We introduce a Multi-Yaw Multi-Pitch High-Quality Dataset and Benchmark for Facial Pose Analysis

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Background:
Facial images in surveillance or mobile scenarios often have large view-point variations in terms of pitch and yaw angles. These jointly occurred angle variations make face recognition challenging. Current public face databases mainly consider the case of yaw variations.

Contributions:
• We introduce a Multi-yaw Multi-pitch high-quality database for Facial Pose Analysis (M2FPA). It contains 397,544 images of 229 subjects with yaw, pitch, attribute and illumination. [https://pp2li.github.io/M2FPA]
• We provide a comprehensive qualitative and quantitative benchmark of several state-of-the-art methods for pose frontalization and pose-invariant face recognition, including DR-GAN, TP-GAN, CAPG-GAN, and Ours.
• We propose a simple yet effective parsing guided discriminator to capture the local consistency during GAN optimization.

The M2FPA Database

The Statistics of M2FPA:
The main advantages of M2FPA:
• Large-scale
• Accurate and diverse poses
• High-resolution (1920 × 1080)
• Accessory (5 types of glasses)

The 512 × 512 frontalization results on M2FPA.

Face Frontalization on M2FPA:

Ablation Study:

Evaluation on Multi-PIE:

Table 1. Comparisons of existing facial pose analysis databases.

Table 2. The poses, attributes and illustrations in M2FPA.

Table 3. The Iamges and attributes in M2FPA.

Table 4. Rank-1 recognition rates (%) under Setting 2.

Table 5. Rank-1 recognition rates (%) at 15° pitch angle.

Table 6. Rank-1 recognition rates (%) at 30° pitch angle.

Table 7. Rank-1 recognition rates (%) on M2FPA.

Table 8. Rank-1 recognition rates (%) at 30° pitch angle.

Figure 1. An example of the yaw and pitch variation in our M2FPA database.

Figure 2. Data acquisition.

Figure 3. Examples of four attributes.

Figure 4. The overall framework of our method.

Figure 5. Comparisons with different methods.

Figure 6. The 512 × 512 frontalization results on M2FPA.

Figure 7. The 512 × 512 frontalization results on M2FPA.

Figure 8. Model comparisons on M2FPA.