\textbf{Datasets (middle-scale) :}

\href{http://www.cfpw.io/}{\textbf{CFPW}} \cite{cfpw}

have collected face images of celebrities in frontal and profile views.

It contains 7000 images of 500 celebrities and is a public dataset.

\href{https://wiki.cnbc.cmu.edu/Face\_Place}{\textbf{CNBC}} \cite{cnbc}

includes 399 images for 200 individuals of 6 different races with real emotions, disguises, consistent lighting, and multiple views.

\href{https://cswww.essex.ac.uk/mv/allfaces/faces94.html}{\textbf{Face-94}},

\href{https://cswww.essex.ac.uk/mv/allfaces/faces95.html}{\textbf{Face-95}},

\href{https://cswww.essex.ac.uk/mv/allfaces/faces96.html}{\textbf{Face-96}}, and

\href{https://cswww.essex.ac.uk/mv/allfaces/grimace.html}{\textbf{Grimace}}.

Different from Face-94 where the subjects sit at a fixed distance from the camera, the distance between the subjects and camera varied all the time in Face-95, introducing significant head (scale) variations between faces of the same individual. Compared to Face-94 and Face-95, the pictures in Face-96 and grimace introduce the variation of background and extreme variation of expressions, respectively.

\href{http://www.socsci.ru.nl:8180/RaFD2/RaFD?p=faq}{\textbf{RaFD:}} \cite{rafd}

In this dataset, models show 8 facial expressions based on prototypes from the FACS \cite{facs} with 3 different gaze directions, photographed from 5 different camera angles simultaneously.

\href{https://cs.nyu.edu/~roweis/data.html}{\textbf{Sheffield}}

formerly known as Umist contains 575 samples of 20 identities. In this dataset, the pictures are taken at various angles from the left profile to the right profile.

\href{https://www.kaggle.com/andrewmvd/japanese-female-facial-expression-dataset-jaffe}{\textbf{JAFFE}} \cite{jaffe} contains 213 images of 7 facial expressions posed by 10 Japanese female models.

\href{http://vis-www.cs.umass.edu/lfw/}{\textbf{LFW}} \cite{lfw}

is a public benchmark dataset aiming at the problem of unconstrained face recognition. these images were collected from the web where these faces were detected by the Viola-Jones face detector.

%More details about this dataset can be found in \cite{lfw}.

\href{http://www.whdeng.cn/CALFW/index.html?reload=true}{\textbf{CALFW}} \cite{calfw} and

\href{http://www.whdeng.cn/CPLFW/index.html?reload=true}{\textbf{CPLFW}} \cite{cplfw} are two variants of LFW aiming at cross-age and cross-pose face recognition, respectively.

In order to promote the research of individual facial expressions detection, cross-age face retrieval, age and gender recognition, and facial recognition system evaluation,

\href{http://www.jeffcohn.net/Resources/}{\textbf{CK+}} \cite{ck2},

\href{http://bcsiriuschen.github.io/CARC/}{\textbf{CACD}} \cite{cacd},

\href{https://talhassner.github.io/home/projects/Adience/Adience-data.html#agegender}{\textbf{Adience}} \cite{adience}, and

\href{https://www.nist.gov/itl/products-and-services/color-feret-database}{\textbf{FERET}} \cite{feret}

were constructed. These four datasets are all available from the internet.

\textbf{Dataset (large-scale):}

\href{https://drive.google.com/file/d/1Of\_EVz-yHV7QVWQGihYfvtny9Ne8qXVz/view}{\textbf{CASIA\\_WebFace}} \cite{casiawebface},

the second-largest public dataset available for face recognition and verification problems, includes 494414 face images for 10575 unique people in total.

\href{http://mmlab.ie.cuhk.edu.hk/projects/CelebA.html}{\textbf{CelebA}} \cite{celeba}

is a large-scale face attributes dataset. The images in this dataset are annotated with 40 attributes and cover large pose variations and background clutter.

\href{https://data.vision.ee.ethz.ch/cvl/rrothe/imdb-wiki/}{\textbf{IMDB}} \cite{imdb}

is a Large-scale face image dataset of celebrities containing 460,723 images of 20284 celebrities from IMDb. a version with the cropped faces is used in this paper.