

MTLFace

Previous approach to extract identity-related discriminative feature:

- Age-invariant face recognition(AIFR): Minimizing the correlation between identity- and age-related features.
- Face age synthesis(FAS): Removes age variation by transforming the faces of different age groups into the same age group.
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Problem for previous approach:

- The former lacks visual results for model interpretation while the latter suffers from artifacts compromising downstream recognition.

MTLFace's solution:

- proposes a unified, multi-task framework to jointly handle these two tasks, termed MTLFace, which can learn age-invariant identity-related representation while achieving pleasing face synthesis.
- we first decompose the mixed face features into two uncorrelated components---identity- and age-related features---through an attention mechanism, and then decorrelate these two components using multi-task training and continuous domain adaption.
- In contrast to the conventional one-hot encoding that achieves group-level FAS, we propose a novel identity conditional module to achieve identity-level FAS, with a weight-sharing strategy to improve the age smoothness of synthesized faces.



