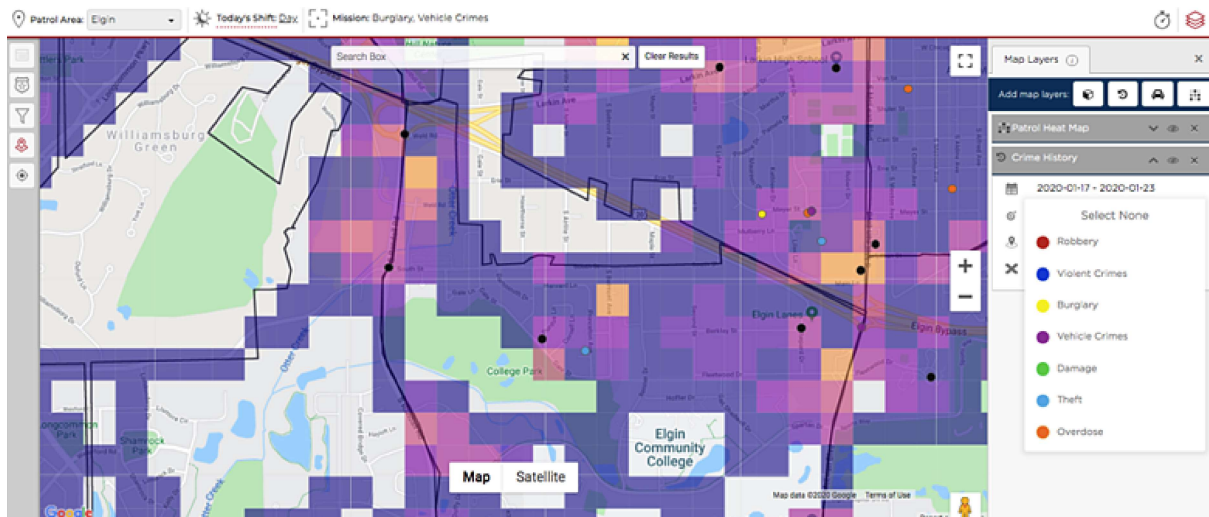


AI in algorithms for law enforcement authorities that predicts probability of type, place and time of committing a crime.

PredPol is a predictive policing company that provides software for predicting crimes. The machine-learning algorithm used to make predictions is based on 3 main data points:

1. crime type
2. crime location
3. crime date/time

As a result it shows city map with boxes of a size of 2 football pitches in that represents probability of crime commitment in the specific area with some details about it. Thanks to that information police can patrol more carefully sectors with the highest probability rate.



[1] - Screenshot of probability map.

Issues (based on real life example)

In small town Reading in Pennsylvania in 2011 due to 2008 crisis and later recession there was the highest poverty level - 41.3% in the whole US. Despite the rising crime rate economic situation forced local authorities to reduce 45 police officers positions. As a result local police commander decided to invest in *PredPol* software. The investment resulted in significant decrease of crime rate and growth in police successful police interventions.

What was the problem then?

Statistics were pumped with tons of low harmfulness crimes which mainly were committed in poor districts, more cases in specific area mean more often algorithm results about danger in mentioned districts. This in turn provides to more arrestments and at the end to overcrowded prisons which in connection with AI usage in the judiciary led to social inequalities because people from poor districts were more likely to get arrested for insignificant crimes and got longer sentences for it while in rich areas such crimes were totally unnoticed.

$$\frac{\partial A}{\partial t} = B + \frac{\eta D}{4} \nabla^2 A - \omega A + \theta \omega \delta$$

[2] - Patented formula that PredPol uses to make predictions.

Possible solution

Implement some randomization in the algorithm so it won't create a negative loop back effect for poor districts, put more pressure on more serious crimes and do not work for statistics results that police can be proud of in TV.

Resources

[1] - <http://blog.predpol.com/feature-spotlight-new-patrol-heat-map>

[2] - <https://www.predpol.com/technology/>