# Predictive policing gets personal

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

By Robert L. Mitchell

Computerworld |

OCT 24, 2013 7:00 AM PT

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Dr. Colleen McCue, senior director of social science and quantitative methods at DigitalGlobe, has been modeling violent crime using machine learning for more than 20 years. "People are creatures of habit. That's what this all goes back to," she says, adding that models can also make predictions about specific offenders if there's enough previous criminal activity.

For example, a shooter in Northern Virginia a few years ago targeted government facilities and, with the Marine Corps Marathon coming up, authorities were anxious to anticipate his next move. Law enforcement officials determined that the shooter preferred a position 200 meters back from the target with close proximity to a highway or a major roadway.

Using that information, McCue examined previous incidents involving the shooter and ran data to create a predictive model.

Using 3-D spatial data she created a heat map showing all locations on the marathon route that met the 200-meter criteria. Authorities positioned people there -- and nothing happened. While it's hard to know for sure if these actions thwarted the shooter, place preference came into play once again after it became clear that this shooter also had an affinity for cemeteries. Six months later he was apprehended at Arlington National Cemetery.

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Predictive policing is a helpful tool, but you still need an analyst to interpret the data, rather than just depending on the system to push out all the answers, she adds. "Statistical-based approaches work in some cases, but in others [human] judgment still works better."

Charlotte-Mecklenburg, N.C. is now going beyond predicting where and when crime will occur to predict who is likely to reoffend. Instead of studying just crimes and locations to decide where crimes will occur, police departments make predictions using criminal histories to predict who will commit a crime. This approach -- making predictions about people with criminal records -- is one that both Los Angeles and Seattle have avoided due to public fears that the technology would be used to profile people based on race or the neighborhood in which they live.

In Los Angeles the program met initial resistance due to such fears. "There were some questions about whether we were violating civil rights by doing this," says Malinowski. "But we're not factoring in arrests, and there is no information about individuals. It's about crimes and the times and places they occurred."

Andrew G. Ferguson, associate professor of law at the University of the District of Columbia, has studied and published a paper on predictive policing. He says predictive policing efforts in Los Angeles and Seattle do bring up concerns about racial and class profiling, but indirectly, because it's the area, not the individual, being profiled.

> "The key to determining whether predictive policing will have a discriminatory impact is to figure out if the areas targeted are disproportionality found in communities of color," he says. But, he adds, "I have heard of no major complaints from the LA rollout of the technology."

But Ferguson calls Charlotte-Mecklenburg police chief Monroe's approach of focusing on people rather than geography "troubling."

Monroe argues that the approach does not constitute profiling because the model only looks at people who already have a record of criminal activity. "We could name our top 300 offenders," he says. "So we will focus on those individuals, the persons responsible for the criminal activity, regardless of who they are or where they live."

Knowing who the bad guys are and keeping an eye on them is in itself a form of predictive policing, Ferguson says, but using computers to make predictions about one person's future behavior is a different matter. "I don't think we have the technology to know with any degree of confidence who will commit the next crime," he says.

But Monroe argues that predicting when and where known criminals offend next will be more effective than the areas-based approach taken by other agencies. What is the probability that the offender will offend again, in what timeframe and where? "We're not just looking for crime. We're looking for people," he says.

*This article, Predictive policing gets personal, was originally published at Computerworld.com.*

*Robert L. Mitchell is a national correspondent for* Computerworld*. Follow him on Twitter at* twitter.com/rmitch*, or email him at rmitchell@computerworld.com.*

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