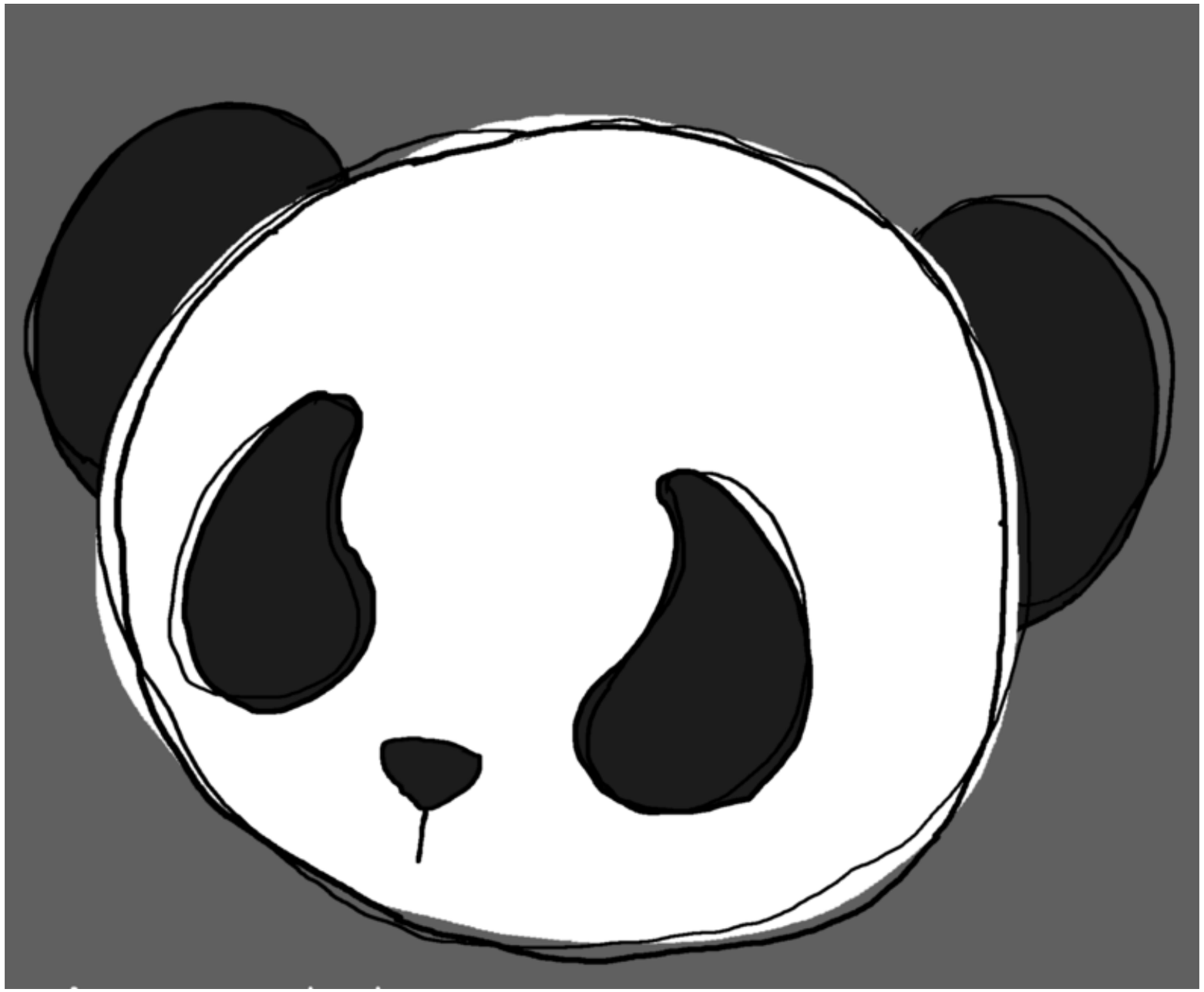


Panda

dark circles and eye bags analysis on social media selfies

Xuefeng Peng

Data Acquisition

Model Construction

Social Media Selfies Analysis

Social Media Faces Analysis

Training Data Collection

The Color FERET Database

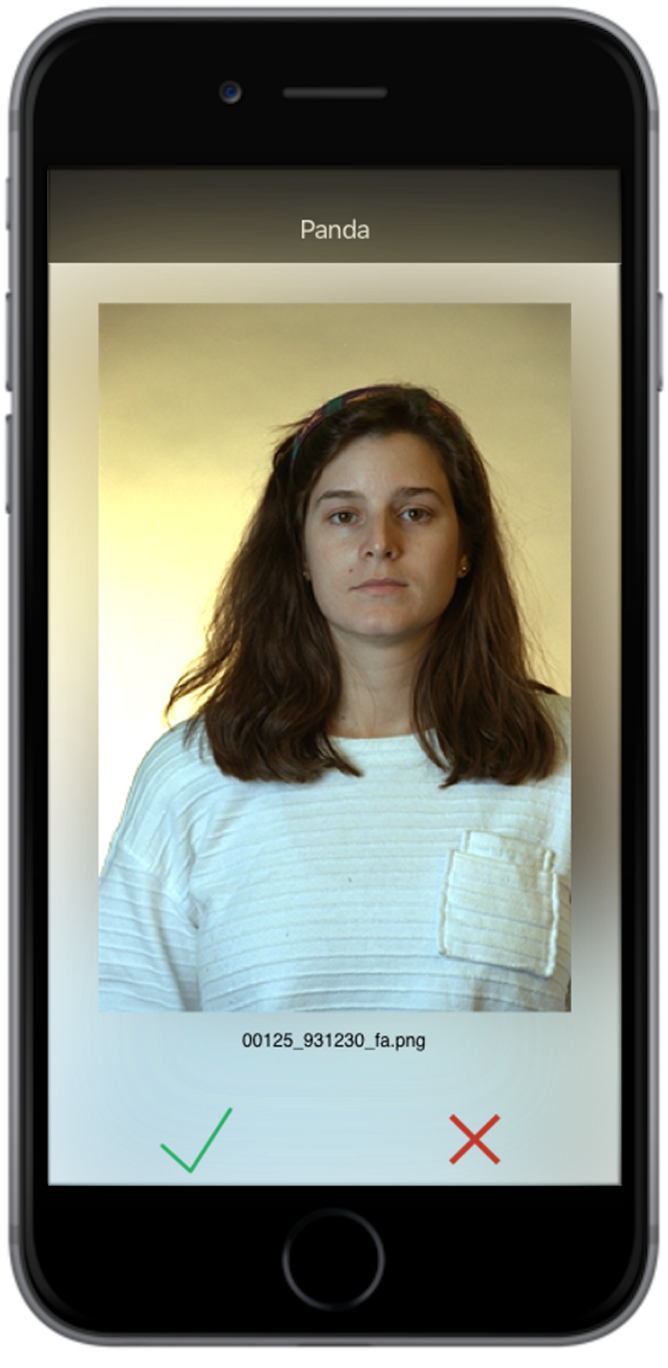
Thin. Light. Powerful

2347 training images

http://www.nist.gov/itl/iad/ig/colorferet.cfm

Training Data Labeling

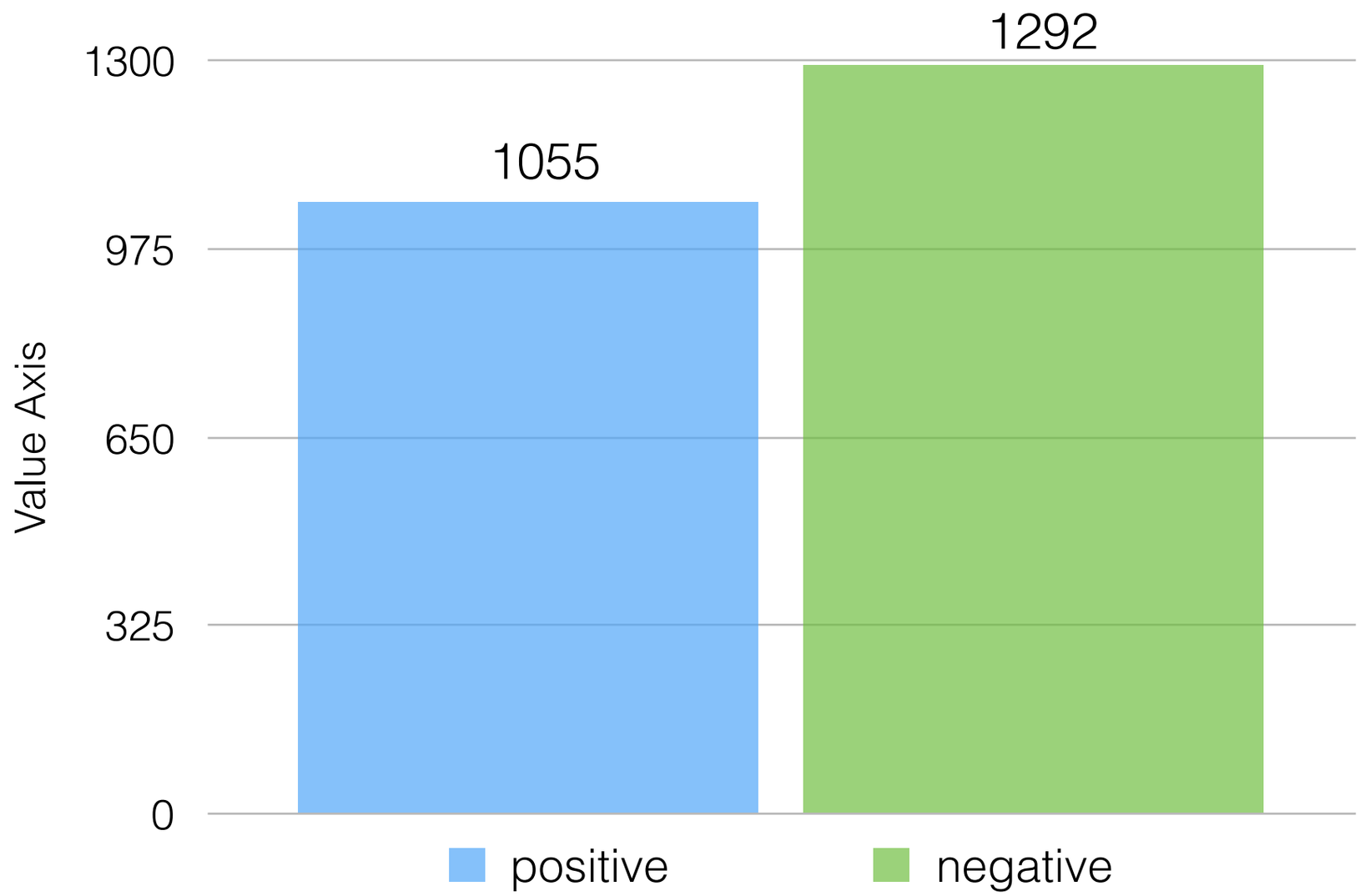
Easy. Objective. Precise



- Easy to use, designed for binary classification
- Multi-users labeling
- Cloud based label collection
- Available at GitHub soon

Training Data Labeling

Labeled by three participants



Training image feature collection

interest areas extract and Dense Sift

DSIFT

[....] [....] [....]

59914 features for each observation

Training image feature collection

Face landmarks, Age, Gender, Race, Glass

FACE++

RESPONSE JSON:


```
{
  "face": [
    {
      "attribute": {
        "age": {
          "range": 5,
          "value": 29
        },
        "gender": {
          "confidence": 99.9999,
          "value": "Male"
        },
        "glass": {
          "confidence": 96.1321,
          "value": "None"
        },
```


attributes

RESPONSE JSON:


```
{
  "result": [
    {
      "face_id": "69a863a8bd34477ff1270ebf70dcfab0",
      "landmark": {
        "contour_chin": {
          "x": 50.349609,
          "y": 75.277083
        },
        "contour_left1": {
          "x": 23.694531,
          "y": 41.373438
        },
        "contour_left2": {
          "x": 23.367305,
          "y": 46.151823
        },
        "contour_left3": {
          "x": 23.000039,
          "y": 50.963281
```


landmarks

Training Model

SVM. Traditional. yet Powerful

SVM

kernel: radial basis function

box constrain: 10

class: positive, negative

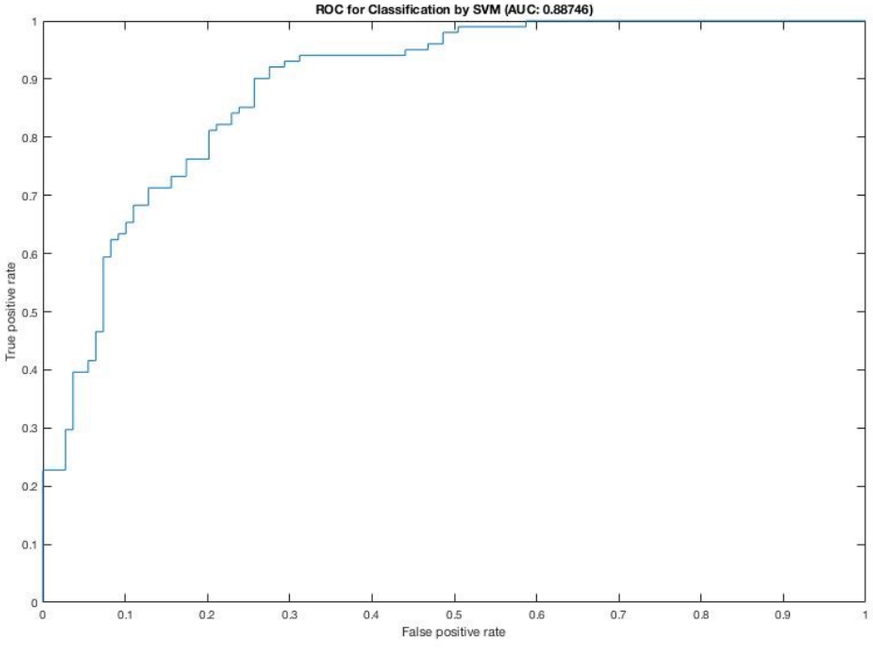
observations: 2347

Training Model

SVM. Traditional. yet Powerful

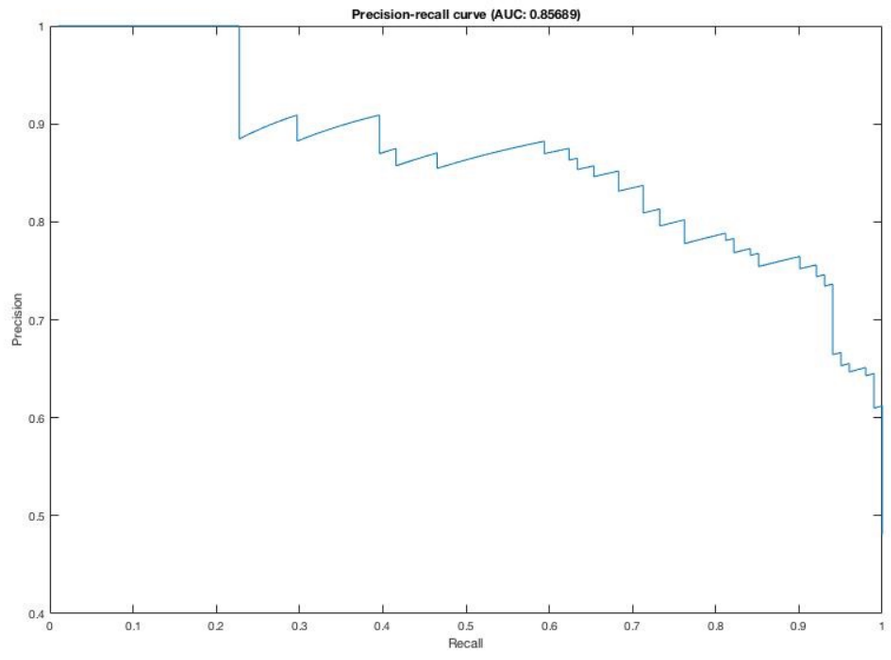
SVM Performance

on **2137** training samples, and **210** testing samples



0.88746

accuracy



0.85689

precision

SVM. Traditional. yet Powerful

SVM Performance

0.1803

10-fold cross validation error

#Selfie post on Social Media

Twitter and Tumblr

83607

70658

#Selfie post on Social Media

Twitter and Tumblr

How many faces are on those selfies in total?

Which selfie has most # of face?

What is the gender distribution?

What is the age distribution?

What is the race distribution?

#Selfie post on Social Media

39156 (46.8%)
#selfies have faces

47923
faces are detected

12356(25.7%)
male faces

35567(74.3%)
female faces

32615 (46.2%)
#selfies have faces

51134
faces are detected

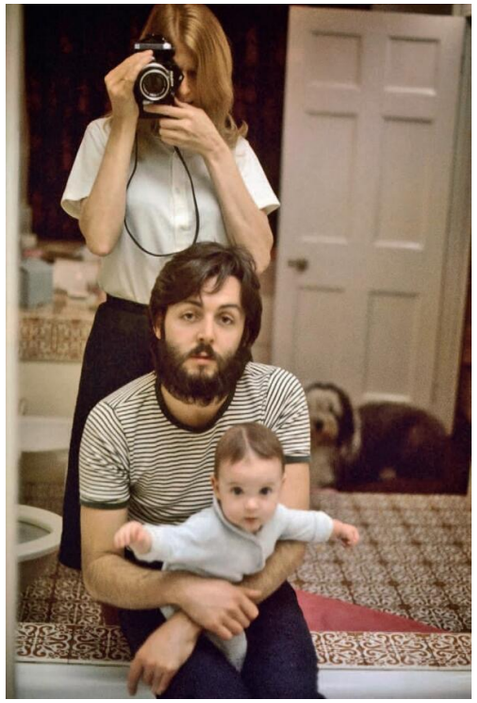
17525(34.3%)
male faces

33609(65.7%)
female faces

Most on #Selfies

42

most # of faces



0

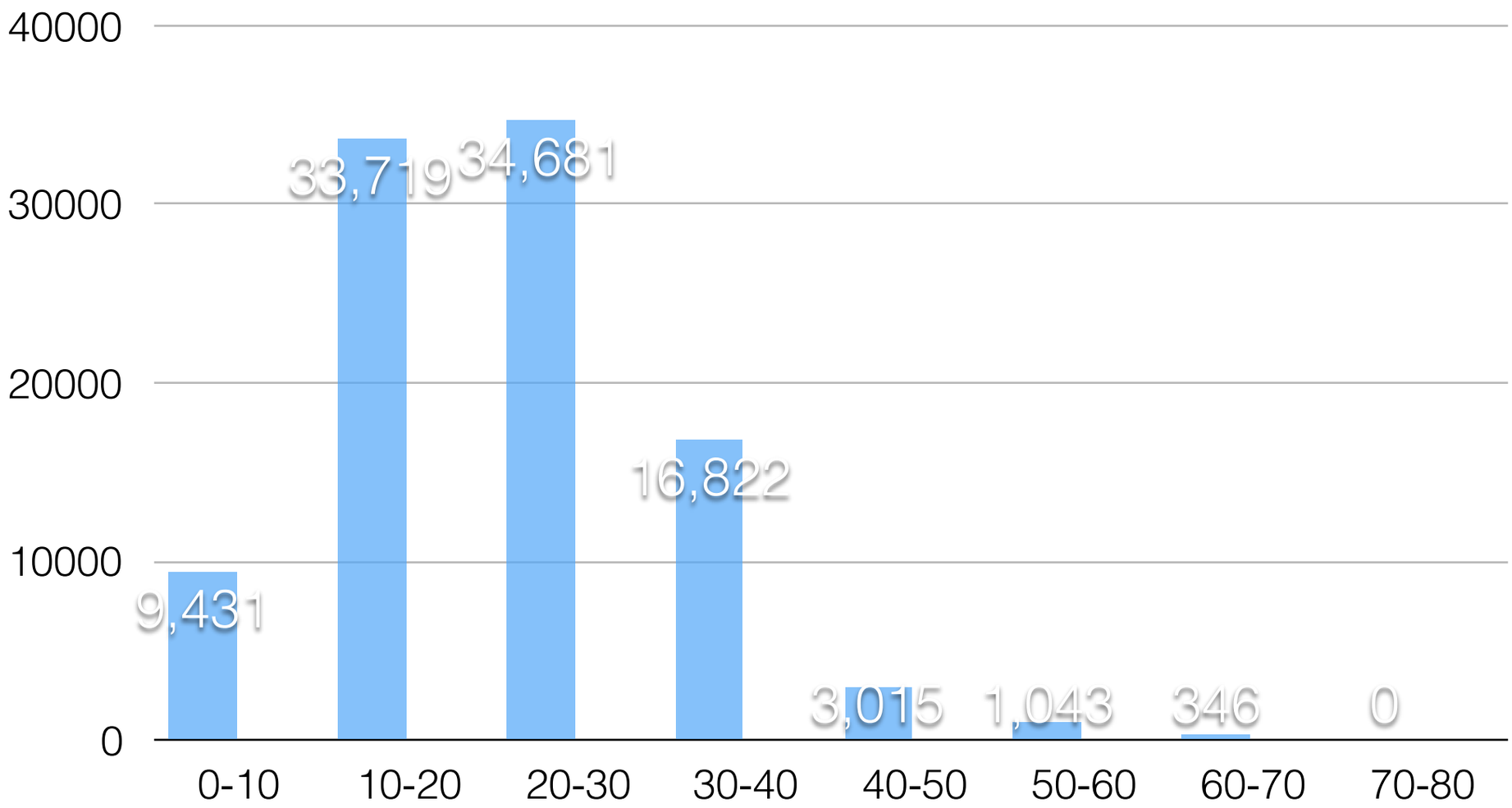
youngest

66

oldest

Faces on Social Media

Age distribution

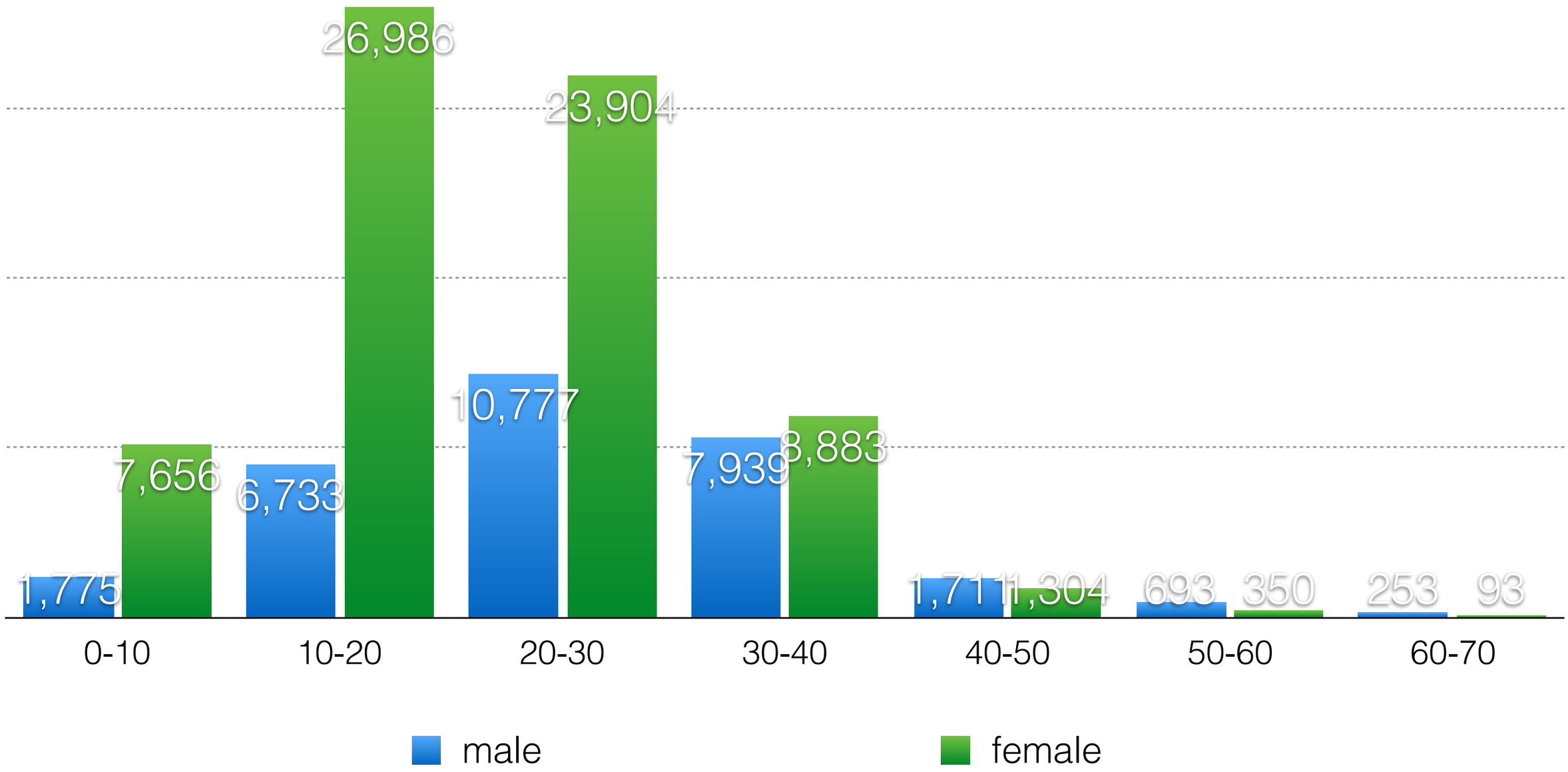


34.04%
10-20

35.01%
20-30

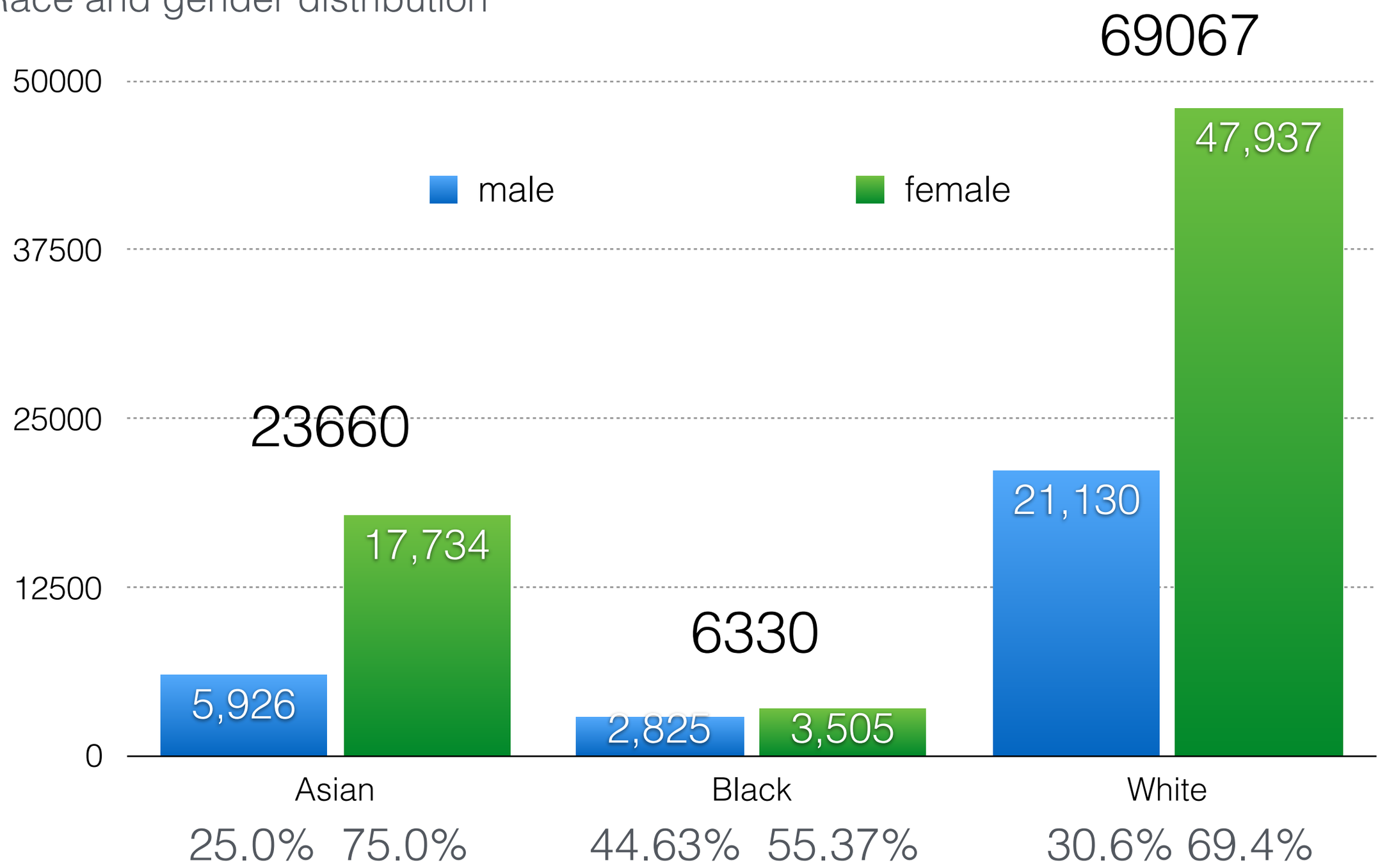
Faces on Social Media

Age and gender distribution



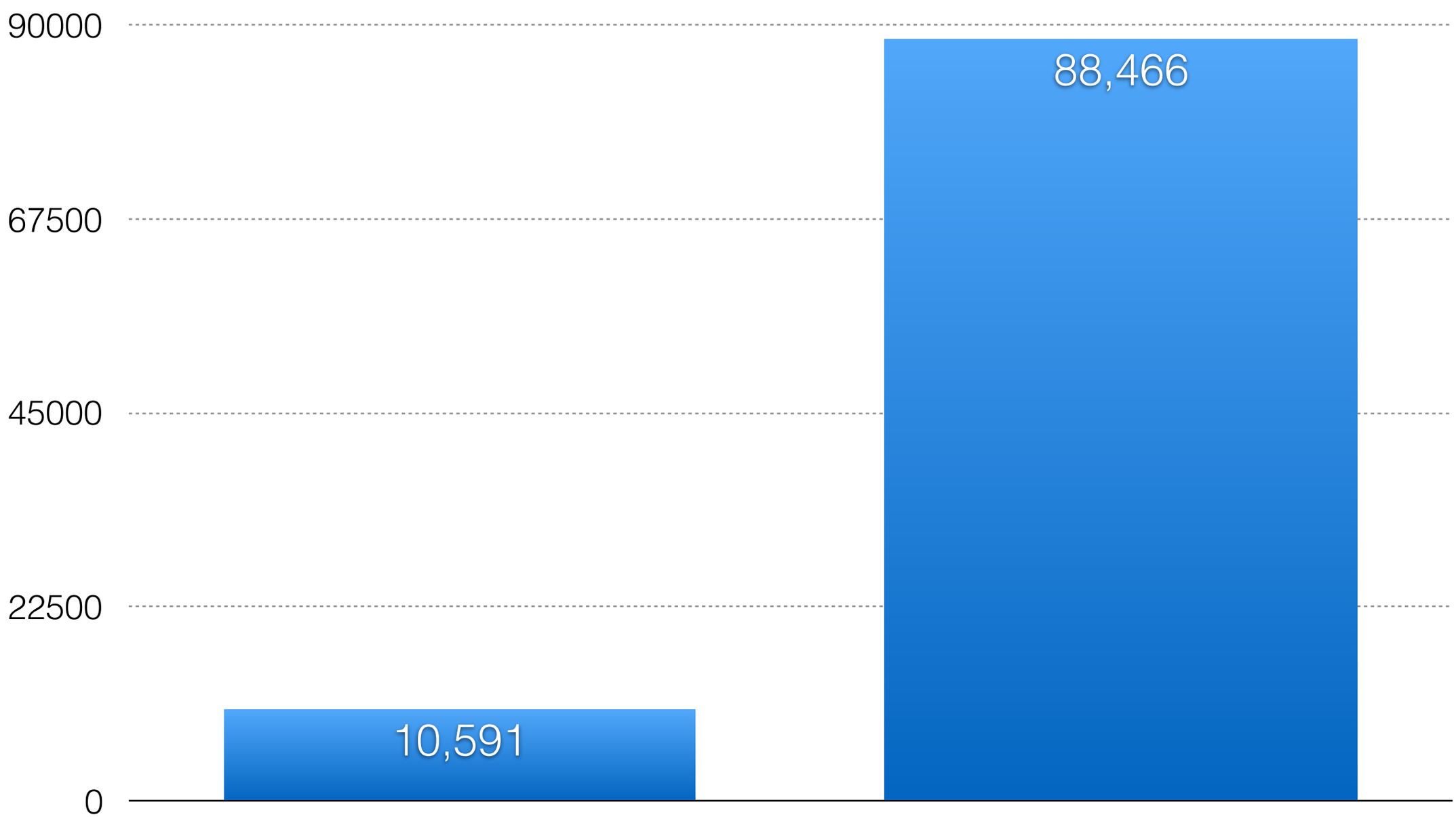
Faces on Social Media

Race and gender distribution



Faces on Twitter

Glass distribution



10.7%

89.3%

Dark circles or Eye bags on #Selfies 🐼

Twitter and Tumblr

How many faces have dark circle or eye bag?

What is the dc/eb distribution on age?

What is the dc/eb distribution on gender?

What is dc/eb distribution on race?

What is dc/eb distribution on wearing glass?

Dark circles or Eye bags on #Selfies 🐼

Twitter and Tumblr


```
{
        “attribute”: {
                "age”: {
                   "value":21,
                    "range": 5
                },
                “gender”: {
                        "value”: "Female",
                        “confidence": 99.9997
                },
                “race”: {
                        "value":"Asian",
                         “confidence": 99.1611
                },
                “dark_cirlce_eyebag”: {
                        "value":"positive ",
                         “confidence": 95.9421
                },
                “glass”: {
                        "value": "None",
                        “confidence”: 99.8812
                }
        }
}
```

Dark circles or Eye bags on #Selfies 🐼

Twitter and Tumblr


```
{
        "attribute" => {
                "age" => {
                        "value" => 27,
                        "range" => 5
                },
                "gender" => {
                        "value" => "Male",
                        "confidence" => 96.6372
                },
                "race" => {
                   "value" => "White",
                   "confidence" => 99.9946
                },
                "dark_cirlce_eyebag" => {
                   "value" => "positive",
                   "confidence" => 95.6342
                },
                "glass" => {
                   "value" => "None",
                   "confidence" => 99.2038
                }
        }
}
```

Dark circles or Eye bags on #Selfies 🐼

Twitter and Tumblr

1331 >95%

positive

99.8878%

4232 >95%

negative

99.9232%

Dark circles or Eye bags on #Selfies 🐼

Twitter and Tumblr

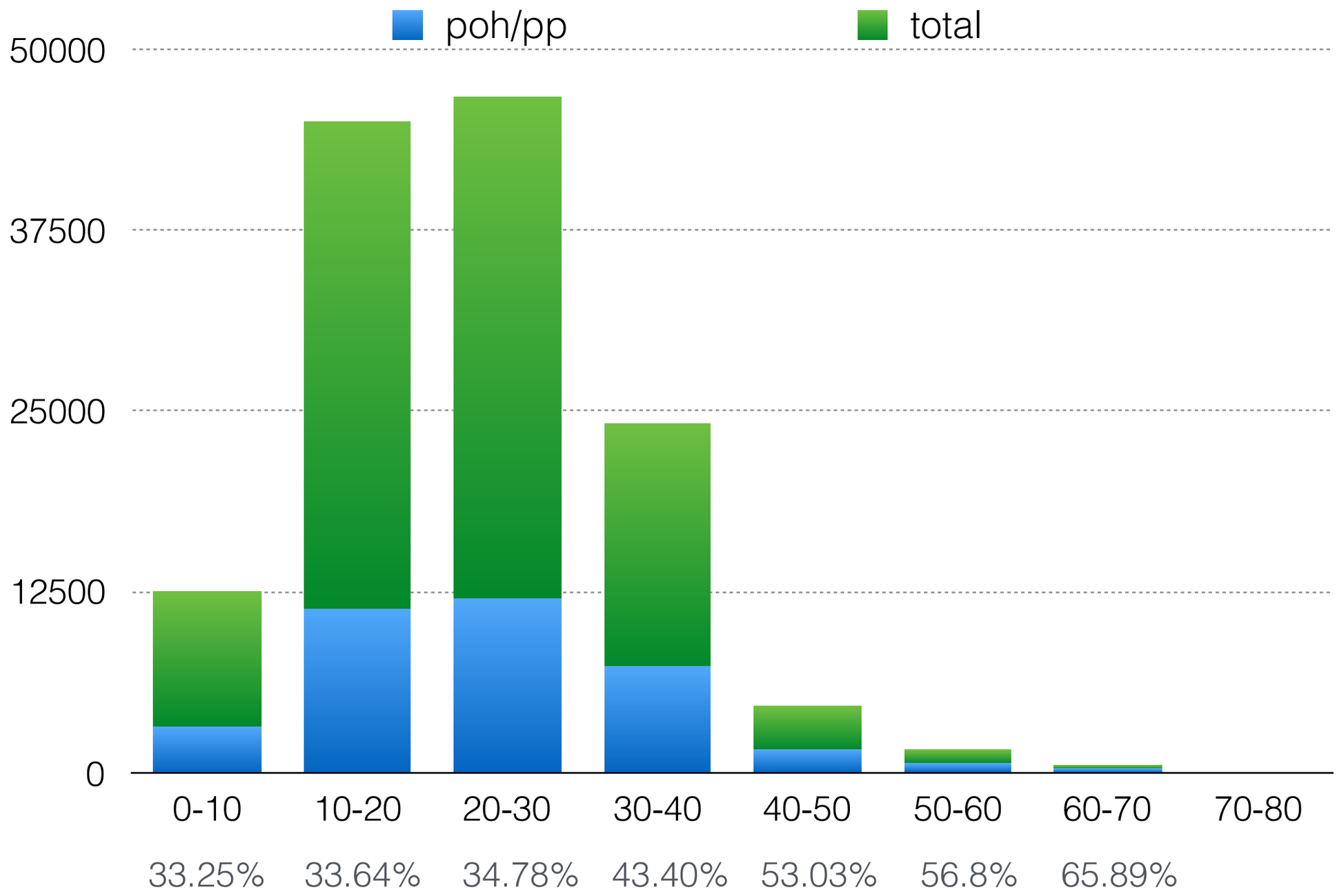
36262 (36.6%)
faces have dc/eb

13358 (44.7%)
male faces have dc/eb

22904 (33.11%)
female faces have dc/eb

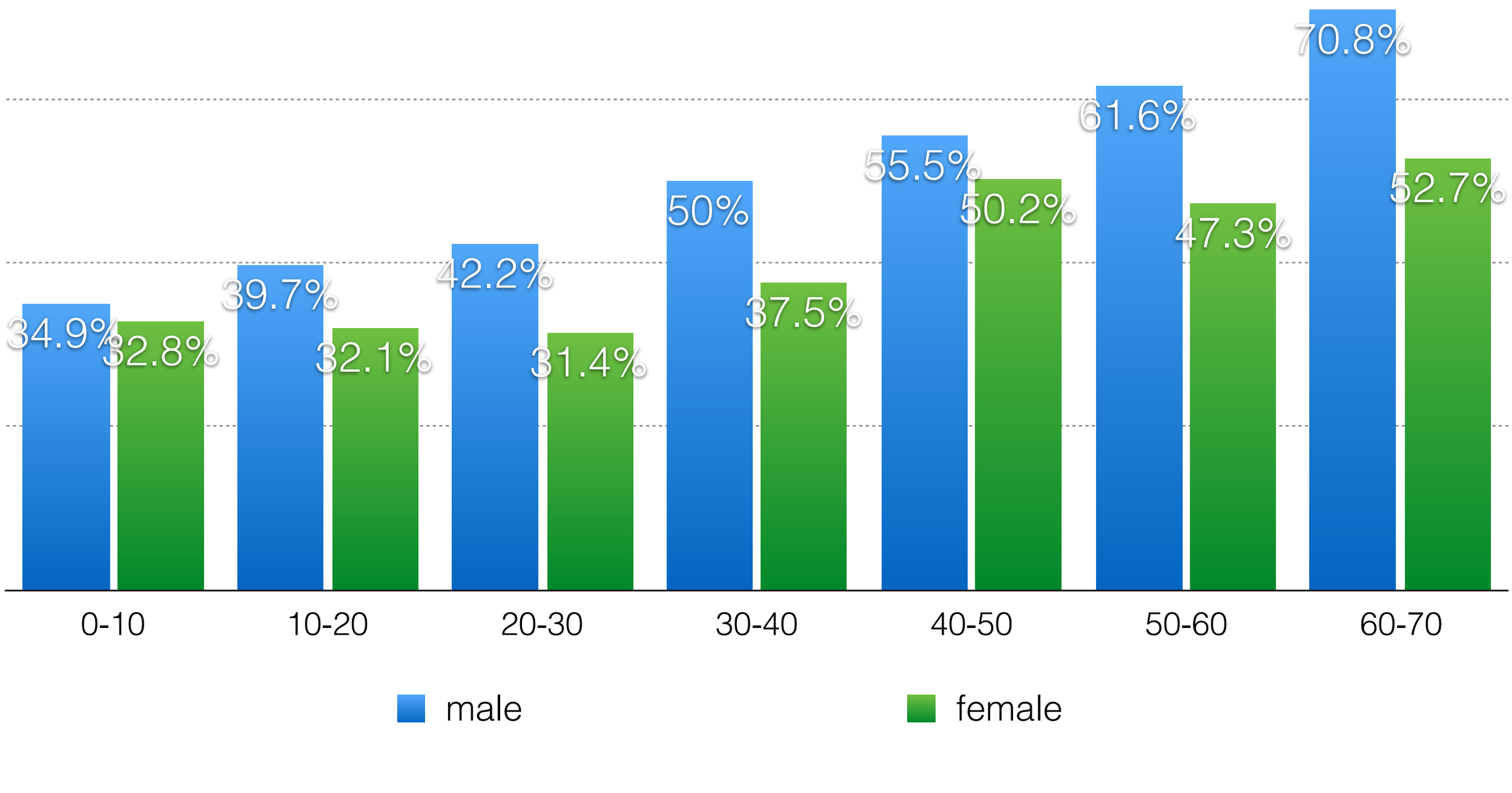
Dark circles or Eye bags on Social Media

Age distribution



Dark circles or Eye bags on Social Media

Age and gender distribution



Dark circles or Eye bags on Social Media

Race distribution

7463 (31.54%)

Asian

3296 (51.65%)

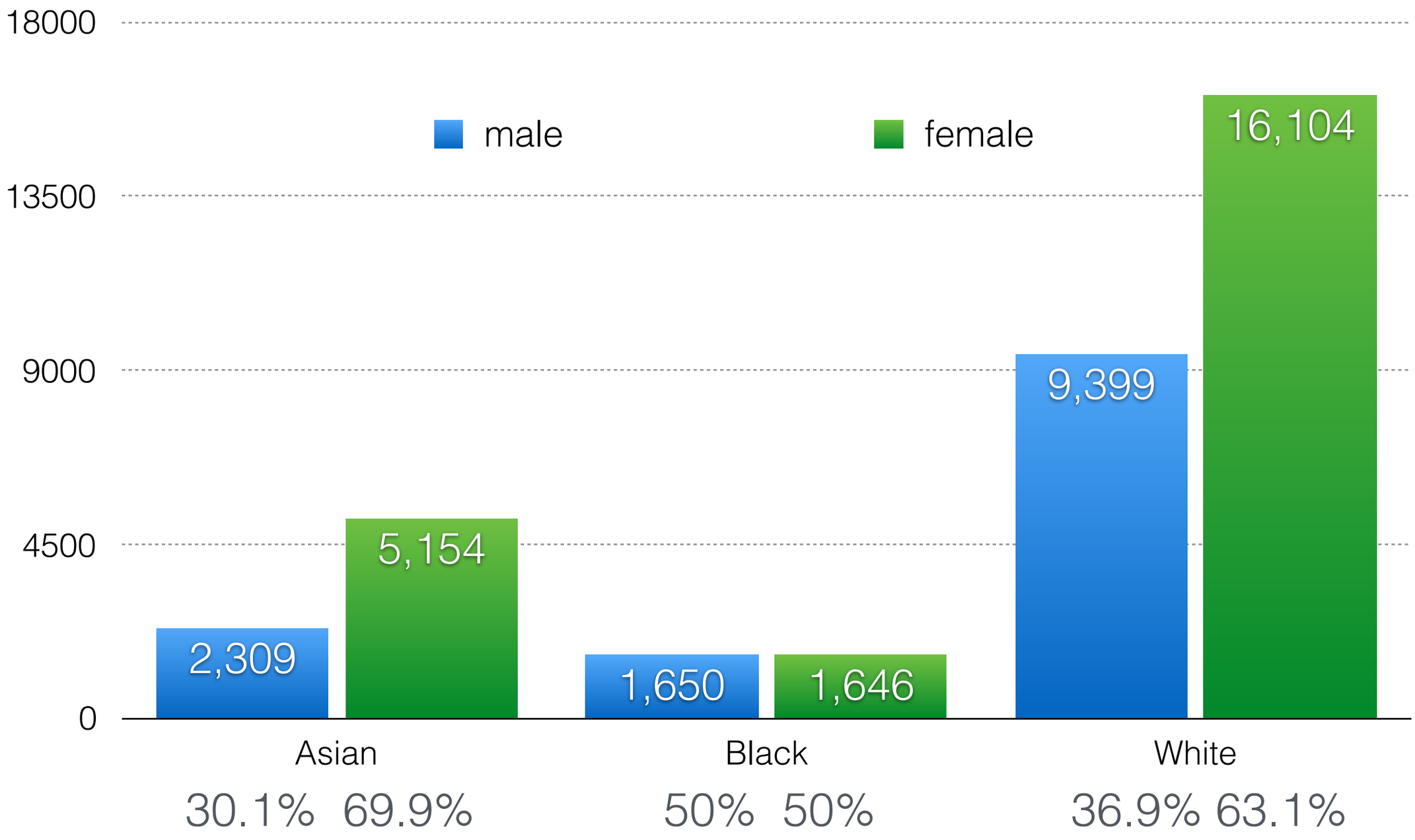
Black

25503 (36.93%)

White

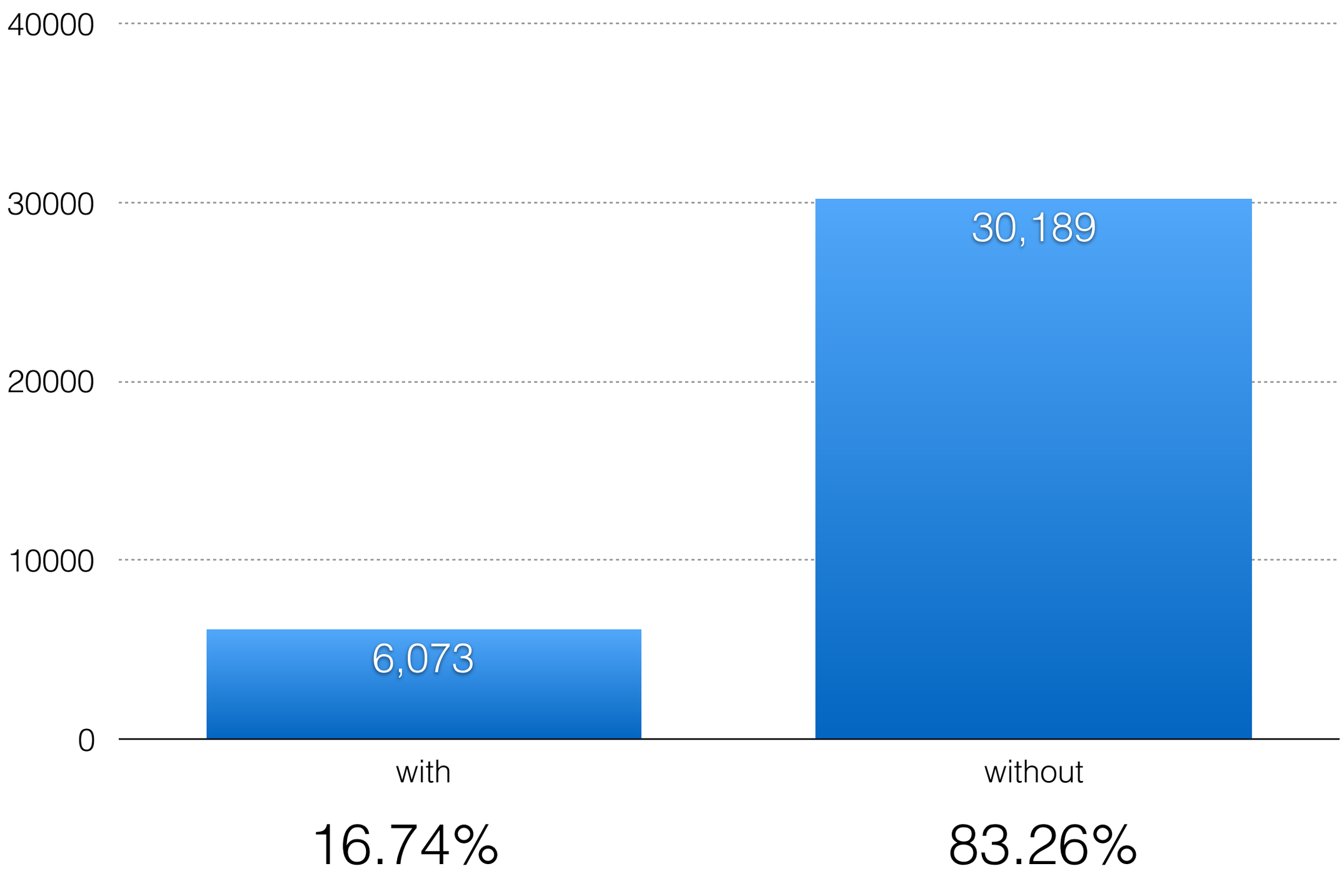
Dark circles or Eye bags on Social Media

Race and gender distribution



Dark circles or Eye bags on Social Media

Glass distribution



16.74%

83.26%

We love open source

Github

Search API: method #tag on Twitter
Search API: method #tag on Tumblr
Search API: method #tag on Flickr

iOS binary classification App

156,665 urls tagged by selfie
71,771 #selfies with faces
99,057 predicted face JSON strings with source image urls

ScoreSVMModel (fitPosterior)
Url processing
Face pre-processing
Face++ query api
Prediction

will be available at https://github.com/xuefeng7 soon