Topics:

* Our central problem
* Why it matters
* Our approach
* Results
* Implications and Applications

**Main Question:**

Given data of post-pandemic crime in Los Angeles (including portions of 2024), what factors are most useful in predicting the type or severity of crime? Given an incident, can we figure out what sort of crime might have occurred based primarily on environmental factors, and could we use this to assist in finding if crime occurs altogether?

**Importance:**

This deep learning model holds significant importance, both practically and socially. This model allows policymakers to draft adaptive policies focused on addressing the root causes of crime in specific areas and scenarios based on what crimes are gaining prominence. Although all crime requires addressing, crimes such as murder, sexual victimization, and armed robbery are higher-priority and carry greater risk. An important limitation of our dataset is it It will allow authorities to efficiently deploy police and surveillance resources in high risk zones. Also, by identifying patterns and predicting high-risk areas or situations, law enforcement agencies can take proactive steps to prevent crimes.

This will help in reducing public fear by demonstrating systematic efforts to ensure safety, and insights from the model can encourage communities to adopt preventive measures in high-risk areas.

**Approach:**

To address this issue, we decided to leverage recent advancements in deep learning for crime prediction. Specifically, we developed a feed-forward network with carefully selected features to predict crime. Our selection of features were based upon whether this information would be known prior to a crime. For example, the severity of the possible crime would not be known prior to the crime being committed but the date of a possible crime would be known.

**Quick Summary of Results:**

Our model was able to accurately predict the exact crime being committed 68% of the time. In addition, we found that Mocodes, premise codes, and weapons involved, being the most important features in predicting crime.

**Discussion about future work, implications, and applications:**

To expand on this model further, cross referencing with other dataset would be crucial in expanding the feature set to improve performance. With information such as traffic, weather, mean income of a district, or unemployment rates, this model could be easily improved to achieve higher levels of accuracy. In addition, the use of a Recurrent Neural Network, such as Long Short-Term Memory Networks, could help predict the evolution of crime over a period of time. This could be a more nuanced approach to prediction.

With a much more accurate model, advanced crime preventative measures can be enforced such as apps that notify the user of possibly high-crime locations. This app could send push notifications based on the location, date, and surroundings of the user. Using modern IoT devices, such as a simple security camera, real-time predictions could be leveraged for immediate notification of the user or increase in police surveillance. Using modern advancements in deep learning, civilians, police, and policy makers could be informed of possible crime much faster which keeps everyone safe and reduces overall crime.