Predictive policing gets personal

Data mining can predict who will reoffend, not just where and when the crimes will occur.

By Robert L. Mitchell

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The consolidation of data in a common data warehouse such as N-DEx is just the first step in improving nationwide investigations. The next steps involve the use of data mining techniques to predict where and when crime will occur. This sounds like a page from the script of the movie *Minority Report*, but the objective isn't to arrest people but to anticipate and remove the opportunity to commit crimes before they can occur.

"9-11 triggered a major paradigm shift in the policing world. It had been a response mission. Now it's a prevention mission," says Steve Ambrosini, executive director of the IJIS Institute, an industry consortium of vendors of law enforcement software.

"Predictive policing is at the top of a lot of people's lists," says Commander Scott Edson of the Los Angeles Police Department, which uses a commercial software program, Coplink, for its incident management database. "It's something that Coplink and N-DEx will mature into."

Editor's note

This story was updated and corrected on October 24, at approximately 3:50 PM eastern time, to fix several errors. Among them: The vendor whose system is in use at the Charlotte-Mecklenburg Police Department, the location of that city (North Carolina, not South Carolina) and the correct name of Police Chief Rodney Monroe (not Moore). *Computerworld* apologizes for the errors.

Initiatives are already well underway at the local level in areas such as Los Angeles, where the PredPol algorithm developed by UCLA has been used to analyze seven years of incident information to predict where, within 500 foot by 500 foot areas, or "predictive boxes," certain types of property-related crimes are most likely to occur during an upcoming patrol shift. And then the department can concentrate on those areas during their shifts, or can redeploy police person-power appropriately.

In a 2012 pilot phase, the Los Angeles Police Department Foothills area recorded a 25% decrease in burglaries in a six-month period over the previous year, according to Sean Malinowski, commanding officer of the Real-time Analysis and Critical Response division. "The idea is to prevent crime."

Mathematicians developed the model based on an algorithm that's used to predict earthquakes, says Jeffrey Brantingham, chief of research and development at PredPol, a startup formed to market software that uses the PredPol algorithm to make predictions about where crimes are most likely to occur during a patrol shift to other police departments.

Like earthquakes, crime occurs along certain fault lines, and events tend to cluster together into a predictable pattern. Work now is expanding beyond car theft, burglary, and burglary from a vehicle, which represent 65% of all crimes, to predict other crimes that fall under the FBI's Part 1 classification, including robbery, rape, assaults and homicide.

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The Seattle Police Department, another early user of PredPol, started out with property crime predictions, which rolled out to all five of its precincts in May. A planned July rollout of a citywide predictive model to anticipate where and when gun violence is most likely to occur has been postponed due to "conflicting priorities within the agencies," says Sergeant Christy Robbin. "Our goal is to still roll out gun violence but we do not have a set date," Robbin says.

The department hopes to stem the tide of violent crime, which has been increasing in recent years, Robbin says. But the jury is still out as to how effective it will be: "With gun crimes you have fewer incidents, so the predictions aren't as strong," she says. Within the predictions, she explains, the first three to five boxes are usually where experienced officers would expect trouble. But it's boxes 8, 9 and 10 on down the list that they never would have anticipated, she says.

Since implementing a similar predictive policing system four years ago, the City of Richmond, Va. has seen a significant reduction in all violent crimes and property-based crimes.

The results were so good, in fact, that police chief Rodney Monroe implemented a similar system soon after taking on his current position as chief of police in Charlotte-Mecklenburg, N.C. This system, developed by Information Builders, includes historical data and refreshes every two hours to adjust predictions for 39 response areas. "We've had a 20% reduction in violent crime and a 30% reduction in property crime," he says.

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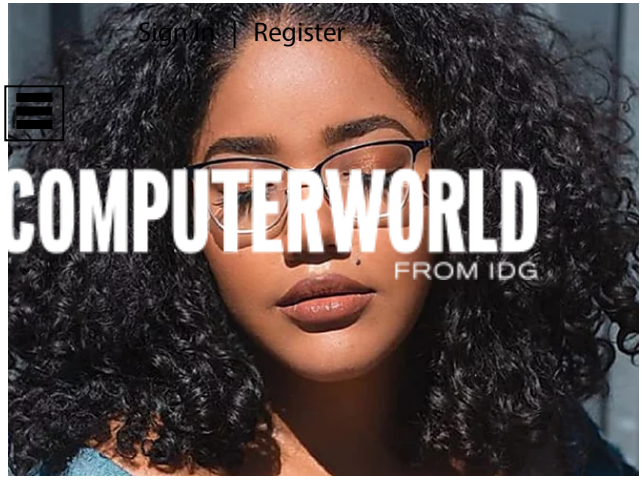

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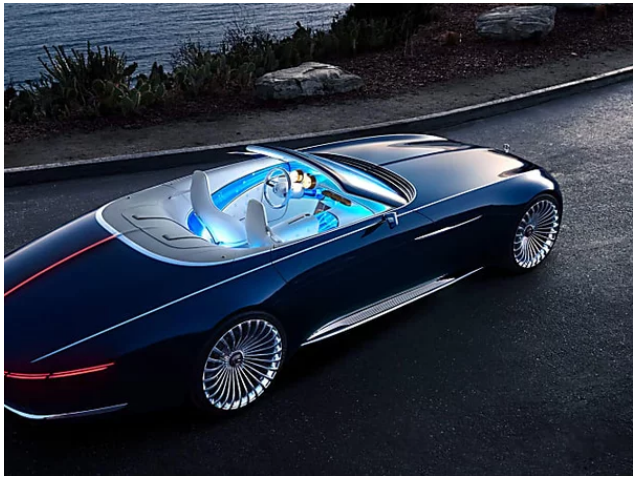

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