K.C. ANALYTICS:

Predicting significant injuries in car crashes

Our Team:

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AGENDA

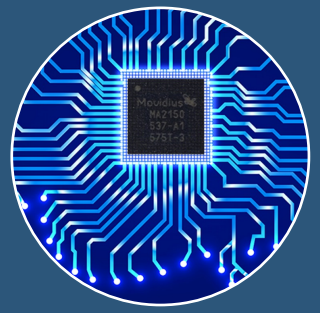
1. Business Problem
2. Data Overview & Limitations
3. Metrics & Final Model
4. Conclusions & Recommendations
5. Insights

Implementation of an Emergency Response Device

Objective:

Increase safety rating in new vehicles

How:



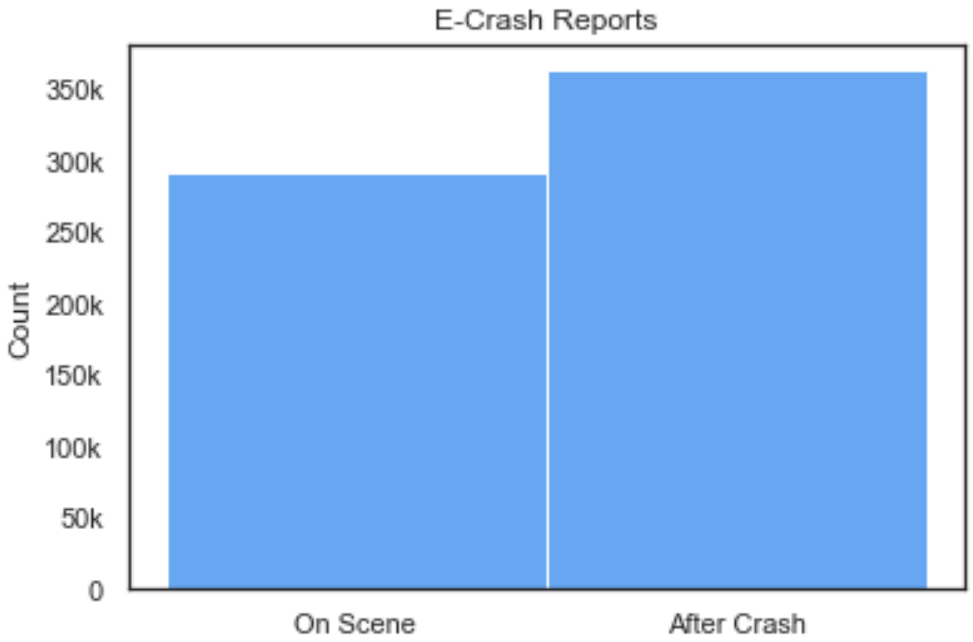
Predict significant injuries in crashes w/ modeling

Benefits:

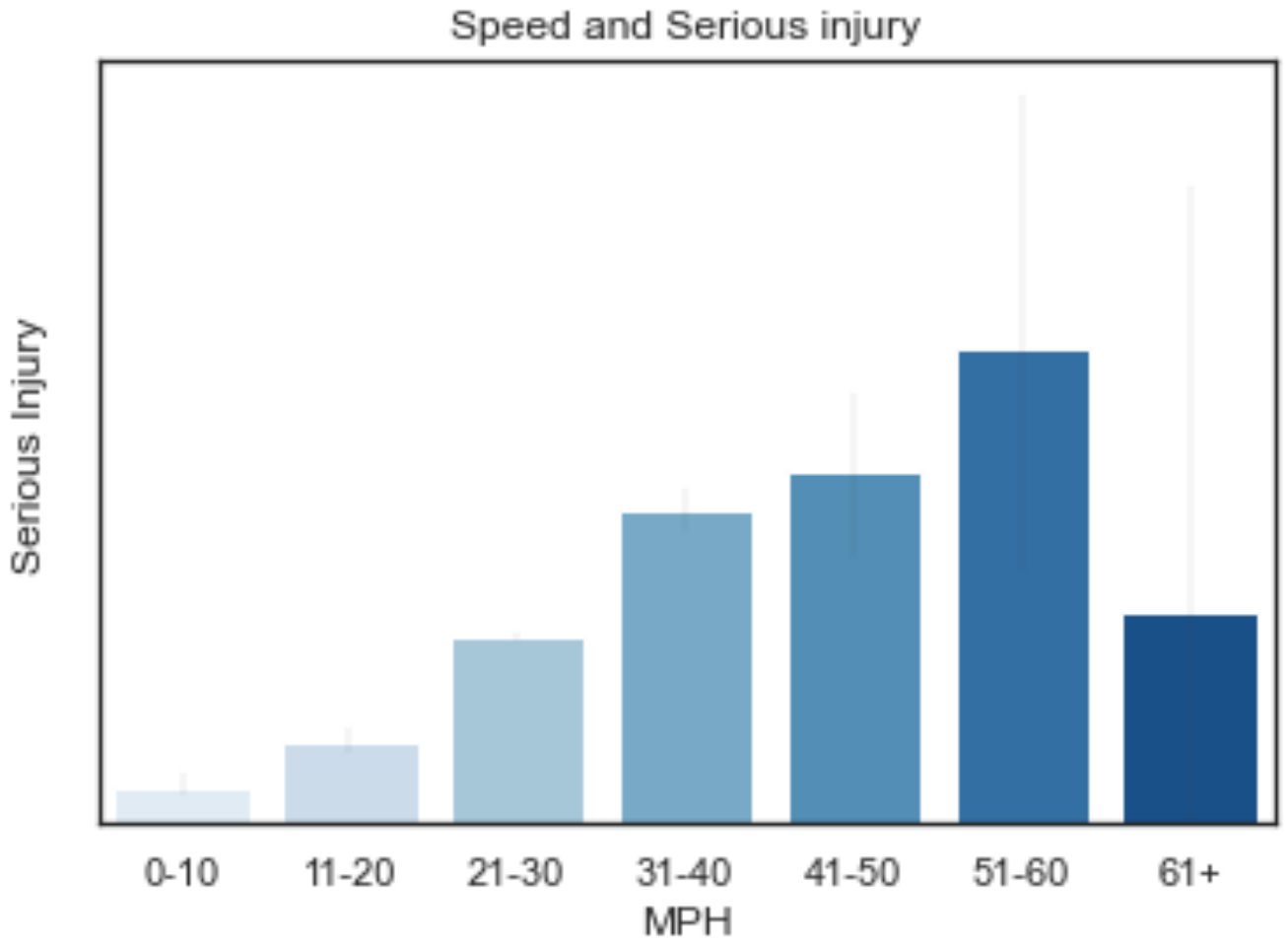
- Decrease emergency service response time
- Increase customer confidence

DATA OVERVIEW & LIMITATIONS:

- Data set: City of Chicago E-crash
- Chicago Crashes
- Time Range: 2017 to September 2022
- 580k unique crashes

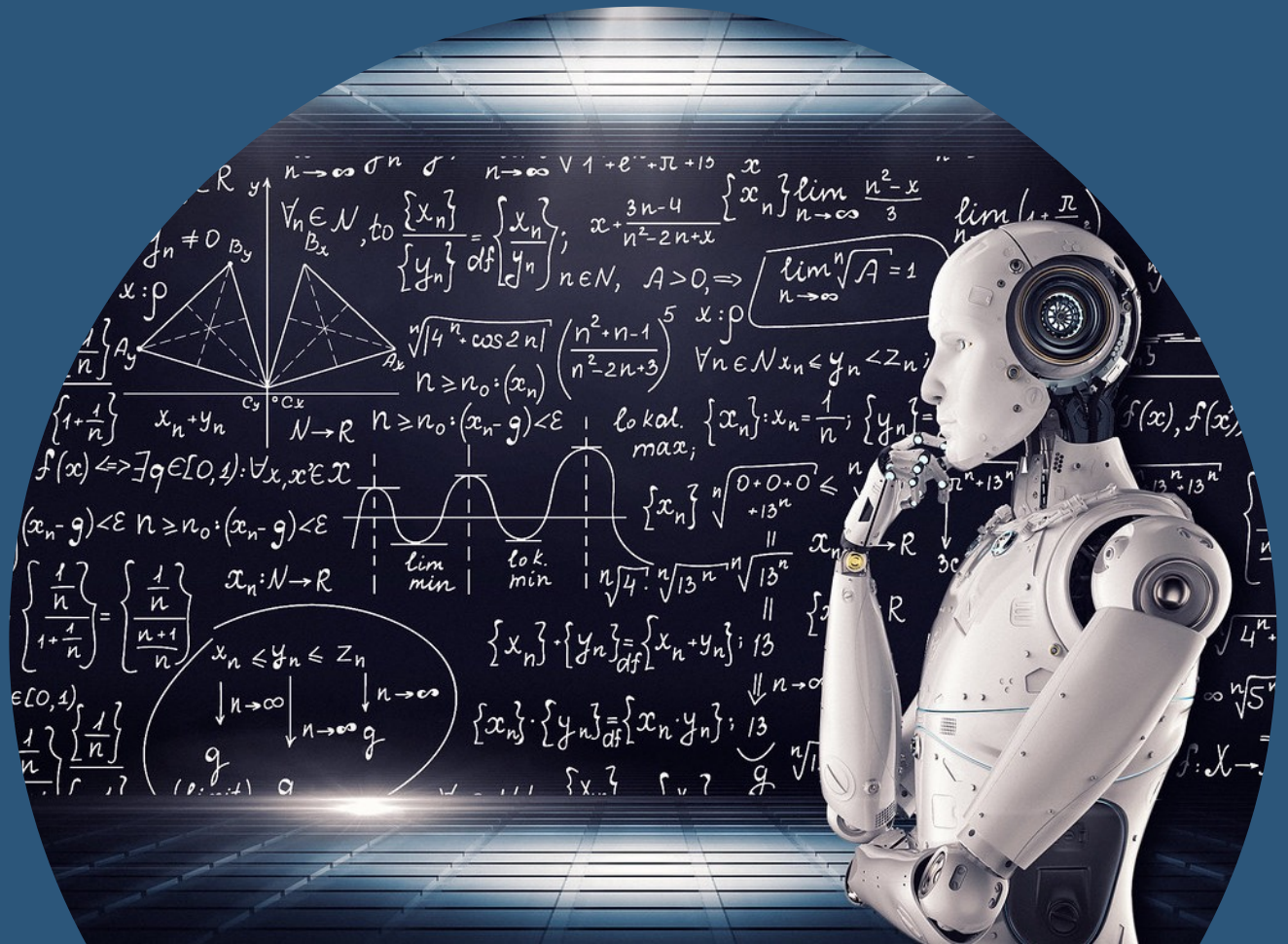


SPEED AND SERIOUS INJURY

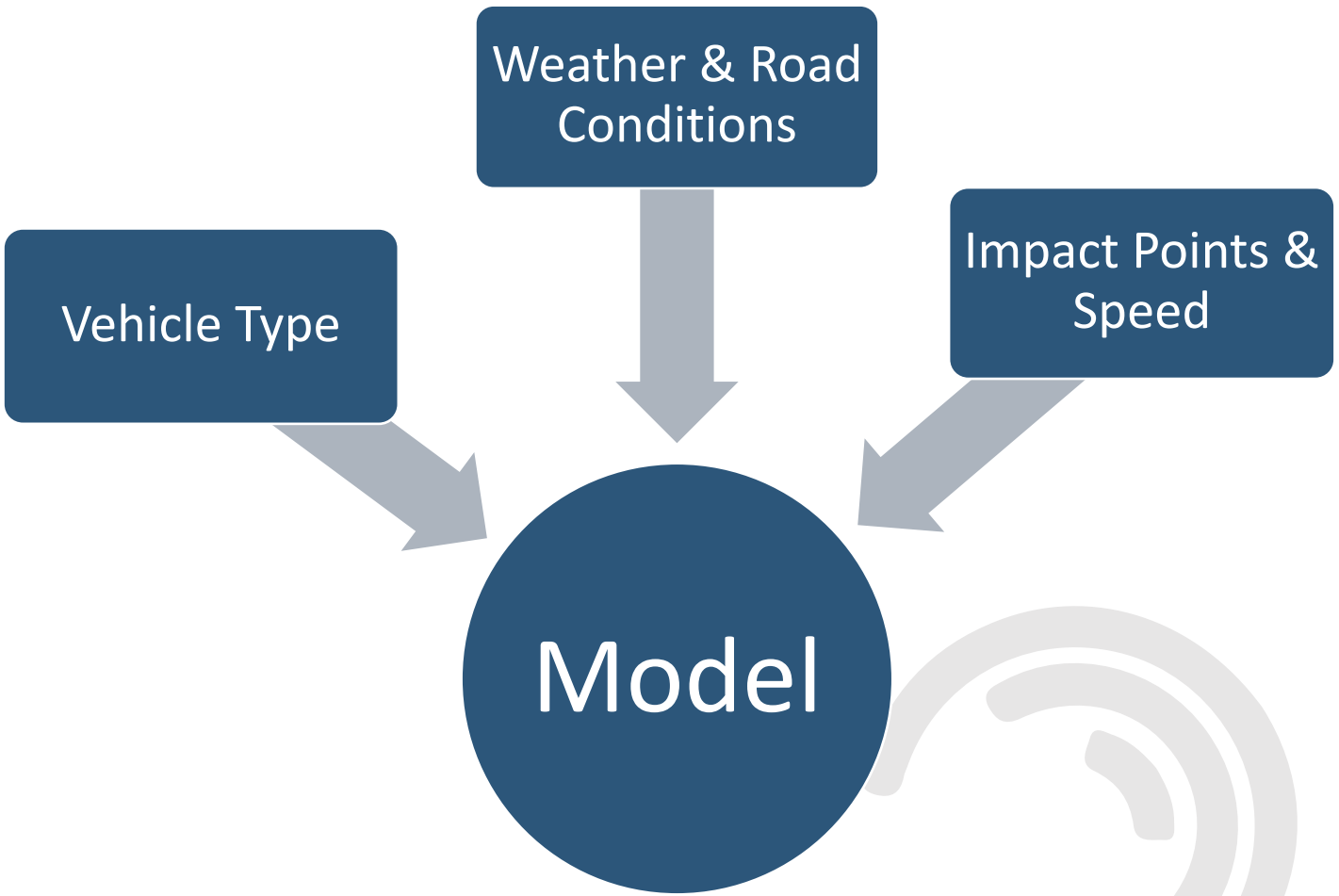


Footnote: The 61+ range only has 200 observations.

MODEL



KEY FEATURES



PERFORMANCE METRICS

RECALL

We want to find the optimal balance between the two

FALSE POSITIVE RATE

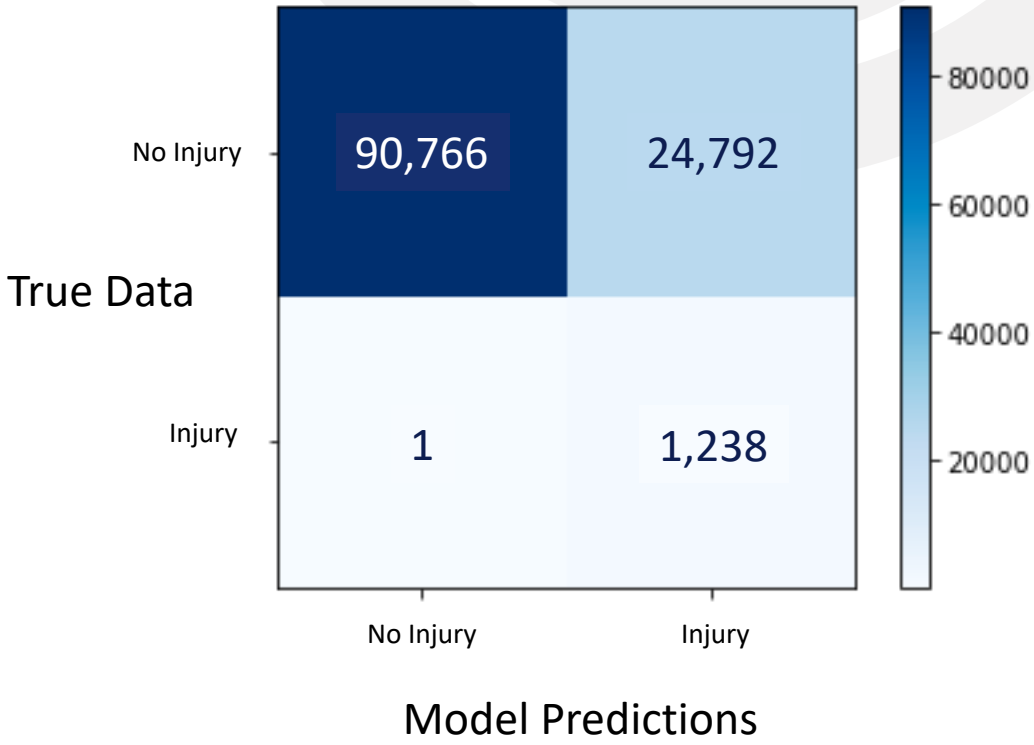
FINAL MODEL

99.9% Recall

- *EMS called for everyone who needs it*

21.5% False Positive Rate (FPR)

- *Only 1 in 5 people with no injury will be flagged*



CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

This model has the optimal balance of Recall and FPR

It is fully capable of making the required predictions

RECOMMENDATIONS

Move forward with prototyping

Add an alert feature to address false positives

FUTURE INSIGHTS

- Explore additional features such as real-time velocity

- Ensure sure the model generalizes well to regions outside Chicago

THANK YOU!

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