**Using Facial Recognition to Find Ties Between Burkina Faso and the Wagner Group**

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Burkina Faso is a country in West Africa that is considered one of the most underdeveloped in the world. Within the past decade there has been a drastic increase in Islamic Terrorist activity because of its instability and proximity to other countries also facing rising terrorism. Instability in the country has led to multiple changes in power, including several coups. Most recently, there were two coups in 2022, with military leader Captain Ibrahim Traorè taking power in December. While Traoré has promised a democratic government with elections to be held in the future, countries such as Ghana are expressing concern that his leadership will lead to further instability in the region (1).

Although it is a relatively poor country, Burkina Faso has many active and potential mining sites. These sites source materials such as gold, zinc, and manganese (2). Recently, the Ghanian government has accused Captain Traoré of giving mining rights to a Russian Private Military Company, the Wagner Group, in exchange for protection against terrorists in the region (1). The Wagner Group has worked to influence multiple countries in Africa including Libya, Sudan, and Mali (which borders Burkina Faso) on behalf of Russia. Evidence suggests that the Wagner Group has committed crimes against humanity and follow Nazi and White Supremacist ideologies, making them an unwelcome neighbor to more stable and developed countries in Africa (3).

To research Wagner Group ties to Burkina Faso, I wanted to look for evidence that Captain Traoré had met with the any members of the PMC. To do so, I first utilized a Bing Image search API to find images of Captain Traoré. I narrowed down the parameters to search images posted starting December 2022 (when Traoré took power) to increase the chances of a match and prevent everything from crashing when it ran. To catch if the search yielded no images or the API failed to work, I added the requirement that the code would print “"No images found for the search query." From there, any search results were run through a face recognizer from the library “face\_recognition,” which was added to my terminal using a pip installer. I then ran these images through a face recognizer function using the library “face\_recognition” to identify if any of the images also pictured Yevgeny Prigozhin, one of the founders and the major financier of the Wagner Group (4). This was done by using an image for a known face (Prigozhin), encoding it in the image provided, and then comparing it to each image that pulled up in the Bing image search for Traoré. If there is a match (i.e., an image with both Traoré and Prigozhin) then it will print “match found” plus the URL for the image. If there no is match found at all, then it will print “no match found.” If there is an error processing the image, it prints “error processing image” plus the URL. If a match appeared, I would then review the image manually to determine how successful my coding was.

I was quite surprised to find that I had results. Unfortunately, though, the results were not what I was looking for. A test of just the API search showed that it was pulling images of Traoré, but when using the face recognition function, none of the images showed both Traoré and Prigozhin or showed neither. Additionally, I tried to create a directory with multiple images of Prigozhin for the face recognizer to “train” and encode on, but I got almost identical results. The biggest takeaway from this is that it likely requires a significant amount of work to get facial recognition programs working correctly and requires a lot more technical details that I could not grasp/investigate in the time spent on this project.

The face\_recognition library has additional features that would be useful. A big one is the ability to adjust sensitivity for identifying images. One parameter I did try was the tolerance feature by making it more and less sensitive. Unfortunately, I got about the same results as well. Additional tutorials I found went through additional “training” using a web camera. This library would possibly be better suited by training against video footage of Prigozhin. For one of my MBA classes, I did a research paper on bias in AI and found that facial recognition software does not detect people with darker skin tones due to lack of exposure to those images to learn from. This could also make using this program difficult, but in part why I chose to have the function “train” from an image of Prigozhin.

I think, overall, the concept behind my idea is sound but would be better suited with the appropriate resources and more time “training” the facial recognition function. I also think public access images yielded poor results as these images are coming from websites such as news webpages. Images from real-time surveillance and video footage would likely be more useful for this project. Additionally, there are multiple players involved with a country’s government and the Wagner Group. It’s very possible Traoré and Prigozhin have never met and never will. It would be interesting to map out potential ‘targets’ for both and do multiple face match runs. For example, I would be interested to identify who would oversee mining rights from the Burkina Faso government and compare to someone from the Wagner Group who may work on trade deals.

I learned a lot from this project, especially when it came to using pip installer to add additional libraries that we have not used in class. It also helped me better understand how I can take results from one function and feed them into another (in this case, Bing search results into face recognizer). Additionally, I can see the benefits to using APIs to yield powerful results that I could not have gotten prior to taking this course.

Works Cited

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