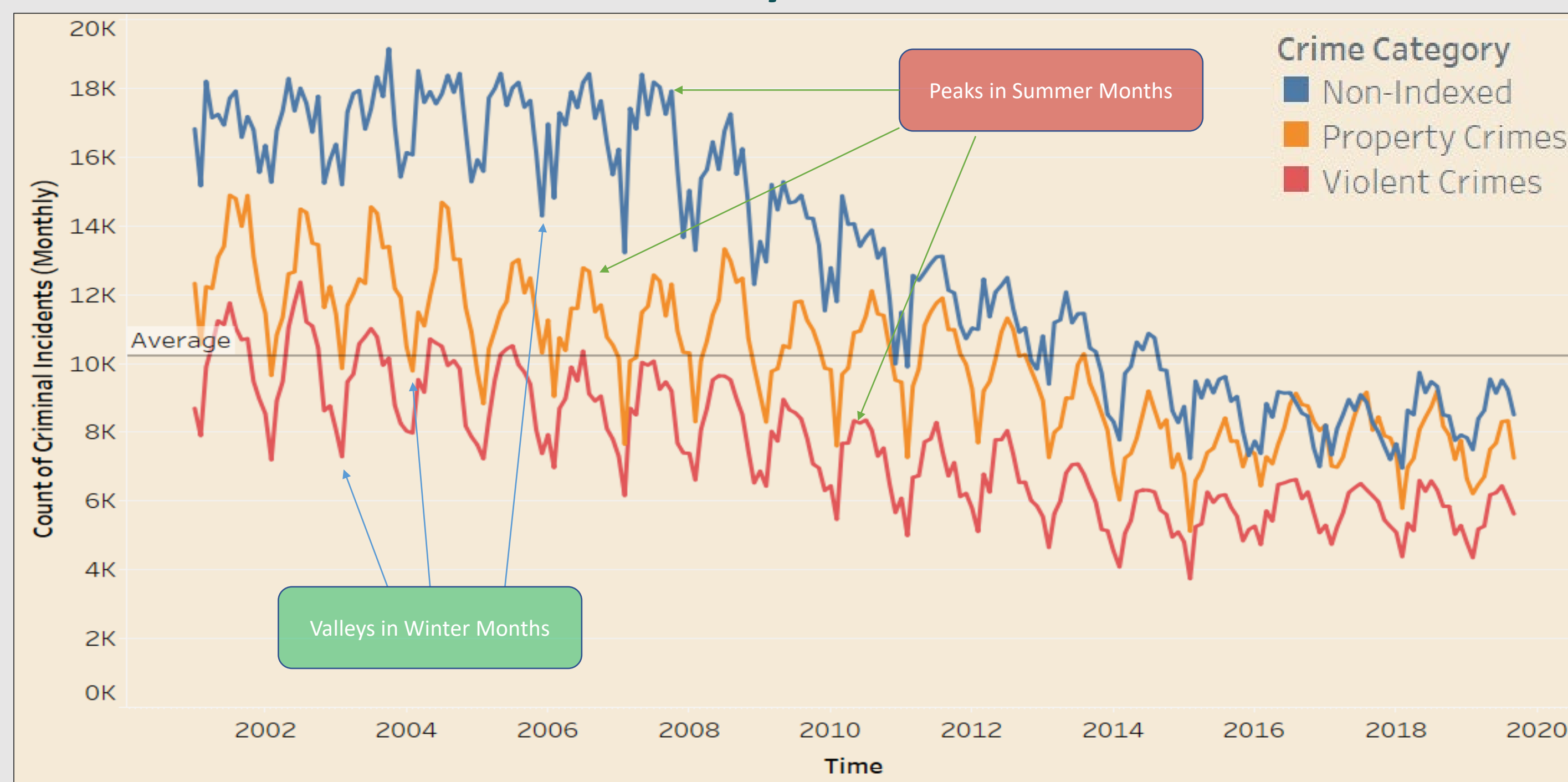


## INTRODUCTION

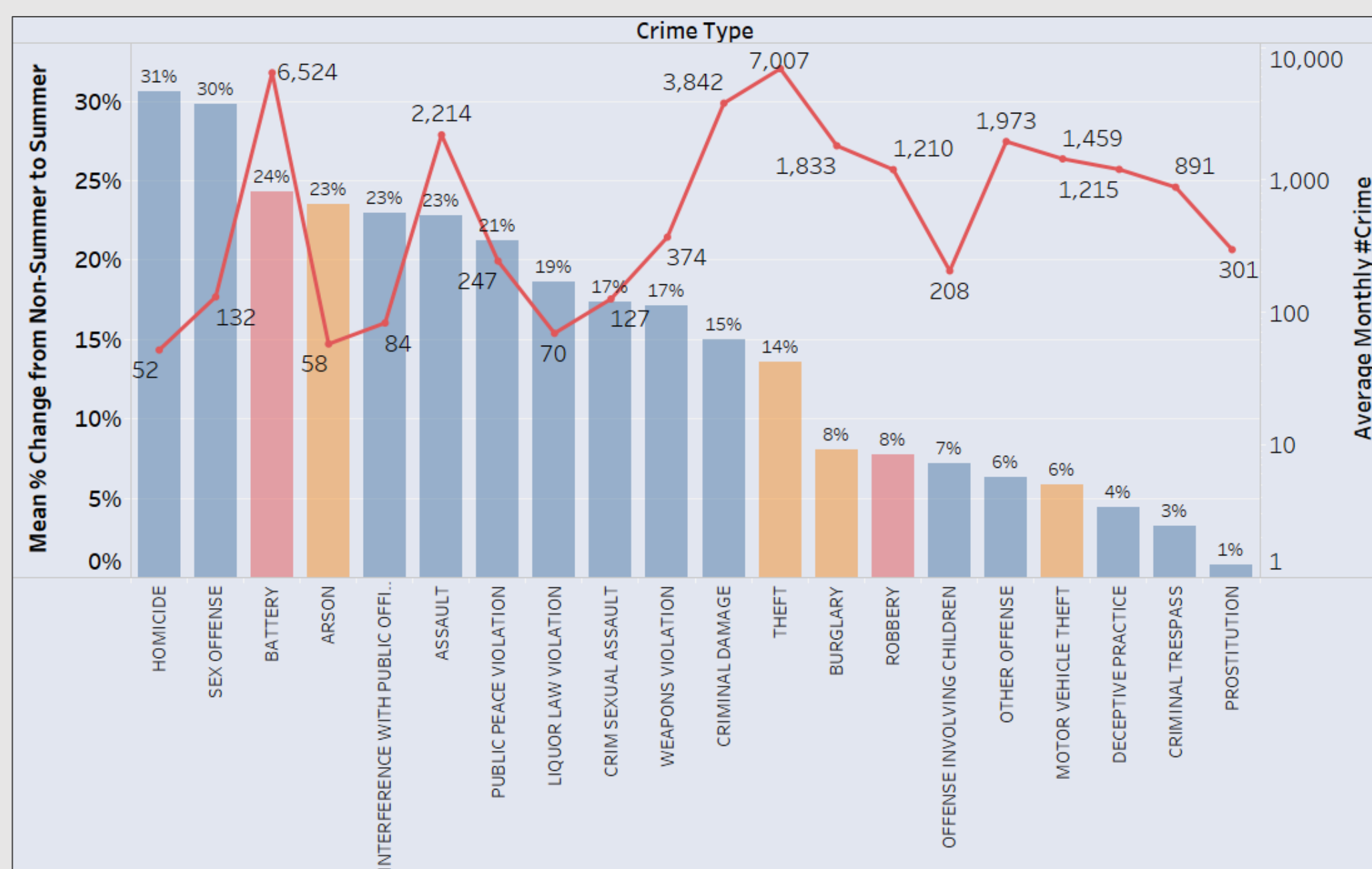
- This study investigates the relationship between crime and seasonality in Chicago, a metropolitan area known for its high crime rates and diverse crime categories
- The spatial unit of our analysis is a census tract level. We use spatial and temporal data from the past 20 years and examine how seasonality affects crime trends on a census tract level
- In our analysis, we study the hypothesis that certain types of crime, such as theft and assault, tend to occur more frequently during the warmer months, while others occur more frequently during the colder months.

## Monthly Crime Rate



The high number of crimes (peaks) in a year are observed in the summer months whilst the low number (valleys) in a year are in winter months

## Seasonal Change in Average Crime Rate by Type



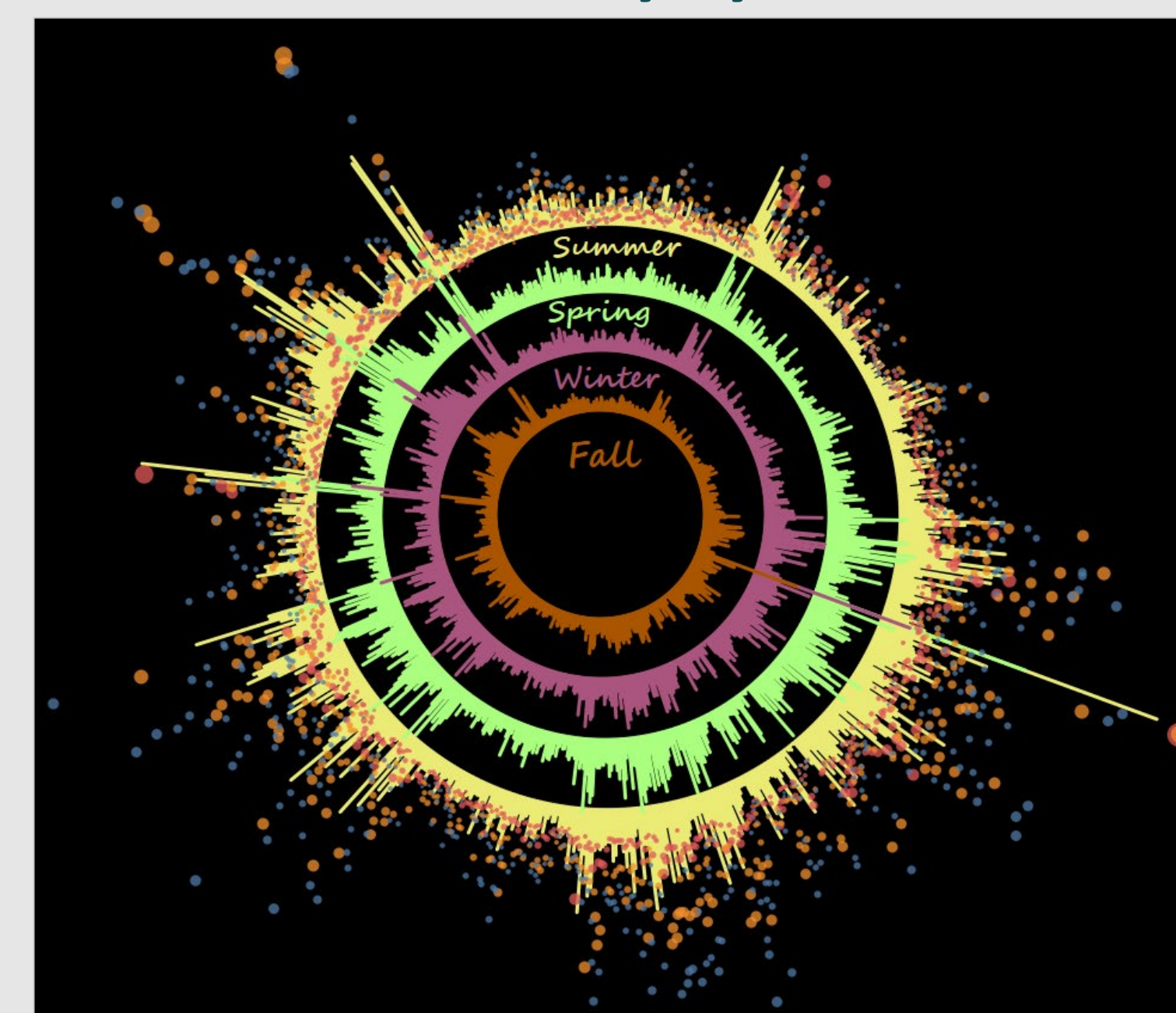
Average monthly number of Battery incidents reported increases in summer by 24% w.r.t. non-summer months to 6,524 average number of incidents

## Total Crimes by Month



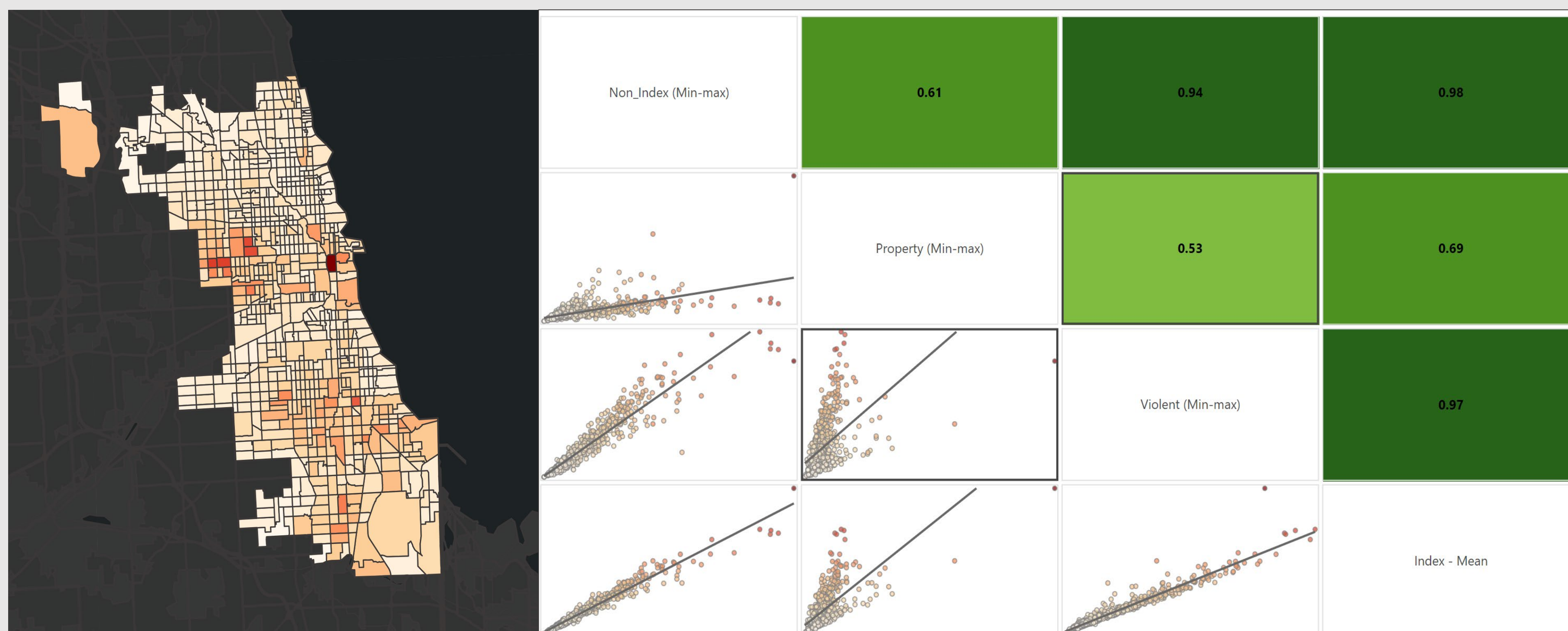
Inverted 'U' shape with higher criminal incidents in warmer months.

## Crime Seasonality by Census Tract



Most census tracts follow similar trends across all seasons while few have persistently high crime rate

## Composite Score by Crime Category at Census Tracts



## CONCLUSION

We observe that the number of crime incidents increases in hotter months in comparison to colder months

These trends are observed at a varying rate for different crime types and neighborhoods within Chicago.

## FUTURE WORK

We aim to study if temperature and social vulnerability are significant predictors of crime in Chicago at census tract level

We aim to identify the neighborhoods that are vulnerable to high temperature and criminal activity.

## ACKNOWLEDGEMENTS

We thank our external collaborators Ashish Sharma<sup>1</sup> and Ryan Harp<sup>2</sup>  
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<sup>2</sup>Northwestern University