IntroducingVisualConjoint

July 6, 2021

1 Replication Code for Images in "Introducing Visual Conjoint Experiments", Vecchiato(2021)

This replication code allows for the creation of all the Twitter profiles used for the visual conjoint experiment in Vecchiato and Munger (2021). The code creates empty Twitter profiles that are then modified with the desired features using a nested loop. While the code can be edited freely to allow for different features, the location parameters of the Twitter profile elements, such as likes, retweets, and avatars, should not be changed.

[1]:
```
#Preamble
from PIL import Image, ImageDraw, ImageFilter, ImageFont
import os
import numpy as np
import textwrap
import re, string
```

[3]:
```
#Local directory
script_dir = os.path.abspath('')
```

[4]:
```
#Loading subfolders
avatars_man = os.listdir(os.path.join(script_dir, "Avatars", "Man"))
avatars_man.remove('.DS_Store')
avatars_woman = os.listdir(os.path.join(script_dir, "Avatars", "Woman"))
avatars_woman.remove('.DS_Store')

top_image = os.listdir(os.path.join(script_dir, "TopImage"))

#Twitter features. The elements included in the vectors below are those then␣
 ↪used to generate the Twitter profiles.
#Pay attention to the punctuation included in the 'bio' features to ensure␣
 ↪readablity.
tweets_dem_local = ["The Center County Democratic Party is working to ensure␣
 ↪that the Planned Parenthood stays open for good.","Congratulations to the␣
 ↪Social Justice club at the Center County High; I applaud your efforts to␣
 ↪combat racism in our community." ]
```

```
tweets_rep_local = ["The Center County Republican Party is working to ensure␣
 ↪that local businesses can stay open.", "Congratulations to the Rifle club at␣
 ↪the Center County High; I applaud your efforts to ensure safe and␣
 ↪responsible gun use in our community."]
Feedback = ['high', 'low']
Generations = ['boomer', 'millennial']
Religion = ['Jewish, ', 'Catholic, ', 'Protestant, ', 'Mormon, ', '']
Profession = ['an enterpreneur', 'a lawyer','a doctor', 'a teacher', 'a␣
 ↪farmer', 'a car dealer']
Education = ['High School graduate', 'College graduate', 'Ivy League graduate']
Military = [', I served, ', ' ']
```

[5]:
```
#Generating empty Twitter profile, man
img = Image.open('Twitter_profile_clean.png').convert('RGB')
draw = ImageDraw.Draw(img)
font_largeName = ImageFont.truetype("HelveticaNeue.ttc", size=72, index = 1)
draw.text((61, 1079),"Congressman Smith",(0,0,0),font=font_largeName)
font_smallName = ImageFont.truetype("HelveticaNeue.ttc", 50)
draw.text((61, 1170),"@CongressmanSmith",font=font_smallName, fill = "#667786")
draw.text((2000, 875),"Follow",font=font_largeName, fill = "#1ca1f2")
font_location = ImageFont.truetype("HelveticaNeue.ttc", 60, index = 1)
draw.text((155, 1480),"Washington, DC",font=font_smallName, fill = "#667786")
draw.text((646, 1480),"www.congress.gov",font=font_smallName, fill = "#667786")
draw.text((1411, 1480),"Joined November 2010",font=font_smallName, fill =␣
 ↪"#667786")
font_tweetName = ImageFont.truetype("HelveticaNeue.ttc", 50, index = 1)
draw.text((295, 1987),"Congressman Smith",(0,0,0), font=font_tweetName)
draw.text((295, 2380),"Congressman Smith",(0,0,0), font=font_tweetName)
img.save(os.path.join(script_dir, "TwitterProfileClean_man.png"), dpi=(300,␣
 ↪300))
```

[6]:
```
#Generating empty Twitter profile, woman
img = Image.open('Twitter_profile_clean.png').convert('RGB')
draw = ImageDraw.Draw(img)
font_largeName = ImageFont.truetype("HelveticaNeue.ttc", size=72, index = 1)
draw.text((61, 1079),"Congresswoman Smith",(0,0,0),font=font_largeName)
font_smallName = ImageFont.truetype("HelveticaNeue.ttc", 50)
draw.text((61, 1170),"@CongresswomanSmith",font=font_smallName, fill =␣
 ↪"#667786")
draw.text((2000, 875),"Follow",font=font_largeName, fill = "#1ca1f2")
font_location = ImageFont.truetype("HelveticaNeue.ttc", 60, index = 1)
draw.text((155, 1480),"Washington, DC",font=font_smallName, fill = "#667786")
draw.text((646, 1480),"www.congress.gov",font=font_smallName, fill = "#667786")
draw.text((1411, 1480),"Joined November 2010",font=font_smallName, fill =␣
 ↪"#667786")
font_tweetName = ImageFont.truetype("HelveticaNeue.ttc", 50, index = 1)
```

```
draw.text((295, 1987),"Congresswoman Smith",(0,0,0), font=font_tweetName)
draw.text((295, 2380),"Congresswoman Smith",(0,0,0), font=font_tweetName)
img.save(os.path.join(script_dir, "TwitterProfileClean_woman.png"), dpi=(300,␣
↪300))
```

The following cells will create the conjoint Twitter profiles according to the features established above. Output will be written in the used directory, in a new folder named "results".

[ ]:
```
#Generating output folder
os.makedir(script_dir, 'results')
```

[7]:
```
#Generating Conjoint Twitter Profiles, Republican Man
for avatar in avatars_man:
    for religion in Religion:
        for profession in Profession:
            for education in Education:
                for military in Military:
                    for generation in Generations:
                            for feedback in Feedback:
                                im_bg = Image.open(os.path.
↪join(script_dir,'TwitterProfileClean_man.png')).convert('RGB')
                                im_avatar = Image.open(os.path.join(script_dir,␣
↪'Avatars', 'Man', avatar, 'larger.png'),'r').convert('RGB')
                                mask_im = Image.new("L", im_avatar.size, 0)
                                draw = ImageDraw.Draw(mask_im)
                                draw.ellipse((0, 0, 536, 536), fill=255)
                                mask_im.save('mask_circle.jpg', quality=95)
                                back_im = im_bg.copy()
                                back_im.paste(im_avatar, (62, 502), mask_im)
                                im_top = Image.open(os.path.join(script_dir,␣
↪'TopImage', "elephant.png")).convert('RGB')
                                mask_im_top = Image.new("L", im_top.size, 0)
                                draw = ImageDraw.Draw(mask_im_top)
                                draw.rectangle((0, 0, 2402, 802), fill=255)
                                draw.ellipse((50, 486, 615, 1055), fill=0)
                                mask_im_top.save('mask_background.jpg',␣
↪quality=95)
                                back_im.paste(im_top, (0,0), mask_im_top)
                                im_sm_avatar = Image.open(os.path.
↪join(script_dir, 'Avatars', 'Man', avatar, 'smaller.png'),'r').convert('RGB')
                                mask_im_sm_avatar = Image.new("L", im_sm_avatar.
↪size, 0)
                                draw = ImageDraw.Draw(mask_im_sm_avatar)
                                draw.ellipse((0, 0, 196, 196), fill=255)
                                mask_im_sm_avatar.save('mask_circle_smaller.
↪jpg', quality=95)
```

```
                                back_im.paste(im_sm_avatar, (65, 1970),␣
↪mask_im_sm_avatar)
                                back_im.paste(im_sm_avatar, (65, 2380),␣
↪mask_im_sm_avatar)
                                img = back_im
                                draw = ImageDraw.Draw(img)
                                font_largeName = ImageFont.
↪truetype("HelveticaNeue.ttc", size=72, index = 1)
                                font_smallName = ImageFont.
↪truetype("HelveticaNeue.ttc", 50)
                                if generation == 'boomer':
                                    year = str(np.random.randint(1940,1975))
                                else:
                                    year = str(np.random.randint(1976,1990))
                                description = textwrap.wrap("I'm a Republican␣
↪candidate for the House of Representatives. Born in " + year + ", I'm " +␣
↪religion + "a " + education + military + "and currently I am " + profession␣
↪+ ".", width=92)
                                y_text = 1284
                                for line in description:
                                    width, height = font_smallName.getsize(line)
                                    draw.text((61, y_text), line,␣
↪font=font_smallName, fill="#14161a")
                                    y_text += height
                                font_location = ImageFont.
↪truetype("HelveticaNeue.ttc", 60, index = 1)
                                font_tweetName = ImageFont.
↪truetype("HelveticaNeue.ttc", 50, index = 1)
                                font_tweet = ImageFont.truetype("HelveticaNeue.
↪ttc", 50)
                                tweet = textwrap.wrap(tweets_rep_local[0],␣
↪width=85)
                                y_text = 2070
                                for line in tweet:
                                    width, height = font_tweet.getsize(line)
                                    draw.text((295, y_text), line,␣
↪font=font_smallName, fill="#14161a")
                                    y_text += height
                                tweet2 = textwrap.wrap(tweets_rep_local[1],␣
↪width=85)
                                y_text_2 = 2465
                                for line in tweet2:
                                    width, height = font_tweet.getsize(line)
                                    draw.text((295, y_text_2), line,␣
↪font=font_smallName, fill="#14161a")
                                    y_text_2 += height
```

```
                                if feedback == 'high':
                                        feedback_num = [str(np.random.
↪randint(700,900)),
                                                        str(np.random.
↪randint(10,13)),
                                                        str(np.random.
↪randint(600,900)),
                                                        str(np.random.
↪randint(1500,2000)),
                                                        str(np.random.
↪randint(3000,6000)),
                                                        str(np.random.
↪randint(250,500)),
                                                        str(np.random.
↪randint(1000,1300)),
                                                        str(np.random.
↪randint(3000,6000))]
                                else:
                                        feedback_num = [str(np.random.
↪randint(200,400)),
                                                        str(np.random.
↪randint(2,5)),
                                                        str(np.random.
↪randint(200,400)),
                                                        str(np.random.
↪randint(500,1000)),
                                                        str(np.random.
↪randint(100,800)),
                                                        str(np.random.
↪randint(100,250)),
                                                        str(np.random.
↪randint(300,600)),
                                                        str(np.random.
↪randint(100,800))]
                                draw.text((61, 1582),␣
↪feedback_num[0],(0,0,0),font = font_location)
                                draw.text((529, 1582),feedback_num[1] +␣
↪"K",(0,0,0), font = font_location)
                                draw.text((386,␣
↪2218),feedback_num[2],font=font_smallName, fill = "#667786")
                                draw.text((790,␣
↪2218),feedback_num[3],font=font_smallName, fill = "#667786")
                                draw.text((1201,␣
↪2218),feedback_num[4],font=font_smallName, fill = "#667786")
```

```
                                draw.text((386,␣
↪2661),feedback_num[5],font=font_smallName, fill = "#667786")
                                draw.text((790,␣
↪2661),feedback_num[6],font=font_smallName, fill = "#667786")
                                draw.text((1201,␣
↪2661),feedback_num[7],font=font_smallName, fill = "#667786")
                                avatar = avatar.replace(".png", "")
                                newsize = (480,612)
                                img = img.resize(newsize)
                                img_name = str(avatar) + "_republican_" +␣
↪str(generation) + "_" + str(feedback) + "_" + str(military) + "_" +␣
↪str(education) + "_" + str(profession) + "_" + str(religion) + '.png'
                                img_name = re.sub("[ ,]", "", img_name)
                                img.save(os.path.join(script_dir, "results",␣
↪img_name), dpi=(300, 300))
```

[8]:
```
#Generating Conjoint Twitter Profiles, Republican Woman
for avatar in avatars_woman:
    for religion in Religion:
        for profession in Profession:
            for education in Education:
                for military in Military:
                    for generation in Generations:
                            for feedback in Feedback:
                                im_bg = Image.open(os.path.
↪join(script_dir,'TwitterProfileClean_woman.png')).convert('RGB')
                                im_avatar = Image.open(os.path.join(script_dir,␣
↪'Avatars', 'Woman', avatar, 'larger.png'),'r').convert('RGB')
                                mask_im = Image.new("L", im_avatar.size, 0)
                                draw = ImageDraw.Draw(mask_im)
                                draw.ellipse((0, 0, 536, 536), fill=255)
                                mask_im.save('mask_circle.jpg', quality=95)
                                back_im = im_bg.copy()
                                back_im.paste(im_avatar, (62, 502), mask_im)
                                im_top = Image.open(os.path.join(script_dir,␣
↪'TopImage', "elephant.png")).convert('RGB')
                                mask_im_top = Image.new("L", im_top.size, 0)
                                draw = ImageDraw.Draw(mask_im_top)
                                draw.rectangle((0, 0, 2402, 802), fill=255)
                                draw.ellipse((50, 486, 615, 1055), fill=0)
                                mask_im_top.save('mask_background.jpg',␣
↪quality=95)

                                back_im.paste(im_top, (0,0), mask_im_top)
                                im_sm_avatar = Image.open(os.path.
↪join(script_dir, 'Avatars', 'Woman', avatar, 'smaller.png'),'r').
↪convert('RGB')
```

```
                                mask_im_sm_avatar = Image.new("L", im_sm_avatar.
↪size, 0)
                                draw = ImageDraw.Draw(mask_im_sm_avatar)
                                draw.ellipse((0, 0, 196, 196), fill=255)
                                mask_im_sm_avatar.save('mask_circle_smaller.
↪jpg', quality=95)
                                back_im.paste(im_sm_avatar, (65, 1970),␣
↪mask_im_sm_avatar)
                                back_im.paste(im_sm_avatar, (65, 2380),␣
↪mask_im_sm_avatar)
                                img = back_im
                                draw = ImageDraw.Draw(img)
                                font_largeName = ImageFont.
↪truetype("HelveticaNeue.ttc", size=72, index = 1)
                                font_smallName = ImageFont.
↪truetype("HelveticaNeue.ttc", 50)
                                if generation == 'boomer':
                                    year = str(np.random.randint(1940,1975))
                                else:
                                    year = str(np.random.randint(1976,1990))
                                description = textwrap.wrap("I'm a Republican␣
↪candidate for the House of Representatives. Born in " + year + ", I'm " +␣
↪religion + "a " + education + military + "and currently I am " + profession␣
↪+ ".", width=92)
                                y_text = 1284
                                for line in description:
                                    width, height = font_smallName.getsize(line)
                                    draw.text((61, y_text), line,␣
↪font=font_smallName, fill="#14161a")
                                    y_text += height
                                font_location = ImageFont.
↪truetype("HelveticaNeue.ttc", 60, index = 1)
                                font_tweetName = ImageFont.
↪truetype("HelveticaNeue.ttc", 50, index = 1)
                                font_tweet = ImageFont.truetype("HelveticaNeue.
↪ttc", 50)
                                tweet = textwrap.wrap(tweets_rep_local[0],␣
↪width=85)
                                y_text = 2070
                                for line in tweet:
                                    width, height = font_tweet.getsize(line)
                                    draw.text((295, y_text), line,␣
↪font=font_smallName, fill="#14161a")
                                    y_text += height
                                tweet2 = textwrap.wrap(tweets_rep_local[1],␣
↪width=85)
```

```
                                y_text_2 = 2465
                                for line in tweet2:
                                    width, height = font_tweet.getsize(line)
                                    draw.text((295, y_text_2), line,␣
↪font=font_smallName, fill="#14161a")
                                    y_text_2 += height
                                if feedback == 'high':
                                       feedback_num = [str(np.random.
↪randint(700,900)),
                                                       str(np.random.
↪randint(10,13)),
                                                       str(np.random.
↪randint(600,900)),
                                                       str(np.random.
↪randint(1500,2000)),
                                                       str(np.random.
↪randint(3000,6000)),
                                                       str(np.random.
↪randint(250,500)),
                                                       str(np.random.
↪randint(1000,1300)),
                                                       str(np.random.
↪randint(3000,6000))]
                                else:
                                       feedback_num = [str(np.random.
↪randint(200,400)),
                                                       str(np.random.
↪randint(2,5)),
                                                       str(np.random.
↪randint(200,400)),
                                                       str(np.random.
↪randint(500,1000)),
                                                       str(np.random.
↪randint(100,800)),
                                                       str(np.random.
↪randint(100,250)),
                                                       str(np.random.
↪randint(300,600)),
                                                       str(np.random.
↪randint(100,800))]
                                draw.text((61, 1582),␣
↪feedback_num[0],(0,0,0),font = font_location)
                                draw.text((529, 1582),feedback_num[1] +␣
↪"K",(0,0,0), font = font_location)
                                draw.text((386,␣
↪2218),feedback_num[2],font=font_smallName, fill = "#667786")
```

```
                                draw.text((790,␣
↪2218),feedback_num[3],font=font_smallName, fill = "#667786")
                                draw.text((1201,␣
↪2218),feedback_num[4],font=font_smallName, fill = "#667786")
                                draw.text((386,␣
↪2661),feedback_num[5],font=font_smallName, fill = "#667786")
                                draw.text((790,␣
↪2661),feedback_num[6],font=font_smallName, fill = "#667786")
                                draw.text((1201,␣
↪2661),feedback_num[7],font=font_smallName, fill = "#667786")
                                avatar = avatar.replace(".png", "")
                                newsize = (480,612)
                                img = img.resize(newsize)
                                img_name = str(avatar) + "_republican_" +␣
↪str(generation) + "_" + str(feedback) + "_" + str(military) + "_" +␣
↪str(education) + "_" + str(profession) + "_" + str(religion) + '.png'
                                img_name = re.sub("[ ,]", "", img_name)
                                img.save(os.path.join(script_dir, "results",␣
↪img_name), dpi=(300, 300))
```

[9]:
```
#Generating Conjoint Twitter Profiles, Democrat Man
for avatar in avatars_man:
    for religion in Religion:
        for profession in Profession:
            for education in Education:
                for military in Military:
                    for generation in Generations:
                            for feedback in Feedback:
                                im_bg = Image.open(os.path.
↪join(script_dir,'TwitterProfileClean_man.png')).convert('RGB')
                                im_avatar = Image.open(os.path.join(script_dir,␣
↪'Avatars', 'Man', avatar, 'larger.png'),'r').convert('RGB')
                                mask_im = Image.new("L", im_avatar.size, 0)
                                draw = ImageDraw.Draw(mask_im)
                                draw.ellipse((0, 0, 536, 536), fill=255)
                                mask_im.save('mask_circle.jpg', quality=95)
                                back_im = im_bg.copy()
                                back_im.paste(im_avatar, (62, 502), mask_im)
                                im_top = Image.open(os.path.join(script_dir,␣
↪'TopImage', "donkey.png")).convert('RGB')
                                mask_im_top = Image.new("L", im_top.size, 0)
                                draw = ImageDraw.Draw(mask_im_top)
                                draw.rectangle((0, 0, 2402, 802), fill=255)
                                draw.ellipse((50, 486, 615, 1055), fill=0)
                                mask_im_top.save('mask_background.jpg',␣
↪quality=95)
```

```
                                back_im.paste(im_top, (0,0), mask_im_top)
                                im_sm_avatar = Image.open(os.path.
↪join(script_dir, 'Avatars', 'Man', avatar, 'smaller.png'),'r').convert('RGB')
                                mask_im_sm_avatar = Image.new("L", im_sm_avatar.
↪size, 0)
                                draw = ImageDraw.Draw(mask_im_sm_avatar)
                                draw.ellipse((0, 0, 196, 196), fill=255)
                                mask_im_sm_avatar.save('mask_circle_smaller.
↪jpg', quality=95)
                                back_im.paste(im_sm_avatar, (65, 1970),␣
↪mask_im_sm_avatar)
                                back_im.paste(im_sm_avatar, (65, 2380),␣
↪mask_im_sm_avatar)
                                img = back_im
                                draw = ImageDraw.Draw(img)
                                font_largeName = ImageFont.
↪truetype("HelveticaNeue.ttc", size=72, index = 1)
                                font_smallName = ImageFont.
↪truetype("HelveticaNeue.ttc", 50)
                                if generation == 'boomer':
                                    year = str(np.random.randint(1940,1975))
                                else:
                                    year = str(np.random.randint(1976,1990))
                                description = textwrap.wrap("I'm a Democratic␣
↪candidate for the House of Representatives. Born in " + year + ", I'm " +␣
↪religion + "a " + education + military + "and currently I am " + profession␣
↪+ ".", width=92)
                                y_text = 1284
                                for line in description:
                                    width, height = font_smallName.getsize(line)
                                    draw.text((61, y_text), line,␣
↪font=font_smallName, fill="#14161a")
                                    y_text += height
                                font_location = ImageFont.
↪truetype("HelveticaNeue.ttc", 60, index = 1)
                                font_tweetName = ImageFont.
↪truetype("HelveticaNeue.ttc", 50, index = 1)
                                font_tweet = ImageFont.truetype("HelveticaNeue.
↪ttc", 50)
                                tweet = textwrap.wrap(tweets_dem_local[0],␣
↪width=85)
                                y_text = 2070
                                for line in tweet:
                                    width, height = font_tweet.getsize(line)
                                    draw.text((295, y_text), line,␣
↪font=font_smallName, fill="#14161a")
```

```
                                    y_text += height
                                tweet2 = textwrap.wrap(tweets_dem_local[1],␣
↪width=85)
                                y_text_2 = 2465
                                for line in tweet2:
                                    width, height = font_tweet.getsize(line)
                                    draw.text((295, y_text_2), line,␣
↪font=font_smallName, fill="#14161a")
                                    y_text_2 += height
                                if feedback == 'high':
                                       feedback_num = [str(np.random.
↪randint(700,900)),
                                                       str(np.random.
↪randint(10,13)),
                                                       str(np.random.
↪randint(600,900)),
                                                       str(np.random.
↪randint(1500,2000)),
                                                       str(np.random.
↪randint(3000,6000)),
                                                       str(np.random.
↪randint(250,500)),
                                                       str(np.random.
↪randint(1000,1300)),
                                                       str(np.random.
↪randint(3000,6000))]
                                else:
                                       feedback_num = [str(np.random.
↪randint(200,400)),
                                                       str(np.random.
↪randint(2,5)),
                                                       str(np.random.
↪randint(200,400)),
                                                       str(np.random.
↪randint(500,1000)),
                                                       str(np.random.
↪randint(100,800)),
                                                       str(np.random.
↪randint(100,250)),
                                                       str(np.random.
↪randint(300,600)),
                                                       str(np.random.
↪randint(100,800))]
                                draw.text((61, 1582),␣
↪feedback_num[0],(0,0,0),font = font_location)
```

```
                                draw.text((529, 1582),feedback_num[1] +␣
↪"K",(0,0,0), font = font_location)
                                draw.text((386,␣
↪2218),feedback_num[2],font=font_smallName, fill = "#667786")
                                draw.text((790,␣
↪2218),feedback_num[3],font=font_smallName, fill = "#667786")
                                draw.text((1201,␣
↪2218),feedback_num[4],font=font_smallName, fill = "#667786")
                                draw.text((386,␣
↪2661),feedback_num[5],font=font_smallName, fill = "#667786")
                                draw.text((790,␣
↪2661),feedback_num[6],font=font_smallName, fill = "#667786")
                                draw.text((1201,␣
↪2661),feedback_num[7],font=font_smallName, fill = "#667786")
                                avatar = avatar.replace(".png", "")
                                newsize = (480,612)
                                img = img.resize(newsize)
                                img_name = str(avatar) + "_democrat_" +␣
↪str(generation) + "_" + str(feedback) + "_" + str(military) + "_" +␣
↪str(education) + "_" + str(profession) + "_" + str(religion) + '.png'
                                img_name = re.sub("[ ,]", "", img_name)
                                img.save(os.path.join(script_dir, "results",␣
↪img_name), dpi=(300, 300))
```

[10]:
```
#Generating Conjoint Twitter Profiles, Democrat Woman
for avatar in avatars_woman:
    for religion in Religion:
        for profession in Profession:
            for education in Education:
                for military in Military:
                    for generation in Generations:
                            for feedback in Feedback:
                                im_bg = Image.open(os.path.
↪join(script_dir,'TwitterProfileClean_woman.png')).convert('RGB')
                                im_avatar = Image.open(os.path.join(script_dir,␣
↪'Avatars', 'Woman', avatar, 'larger.png'),'r').convert('RGB')
                                mask_im = Image.new("L", im_avatar.size, 0)
                                draw = ImageDraw.Draw(mask_im)
                                draw.ellipse((0, 0, 536, 536), fill=255)
                                mask_im.save('mask_circle.jpg', quality=95)
                                back_im = im_bg.copy()
                                back_im.paste(im_avatar, (62, 502), mask_im)
                                im_top = Image.open(os.path.join(script_dir,␣
↪'TopImage', "donkey.png")).convert('RGB')
                                mask_im_top = Image.new("L", im_top.size, 0)
                                draw = ImageDraw.Draw(mask_im_top)
```

```
                                draw.rectangle((0, 0, 2402, 802), fill=255)
                                draw.ellipse((50, 486, 615, 1055), fill=0)
                                mask_im_top.save('mask_background.jpg',␣
↪quality=95)
                                back_im.paste(im_top, (0,0), mask_im_top)
                                im_sm_avatar = Image.open(os.path.
↪join(script_dir, 'Avatars', 'Woman', avatar, 'smaller.png'),'r').
↪convert('RGB')
                                mask_im_sm_avatar = Image.new("L", im_sm_avatar.
↪size, 0)
                                draw = ImageDraw.Draw(mask_im_sm_avatar)
                                draw.ellipse((0, 0, 196, 196), fill=255)
                                mask_im_sm_avatar.save('mask_circle_smaller.
↪jpg', quality=95)
                                back_im.paste(im_sm_avatar, (65, 1970),␣
↪mask_im_sm_avatar)
                                back_im.paste(im_sm_avatar, (65, 2380),␣
↪mask_im_sm_avatar)
                                img = back_im
                                draw = ImageDraw.Draw(img)
                                font_largeName = ImageFont.
↪truetype("HelveticaNeue.ttc", size=72, index = 1)
                                font_smallName = ImageFont.
↪truetype("HelveticaNeue.ttc", 50)
                                if generation == 'boomer':
                                    year = str(np.random.randint(1940,1975))
                                else:
                                    year = str(np.random.randint(1976,1990))
                                description = textwrap.wrap("I'm a Democratic␣
↪candidate for the House of Representatives. Born in " + year + ", I'm " +␣
↪religion + "a " + education + military + "and currently I am " + profession␣
↪+ ".", width=92)
                                y_text = 1284
                                for line in description:
                                    width, height = font_smallName.getsize(line)
                                    draw.text((61, y_text), line,␣
↪font=font_smallName, fill="#14161a")
                                    y_text += height
                                font_location = ImageFont.
↪truetype("HelveticaNeue.ttc", 60, index = 1)
                                font_tweetName = ImageFont.
↪truetype("HelveticaNeue.ttc", 50, index = 1)
                                font_tweet = ImageFont.truetype("HelveticaNeue.
↪ttc", 50)
                                tweet = textwrap.wrap(tweets_dem_local[0],␣
↪width=85)
```

```
                                y_text = 2070
                                for line in tweet:
                                    width, height = font_tweet.getsize(line)
                                    draw.text((295, y_text), line,␣
↪font=font_smallName, fill="#14161a")
                                    y_text += height
                                tweet2 = textwrap.wrap(tweets_dem_local[1],␣
↪width=85)
                                y_text_2 = 2465
                                for line in tweet2:
                                    width, height = font_tweet.getsize(line)
                                    draw.text((295, y_text_2), line,␣
↪font=font_smallName, fill="#14161a")
                                    y_text_2 += height
                                if feedback == 'high':
                                       feedback_num = [str(np.random.
↪randint(700,900)),
                                                       str(np.random.
↪randint(10,13)),
                                                       str(np.random.
↪randint(600,900)),
                                                       str(np.random.
↪randint(1500,2000)),
                                                       str(np.random.
↪randint(3000,6000)),
                                                       str(np.random.
↪randint(250,500)),
                                                       str(np.random.
↪randint(1000,1300)),
                                                       str(np.random.
↪randint(3000,6000))]
                                else:
                                       feedback_num = [str(np.random.
↪randint(200,400)),
                                                       str(np.random.
↪randint(2,5)),
                                                       str(np.random.
↪randint(200,400)),
                                                       str(np.random.
↪randint(500,1000)),
                                                       str(np.random.
↪randint(100,800)),
                                                       str(np.random.
↪randint(100,250)),
                                                       str(np.random.
↪randint(300,600)),
```

```
                                                    str(np.random.
↪randint(100,800))]
                                draw.text((61, 1582),␣
↪feedback_num[0],(0,0,0),font = font_location)
                                draw.text((529, 1582),feedback_num[1] +␣
↪"K",(0,0,0), font = font_location)
                                draw.text((386,␣
↪2218),feedback_num[2],font=font_smallName, fill = "#667786")
                                draw.text((790,␣
↪2218),feedback_num[3],font=font_smallName, fill = "#667786")
                                draw.text((1201,␣
↪2218),feedback_num[4],font=font_smallName, fill = "#667786")
                                draw.text((386,␣
↪2661),feedback_num[5],font=font_smallName, fill = "#667786")
                                draw.text((790,␣
↪2661),feedback_num[6],font=font_smallName, fill = "#667786")
                                draw.text((1201,␣
↪2661),feedback_num[7],font=font_smallName, fill = "#667786")
                                avatar = avatar.replace(".png", "")
                                newsize = (480,612)
                                img = img.resize(newsize)
                                img_name = str(avatar) + "_democrat_" +␣
↪str(generation) + "_" + str(feedback) + "_" + str(military) + "_" +␣
↪str(education) + "_" + str(profession) + "_" + str(religion) + '.png'
                                img_name = re.sub("[ ,]", "", img_name)
                                img.save(os.path.join(script_dir,"results",␣
↪img_name), dpi=(300, 300))
```

Citation for this script should go to Alessandro Vecchiato (2021), "Replication Material of Introducing Visual Conjoint Experiments." For information and comments contacts can be found at avecc.people.stanford.edu.

[ ]: