Let's add the libraries where they are really needed, not all of them at the first line

In [1]:
```
address = '../input/face-detection-in-images/face_detection.json'
```

In [2]:
```
import json
import codecs
```

In [3]:
```
# get links and stuff from json

jsonData = []

with codecs.open(address, 'rU', 'utf-8') as js:
    for line in js:
        jsonData.append(json.loads(line))

print(f"{len(jsonData)} image found!")

print("Sample row:")

jsonData[0]
```

```
409 image found!
Sample row:
```

Out[3]:
```
{'content': 'http://com.dataturks.a96-i23.open.s3.amazonaws.com/2c9fafb064277d8
6016431e33e4e003d/8186c3d1-e9d4-4550-8ec1-a062a7628787___0-26.jpg.jpeg',
 'annotation': [{'label': ['Face'],
   'notes': '',
   'points': [{'x': 0.08615384615384615, 'y': 0.3063063063063063},
    {'x': 0.1723076923076923, 'y': 0.45345345345345345}],
   'imageWidth': 650,
   'imageHeight': 333},
  {'label': ['Face'],
   'notes': '',
   'points': [{'x': 0.583076923076923, 'y': 0.2912912912912913},
    {'x': 0.6584615384615384, 'y': 0.46846846846846846}],
   'imageWidth': 650,
   'imageHeight': 333}],
 'extras': None}
```

In [4]:
```
import numpy as np
import requests
from tqdm import tqdm
from PIL import Image
from io import BytesIO
```

In [5]:

```
# Load images from url and save into images

images = []

for data in tqdm(jsonData):
    response = requests.get(data['content'])
    img = np.asarray(Image.open(BytesIO(response.content)))
    images.append([img, data["annotation"]])
```

```
100%|██████████| 409/409 [01:09<00:00,  5.86it/s]
```

In [6]:

```
!mkdir face-detection-images
```

In [7]:

```
import cv2
import time
```

In [8]:

```
count = 1

totalfaces = 0

start = time.time()

for image in images:
    img = image[0]
    metadata = image[1]
    for data in metadata:
        height = data['imageHeight']
        width = data['imageWidth']
        points = data['points']
        if 'Face' in data['label']:
            x1 = round(width*points[0]['x'])
            y1 = round(height*points[0]['y'])
            x2 = round(width*points[1]['x'])
            y2 = round(height*points[1]['y'])
            cv2.rectangle(img, (x1, y1), (x2, y2), (0, 0, 255), 1)
            totalfaces += 1
    cv2.imwrite('./face-detection-images/face_image_{}.jpg'.format(count),img)
    count += 1

end = time.time()

print("Total test images with faces : {}".format(len(images)))
print("Sucessfully tested {} images".format(count-1))
print("Execution time in seconds {}".format(end-start))
print("Total Faces Detected {}".format(totalfaces))
```

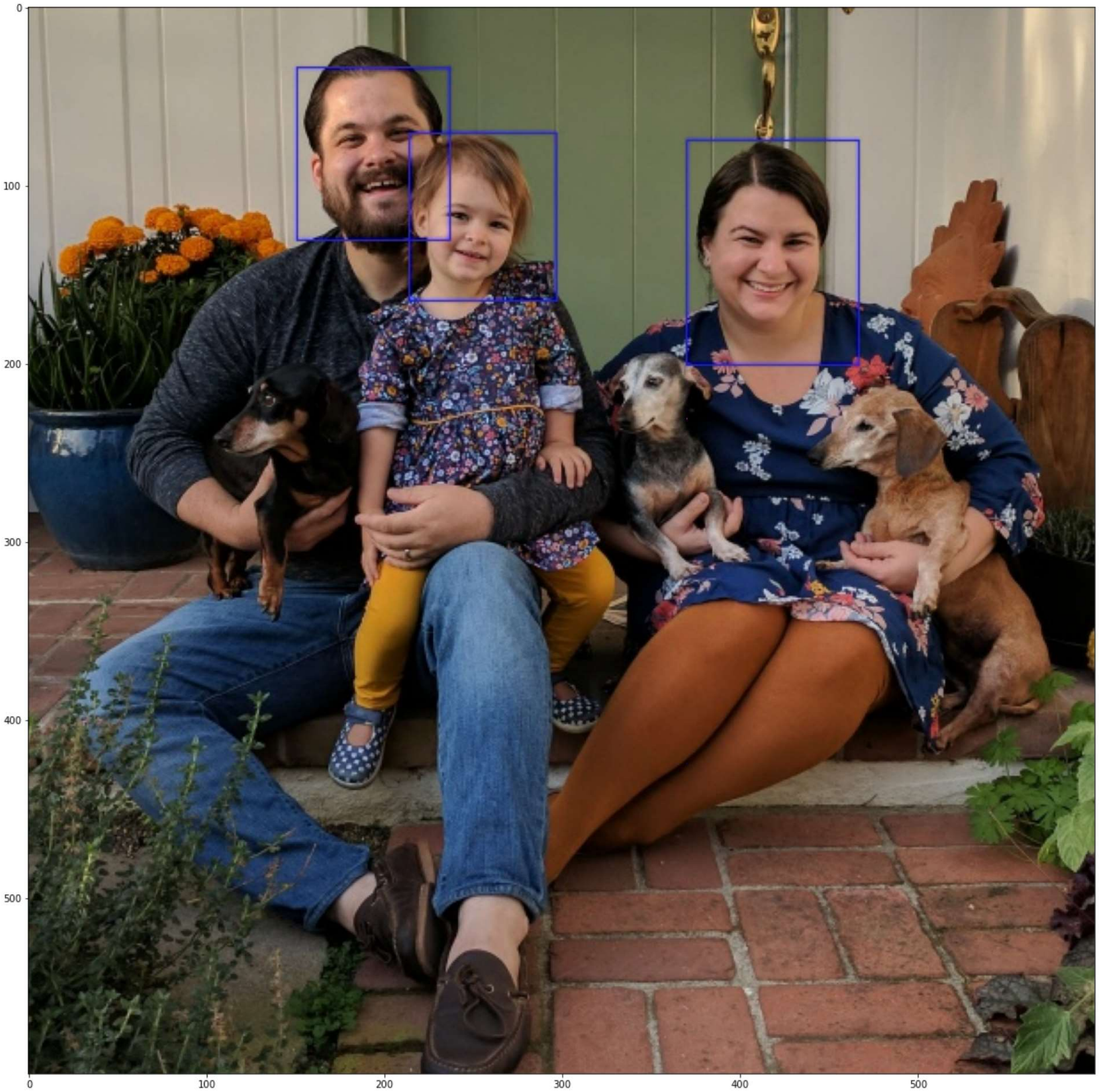
```
Total test images with faces : 409
Sucessfully tested 409 images
Execution time in seconds 10.26559042930603
Total Faces Detected 1132
```

In [9]:

```
import matplotlib.pyplot as plt
```

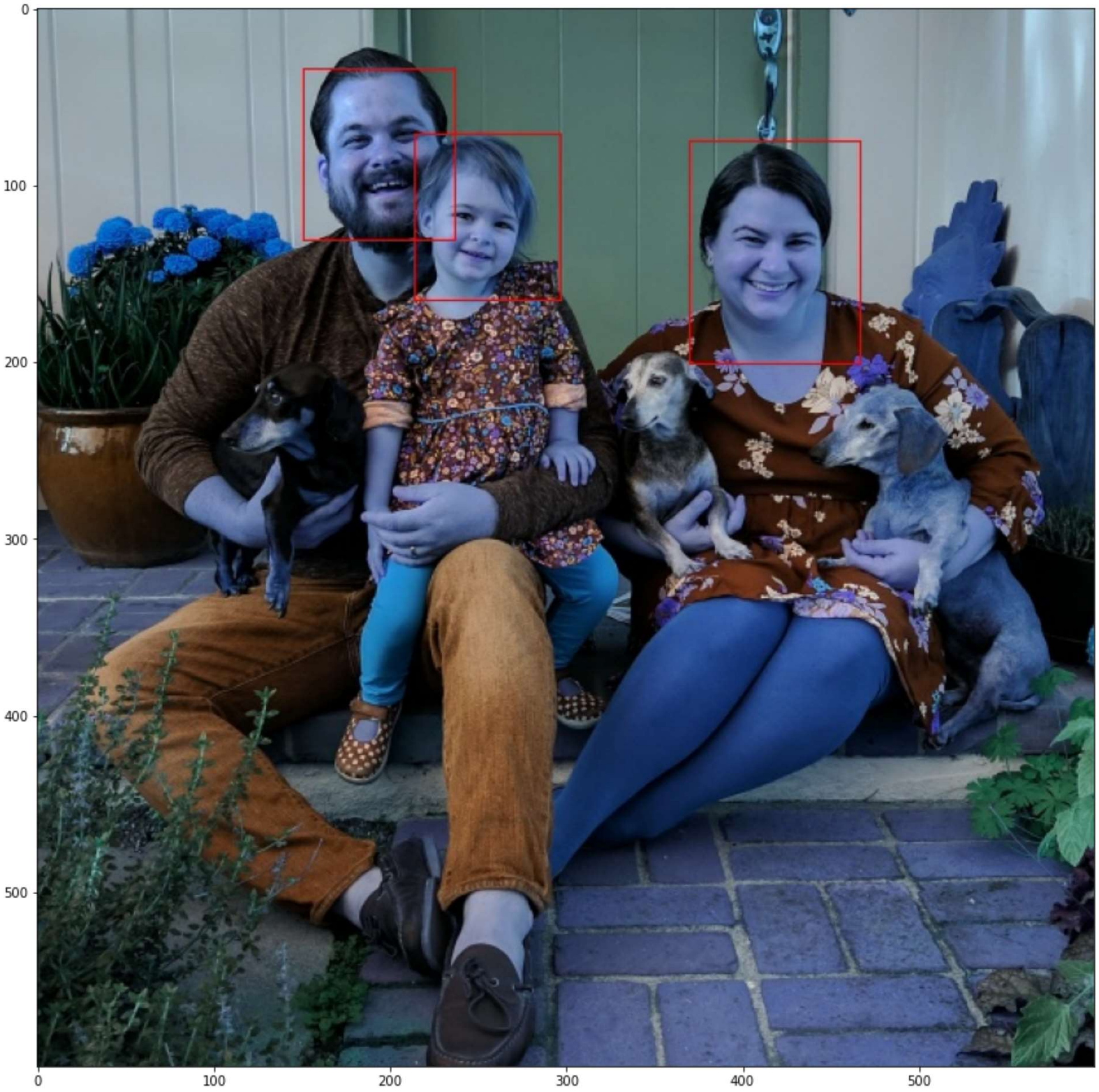
In [10]:
```
face1 = cv2.imread("./face-detection-images/face_image_64.jpg")
```

In [11]:
```
plt.figure(figsize=(20,25))
plt.imshow(face1)
plt.show()
```



In [12]:
```
plt.figure(figsize=(18,15))
plt.imshow(cv2.cvtColor(face1, cv2.COLOR_BGR2RGB))
```

Out[12]:
```
<matplotlib.image.AxesImage at 0x7f39cb5b1850>
```



In [13]:

```
face2 = cv2.imread("./face-detection-images/face_image_400.jpg")
```

In [14]:

```
plt.figure(figsize=(20,25))
plt.imshow(face2)
plt.show()
```