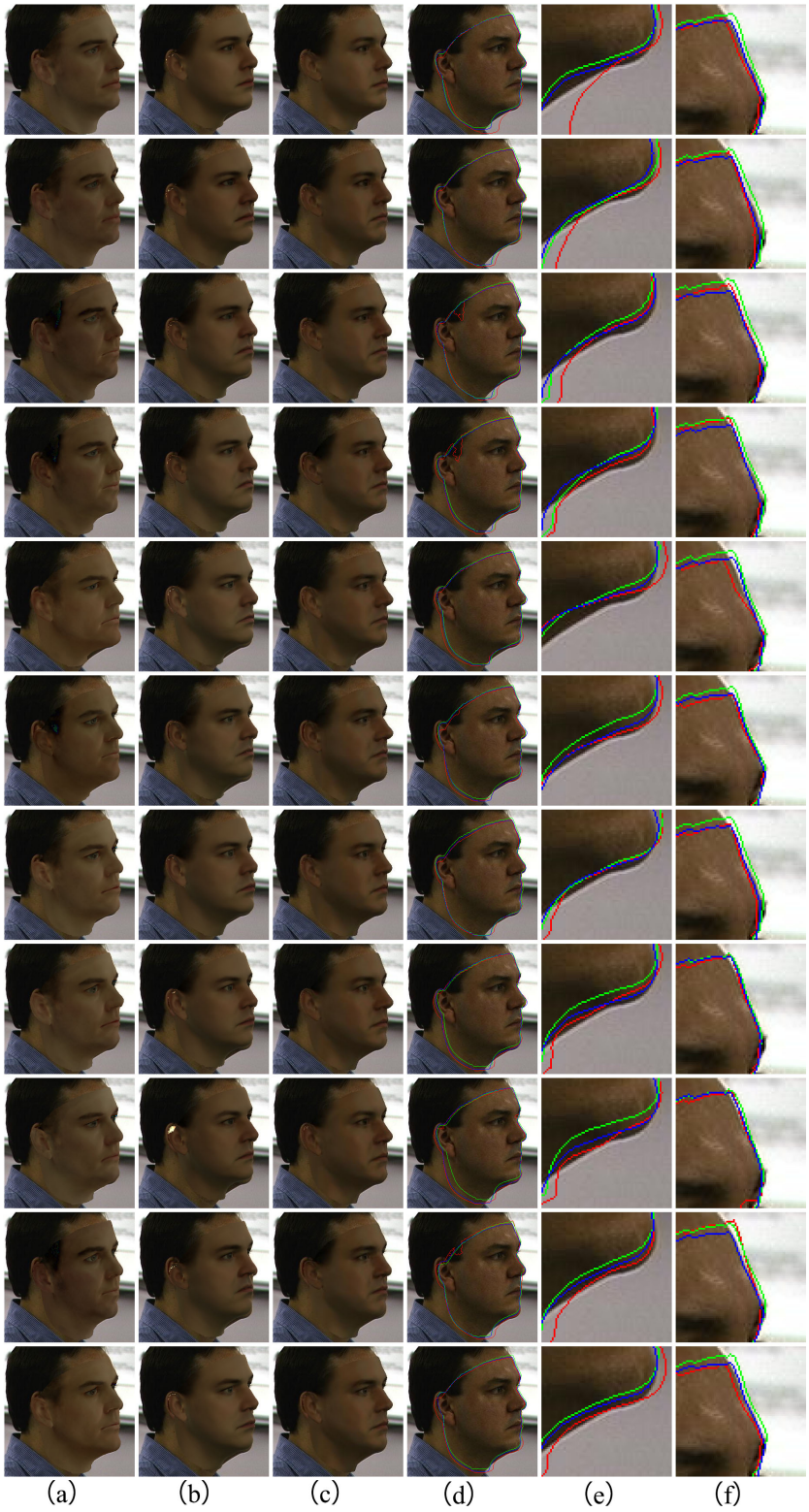

Fig. 4 Comparison of the accuracy of shapes recovered from the first 11 frontal pose input in Fig. 3. Columns (from left to right) show: (a) novel pose given by Phong's model [3]; (b) novel pose given by the proposed approach without specular reflectance [2]; (c) novel pose given by the proposed approach; (d) contours of (a)(red line), (b)(green line) and (c)(blue line), respectively; (e) and (f) are the magnified details of column (d).

Fig. 5 Comparison of robustness of illumination model to lighting. Columns (from left to right) show: (a) input images; (b) fitting results given by Phong's model [3]; (c) fitting results given by the proposed approach without specular reflectance [2]; (d) fitting results given by the proposed approach.

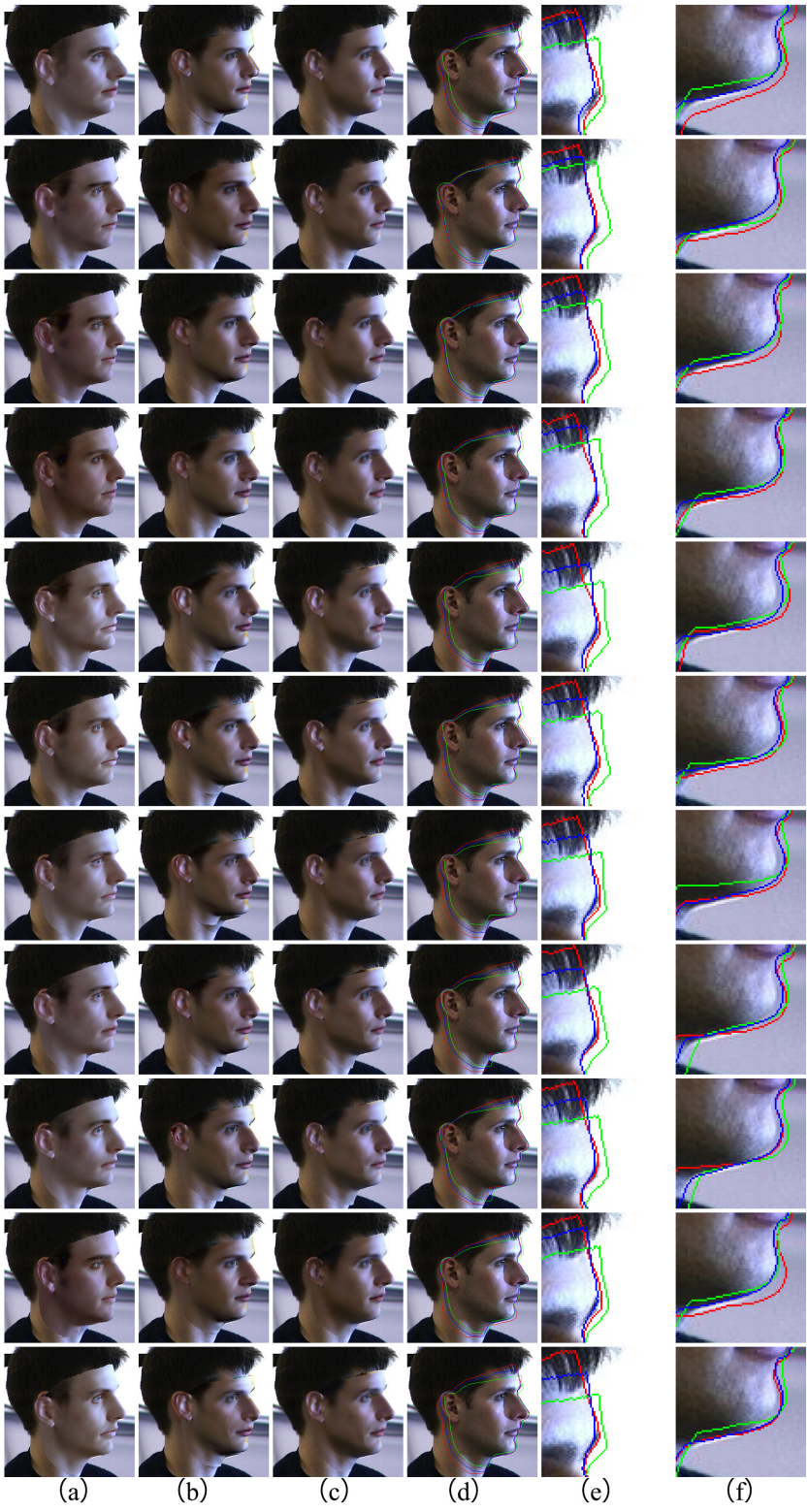

Fig. 6 Comparison of the accuracy of shapes recovered from the first 11 frontal pose inputs in Fig. 5. Columns (from left to right) show: (a) novel pose given by Phong's model [3]; (b) novel pose given by the proposed approach without specular reflectance [2]; (c) novel pose given by the proposed approach; (d) contours of (a)(red line), (b)(green line) and (c)(blue line), respectively; (e) and (f) are the magnified details of column (d).

4 Inferred Frontal View From Profile Image

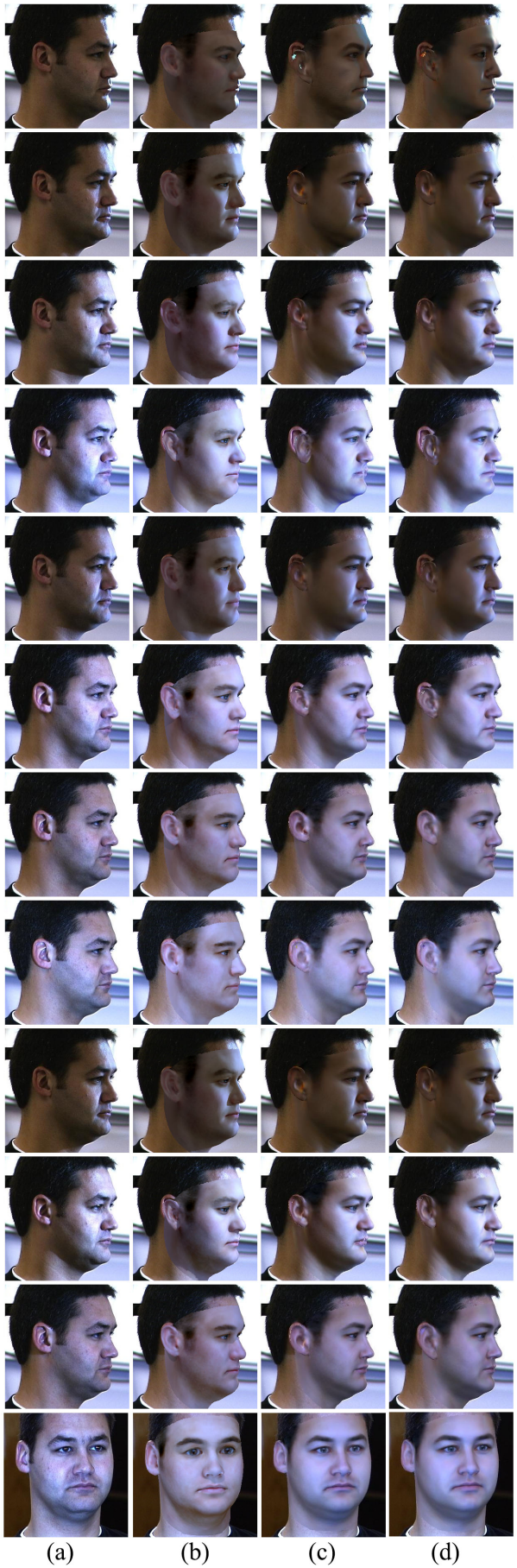

Fig. 7 Comparison of robustness of illumination model to lighting. Columns from left to right: (a)input images; (b)fitting results given by the Phong's model [3]; (c)fitting results given by the proposed approach without specular[2]; (d): fitting results given by the proposed approach;

Fig. 8 Comparison of inferred frontal view from the 11 profile pose images in Fig. 7. Columns (from left to right) show: (a) inferred frontal view given by Phong's model [3]; (b) inferred frontal view given by the proposed approach without specular reflectance[2]; (c) inferred frontal view given by the proposed approach.

Fig. 9 Comparison of robustness of illumination model to lighting. Columns from left to right: (a)input images; (b)fitting results given by the Phong's model [3]; (c)fitting results given by the proposed approach without specular[2]; (d): fitting results given by the proposed approach;

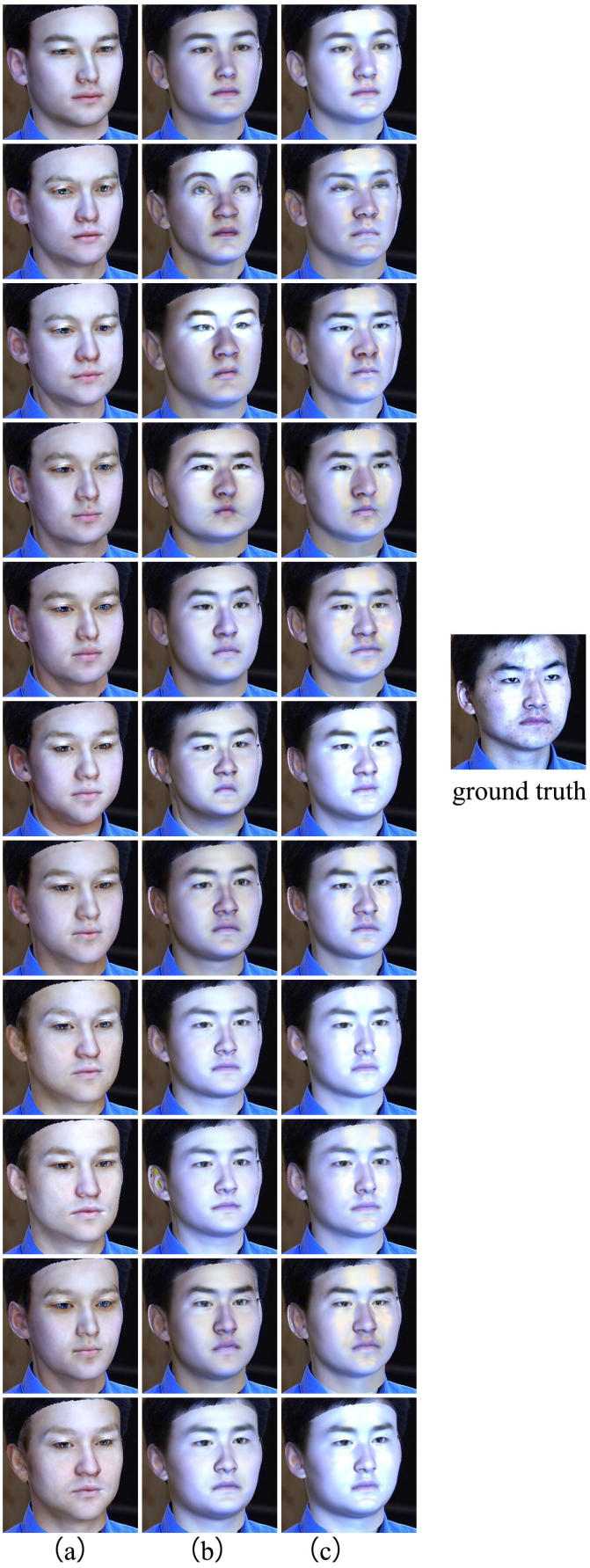

Fig. 10 Comparison of inferred frontal view from the 11 profile pose images in Fig. 9. Columns (from left to right) show: (a) inferred frontal view given by Phong's model [3]; (b) inferred frontal view given by the proposed approach without specular reflectance[2]; (c) inferred frontal view given by the proposed approach.

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