**Mass Mobilization Problem Statements:**

As academics who are conducting studies, how can we as data scientists help inform what data to collect and how to collect it, so that it is most useful for predictive power in the future?

* Relationships in the data
* Accuracy and specificity of data collection
* Challenges in the cleaning process and potential impact on model quality/accuracy/usefulness
* Success of a given protest – were protesters and their tactics ‘successful’?

As academics who are hoping to continue a study on Mass Mobilization, here are insights from a data science team on how your data can be used to do complex multi-label classification, and what additional data types/data points could be helpful in the future.

As academics who are looking to use your Mass Mobilization study information to help the US government anticipate and respond to future US protests with the goal of limiting violent responses, here is how our models can help.

As academics who have managed the Mass Mobilization study, the US government originally funded this to inform foreign policy and relations. However, we understand that in response to the mass mobilization events that occurred in 2020 and 2021, the US government now needs to understand the nature of protests so they can prepare and respond in such a way that

**Important Metrics for Our Problem:**

Classification metrics to consider:

|  |  |  |  |
| --- | --- | --- | --- |
| Metric | How it’s calculated | What that means in English | When useful for our project |
| Precision | Correct Positive Preds (TP)  All Pos Preds (TP + FP) | Of all of our positive predictions, how many did we get right? | High for NV  Lower for V |
| Specificity | Correct Negative Preds (TN)  All Neg Preds (TN + FP) | Of all our negative predictions, how many were correct? | High for V  Lower for NV |
| Recall/  Sensitivity | Correct Positives Preds (TP)  All Actual Positives (TP + FN) | Of all actual positives, how many did we get right? | High for all, esp imbal class |
| ROC-AUC | No idea | How quickly does our model “front load” correct predictions? |  |

Violent Responses: We would rather predict more violent responses and there to be less violent response in reality, than predict too few. Optimize for FP. Minimize FN.

Non-Violent Response: We would rather predict too few and be wrong, than predict too many. Optimize for FN. Minimize FP. It’s ok to get less TN (which could be violent responses)