

Face Image Retrieval Based on Probe Sketch Using SIFT Feature Descriptors

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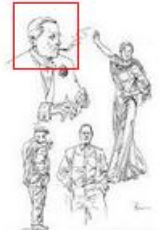
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sketch



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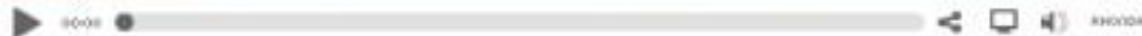


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white







Sketch Image



Mug-shot Photos

Goal of this work?

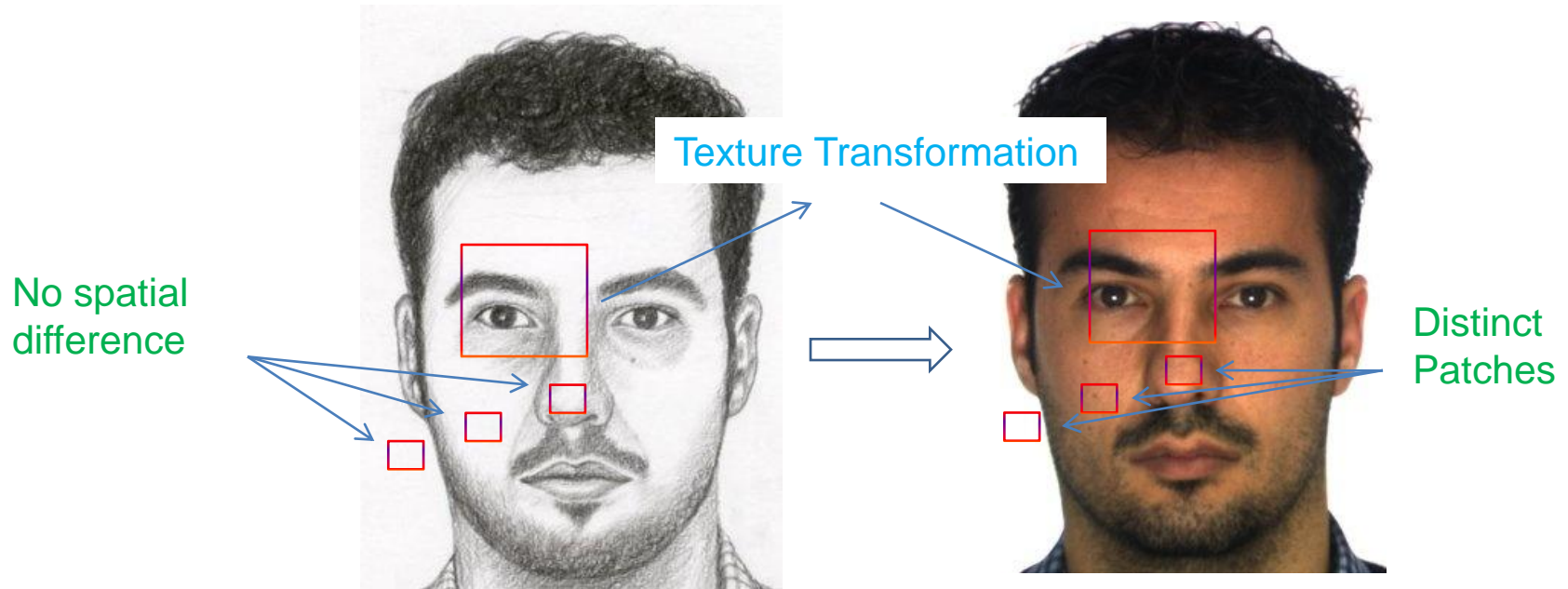


Figure : An Example of Sketch Photo Image Pairs (AR Database)

Photo Synthesis

- Sketch to Photo synthesis techniques
 - Using local texture analysis : Wang, Tang'09
- Photo to Sketch synthesis techniques
 - Using a global linear models : Wang '04 , '02
 - Eigen-face methods : Tang'03
 - Using local texture analysis : Liu & X. Tang 05

Global linear models :

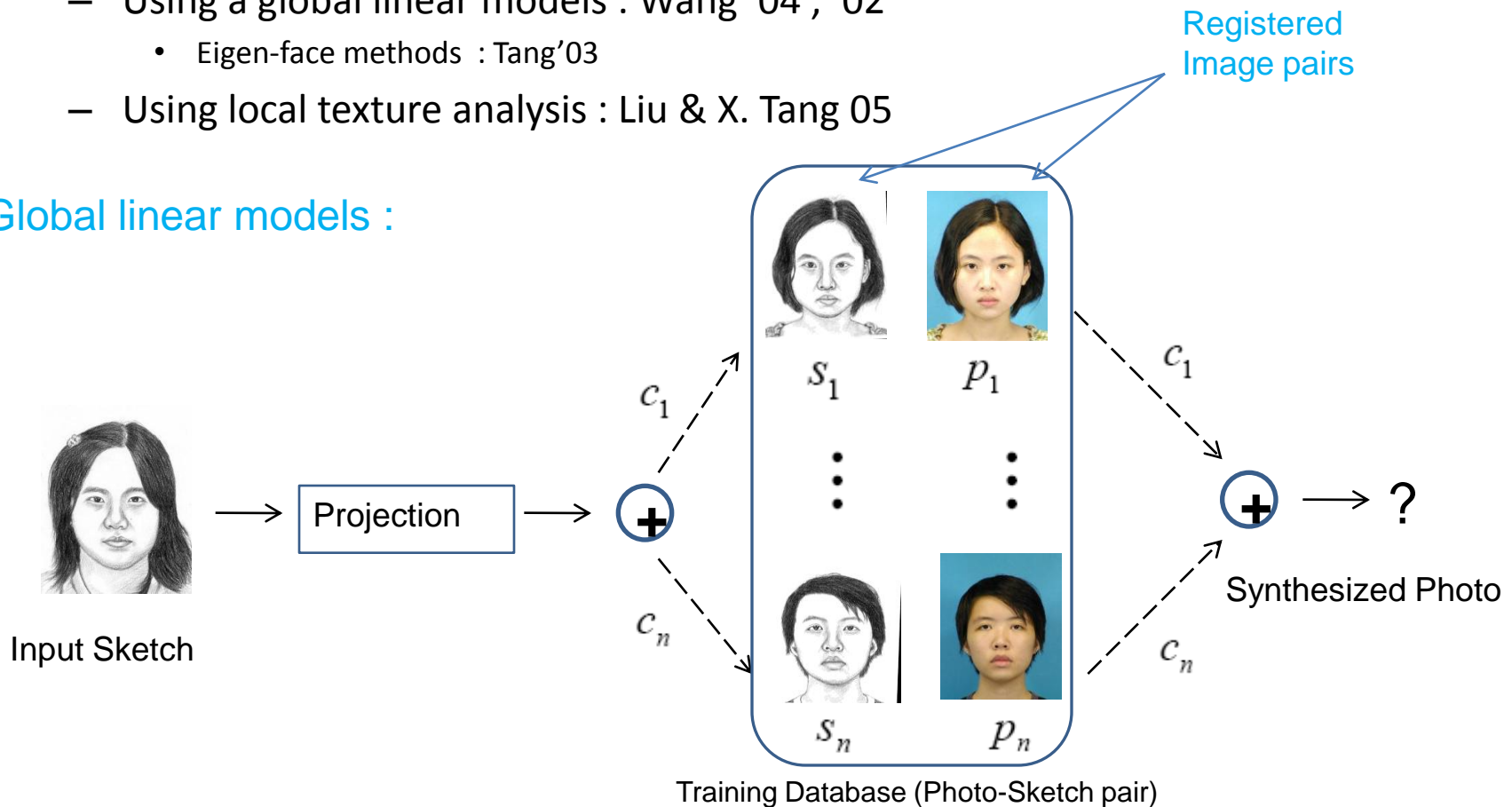
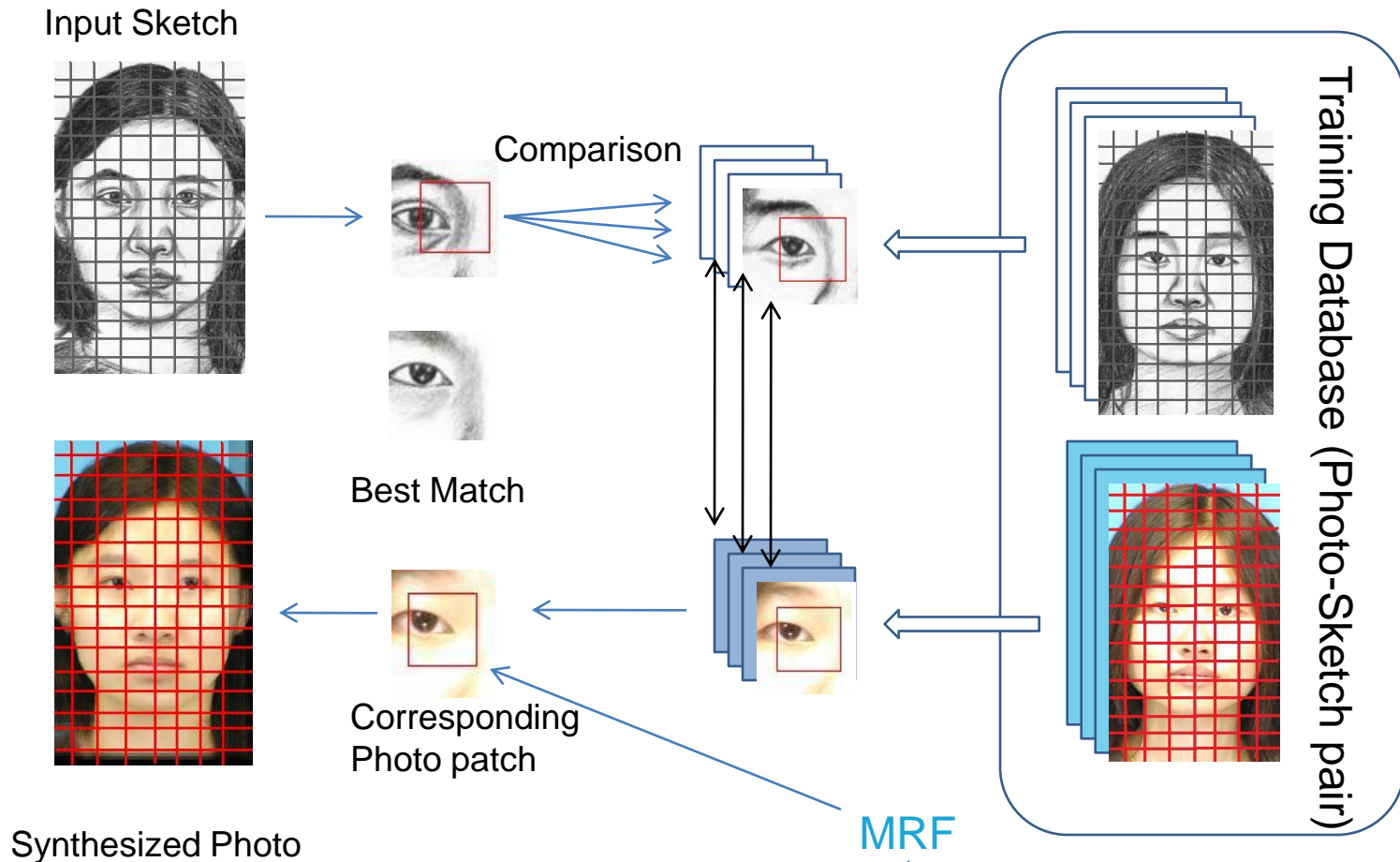
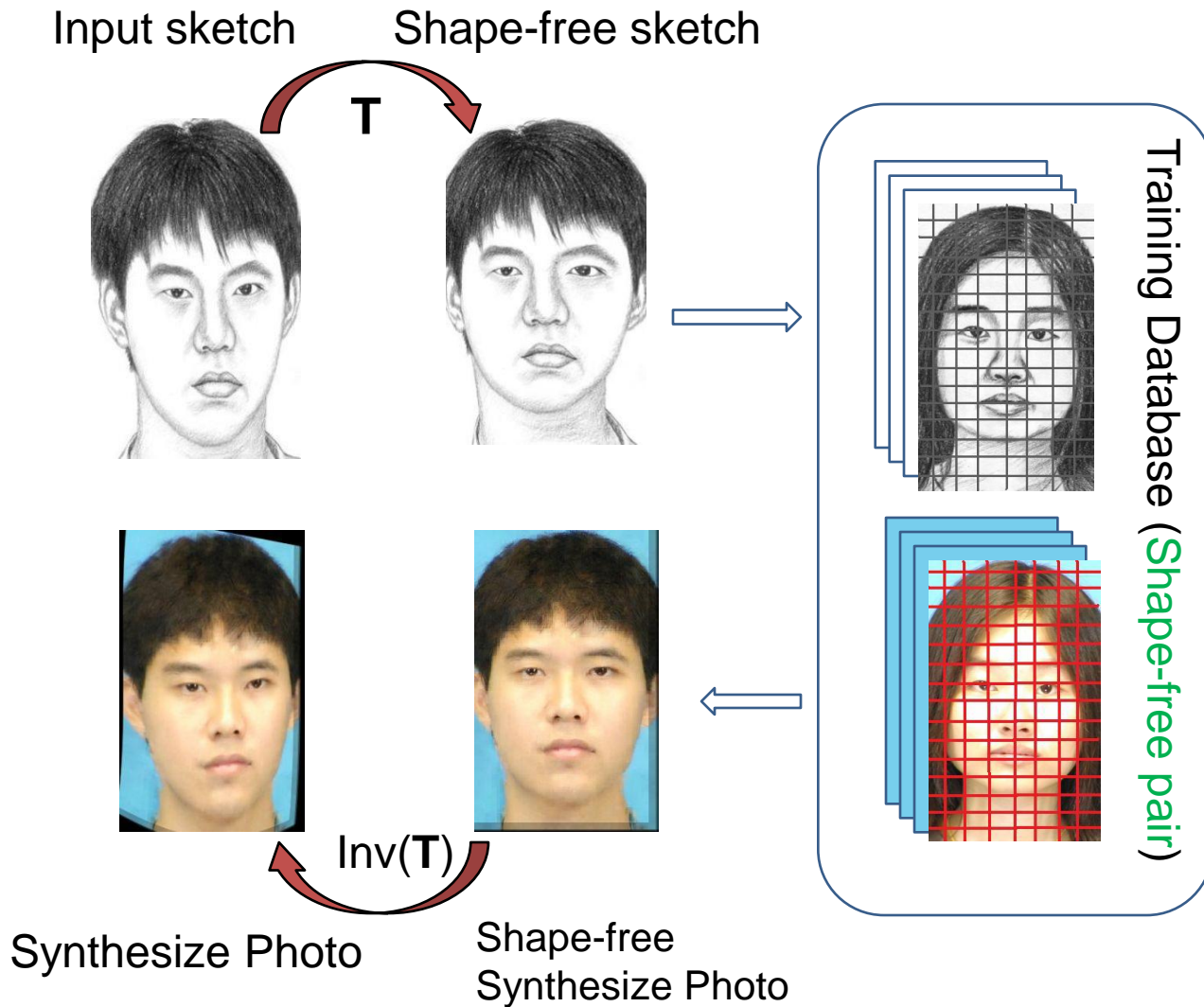


Photo Synthesis

Local Texture Analysis : Patch Matching Algorithm



Ref : Q. Liu & X. Tang '05, X. Wang & X. Tang '08 '09



2. Learn the shape-free images **locally** to get **shape-free** Synthesize photo

3. Then Transform back to it's **original Shape**

Transform images into a fixed shape (Image Warping)

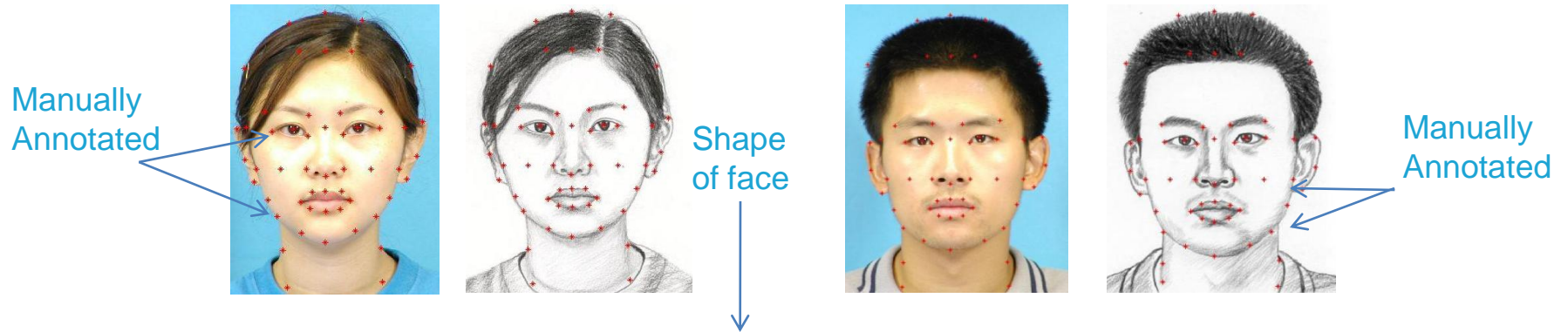
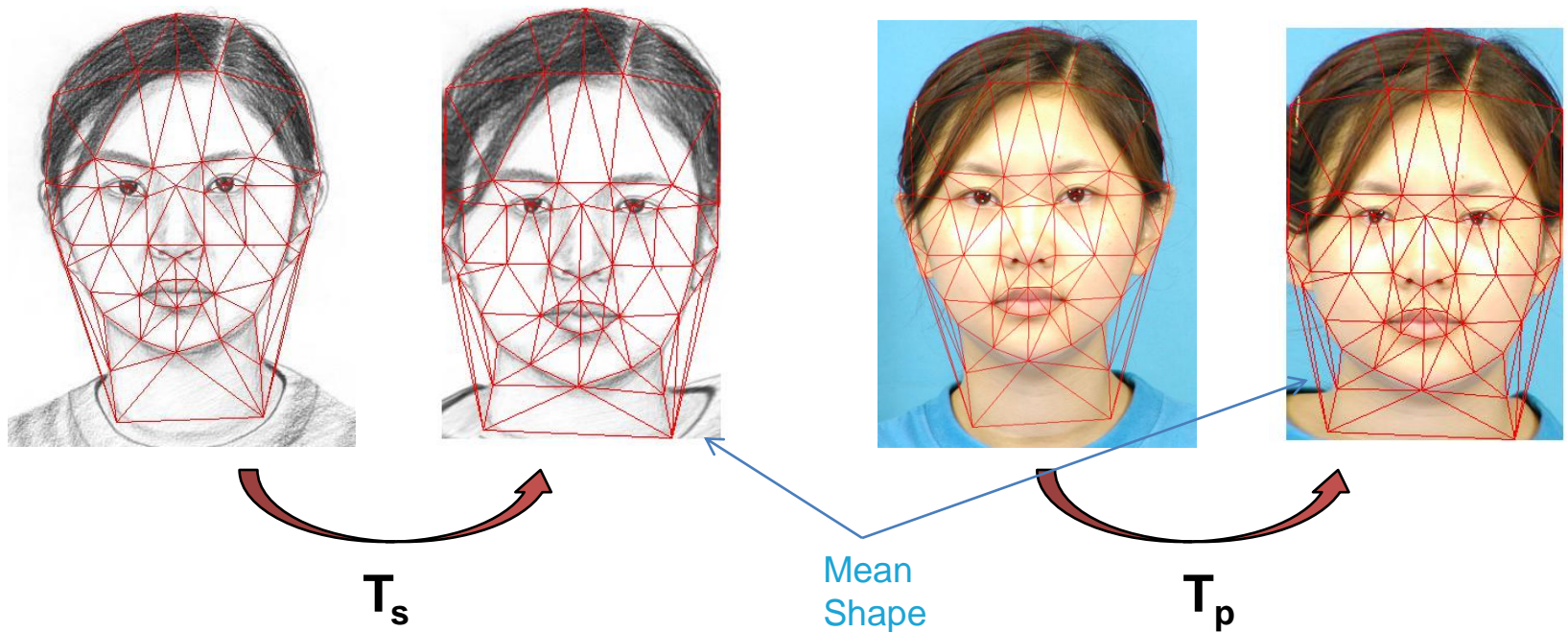


Figure : Annotation points(control points) plotted on photo sketch image pair



Conclusion

- System can synthesize photo correctly for large variation of shape of face.
- Totally automated system except initial translation of shape of test sketch for ASM.
- **Limitation** : Outside of shape may not be correctly reconstructed. Intra variation of sketch images for real sketches.
- **Extension of this work** : sketch face recognition.

Some Real Sketch Images



Some Real Sketch Images



Some Real Sketch Images





Thank You.

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