

Journal 0

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1 Three Sentences

As political and economic tensions rise in South American Countries such as El Salvador and Guatemala, an increasing number of refugees, IDPs, and migrants flee to US borders annually, causing major backup and operations inefficiencies in the US DOJ. Technology that utilizes predictive analytics could take into consideration factors such as agricultural output, political climate, GDP, crime rates, and homicide rates for each country to project the estimated number of migrants and to which ports they hope to naturalize through. The first part of my project will create this algorithm, and the second is an interactive simulation that uses data from the first part and displays the Americas map and a queue-node map with moving targets; users can manually manipulate refugee numbers to observe queue lengths, wait times, and backlog in the US DOJ which will provide insight for improvements in operations efficiency in our government system.

2 Summer Work

For the past two summers, I have been interning at a DHS facility in Maryland. As part of my internship, I have been working with the team to creative the simulation aspect of the project based on what I learned from them about operations efficiency and how to create queue-node maps. I discussed with them my idea to add the predictive analytics aspect to this project, as they had just been using the previous year's data to model wait times, which was not only inefficient but also inaccurate. They validated the idea and provided me feedback that indicated that this AI enhanced model would be extremely useful to the US Government and could be sold as a viable software product.

3 Obstacles Envisioned

My project requires intensive data collection, so finding accurate and reliable sources of data about all of the factors I hope to consider in my algorithm will be my first challenge. Secondly, I need to find an efficient way of outputting data

from the first part of my project and displaying that to the user so they have an easy time plugging in whichever numbers from that data into the simulation. Thirdly, I need to continue to working on changing the queue-node maps into more smooth-looking moving animations, as my summer work got the job done but was not very aesthetically pleasing.

4 First Marker of Success

My first marker of success will be validating if my predictive analysis model produces data that is consistent with what happened in real life. For example, if I run my program to output migrant numbers for 2017 based on data from 2016 and prior years, I can compare the data I get to the real migrant data from 2017. This way, I will know if I'm weighting the different factors in my program correctly or if I am using enough data from previous years.

5 Extra materials

There are no extra materials I need for my project besides my laptop.