

# Pose-Robust Face Signature for Multi-View Face Recognition

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## Introduction

### Objective

- Match two facial images across different viewpoints



### Motivation

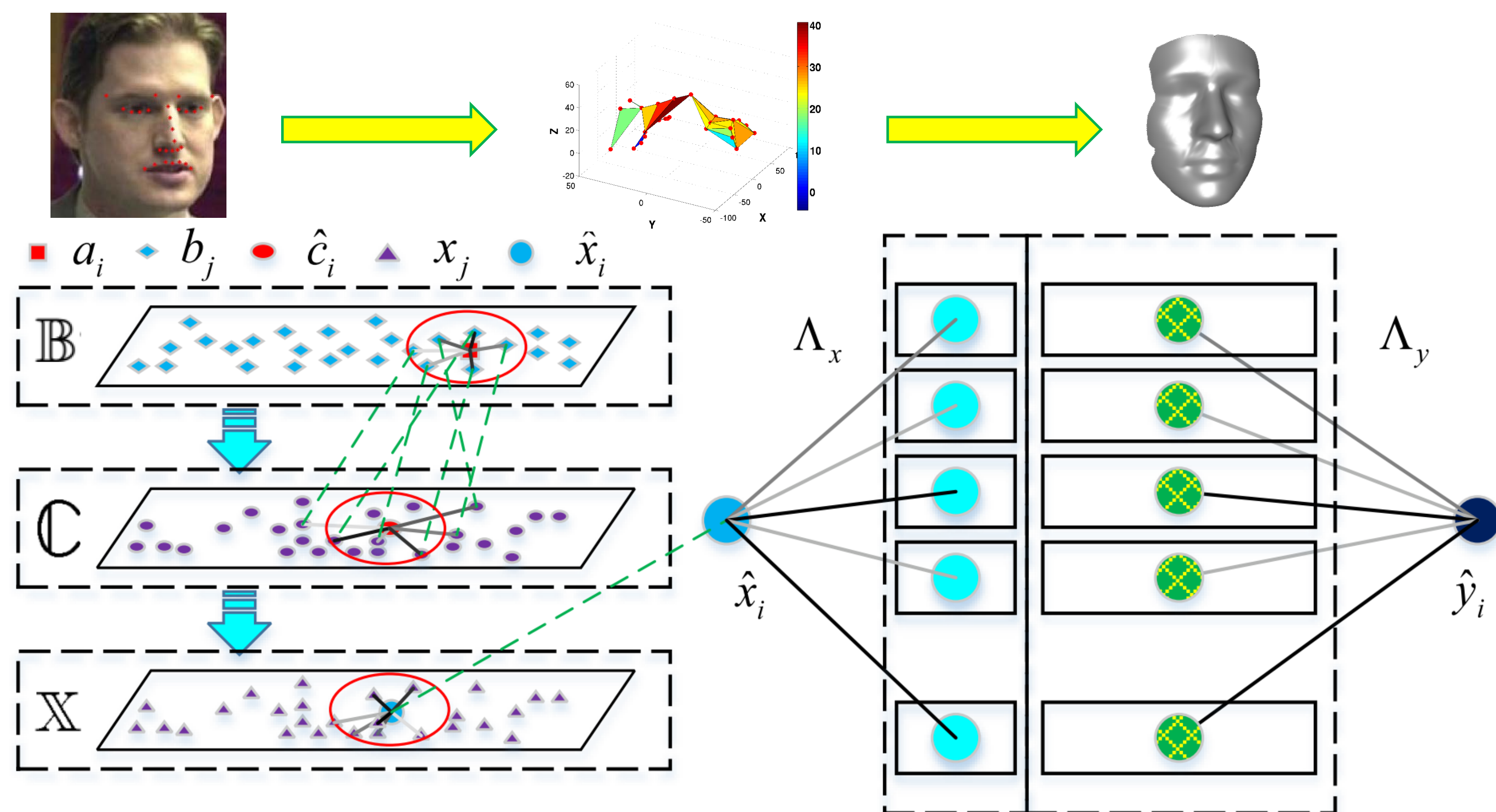
- Non-frontal facial images account for a substantial part of personal albums, social network photos, and surveillance recordings



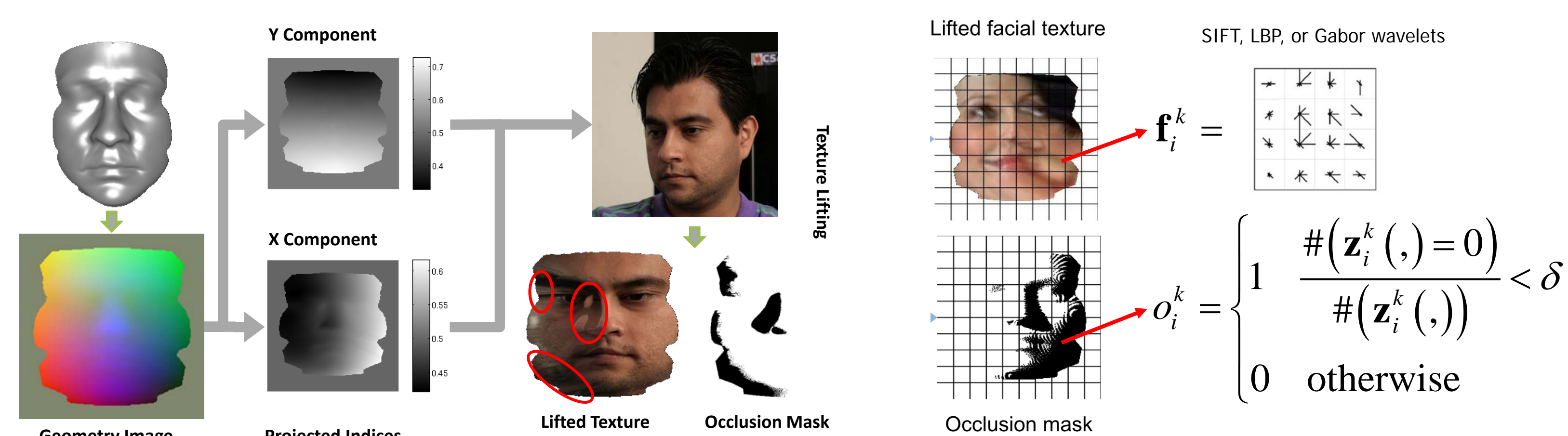
- Out-of-plane rotation of face causes self-occlusion and misalignment

## Method

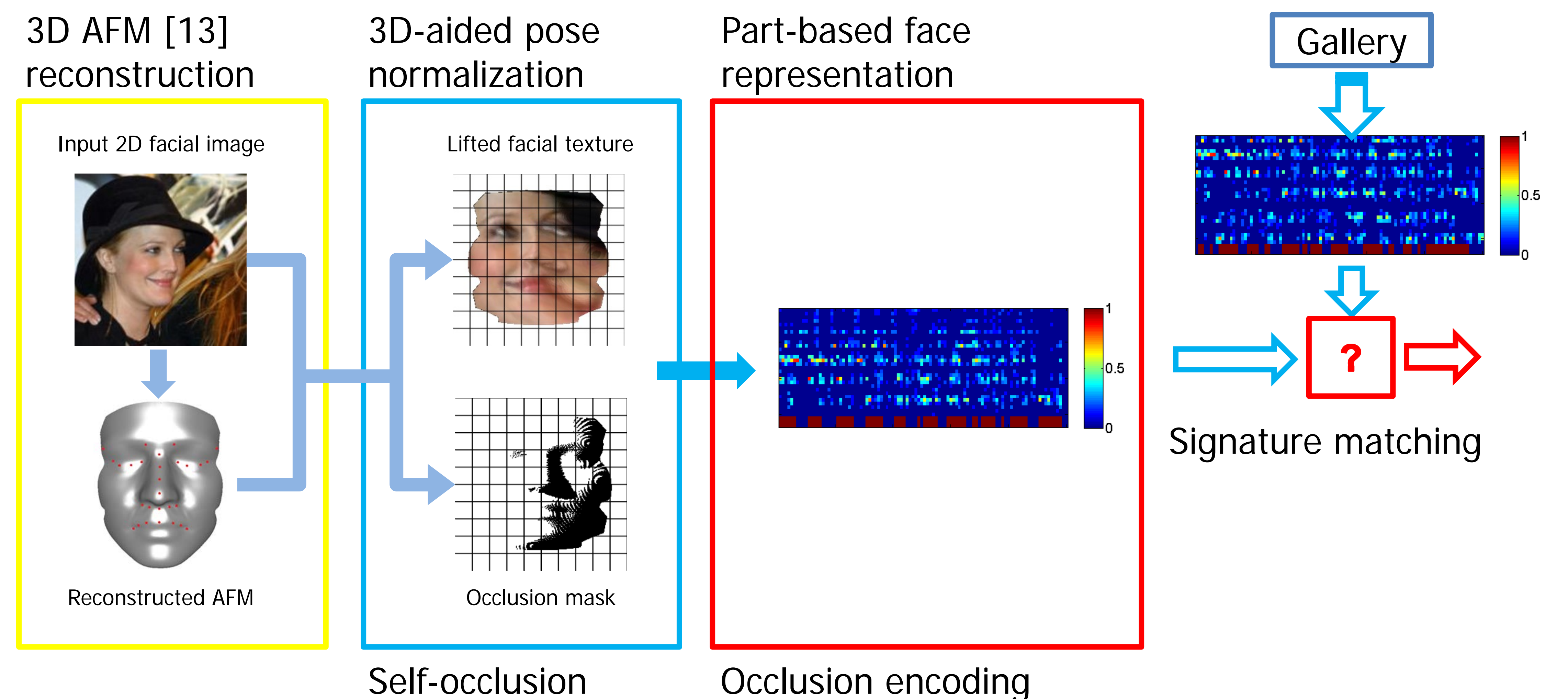
### 3D AFM Reconstruction



### Texture Lifting and Signature Extraction



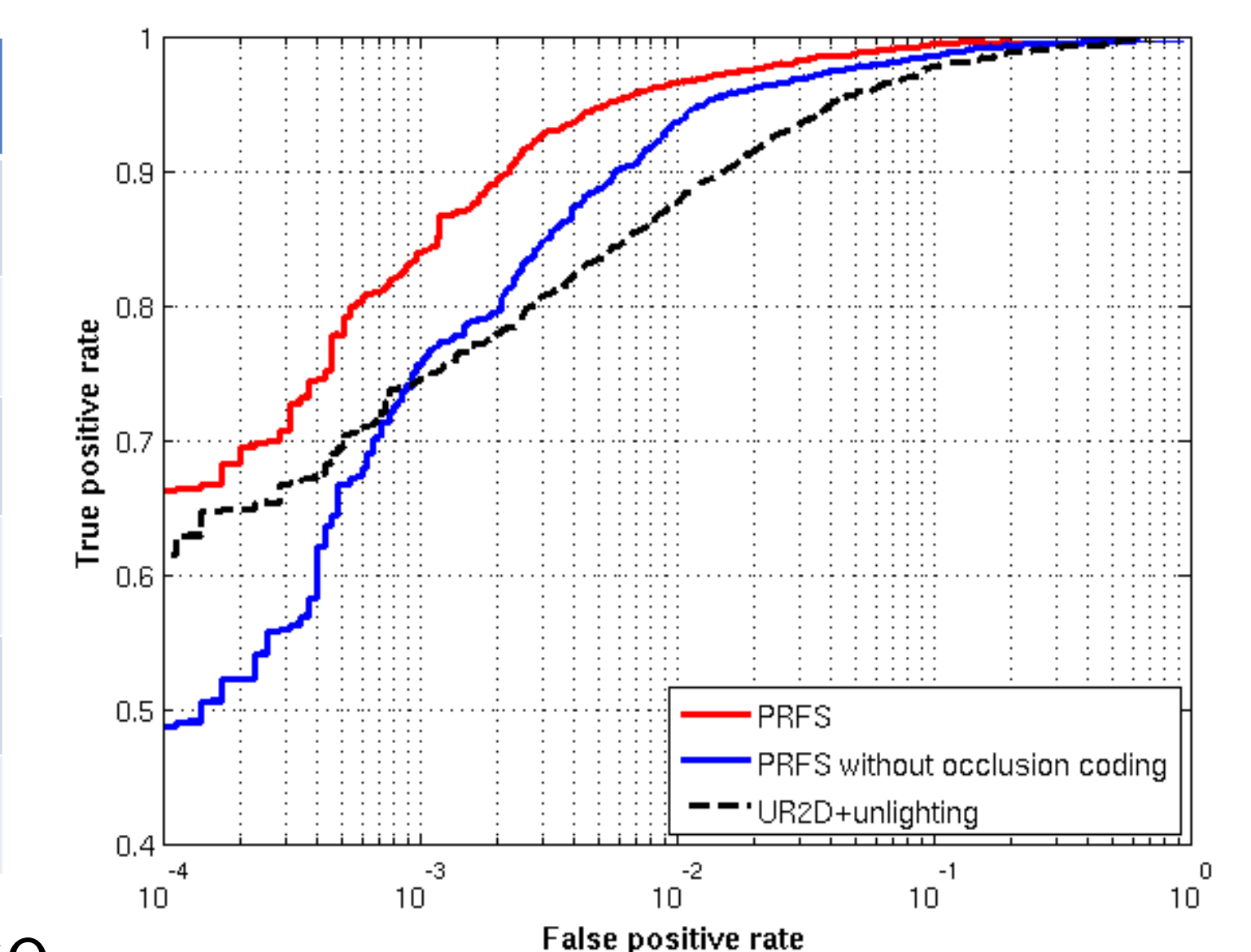
## Overview



## Results

### UHDB11 Rank-1 Accuracy (%) and ROC Curve

Method	Rank-1 Accuracy
LIRIS [34]	80.2
UR2D [34]	85.2
UR2D+unlighting [33]	86.7
Progressive Pose Estimation [31]	88.8
<b>PRFS</b>	<b>94.1</b>
PRFS without occlusion encoding	91.1



\*PRFS uses DFD feature trained on the FRGCv2 [21] database

### LFW Verification Rate (%)

Descriptor	Deep-Funneled [11]	LFW3D [10]	<b>PRFS</b>
LBP+WPCA	76.0±0.5	<b>80.9±0.4</b>	78.6±0.4
MSLBP+WPCA	77.0±0.4	-	<b>79.0±0.4</b>
Gabor+WPCA	72.7±0.6	-	<b>78.3±0.5</b>
TPLBP+WPCA	73.0±0.5	76.1±0.6	<b>76.5±0.8</b>
FPLBP+WPCA	73.4±0.4	<b>77.3±0.4</b>	76.7±0.6
Fusion	77.4±0.4	-	<b>80.6±0.4</b>

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