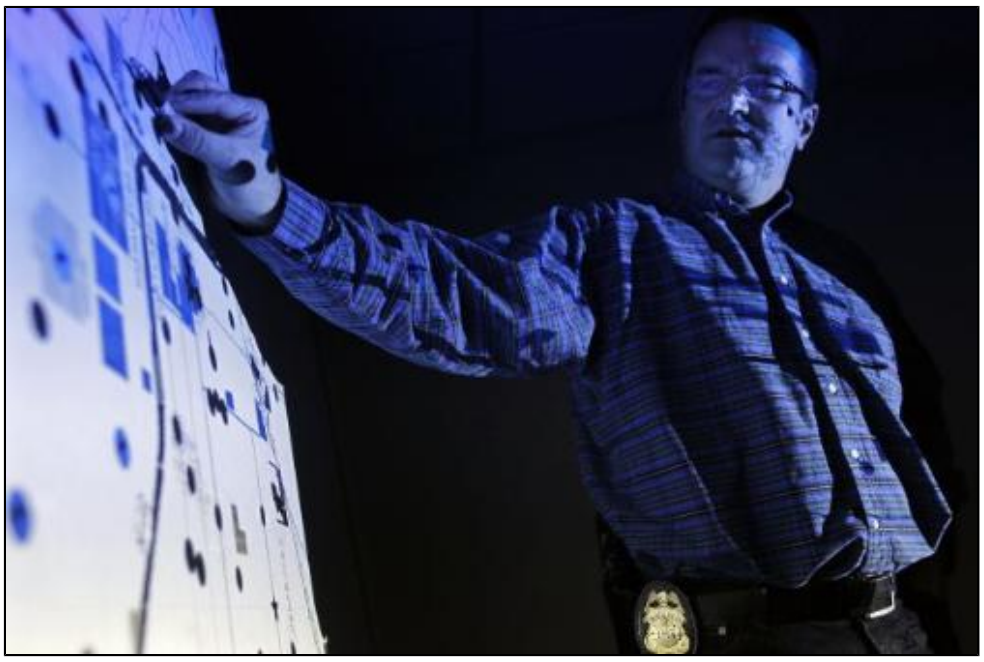
StarTribune.com

Targeting the next crime



Richard Tsong-Taatarii, Star Tribune

Sgt. Jeff Egge runs the Crime Analysis Unit. Using crime data and software, his team is able to point out hot spots where crime is likely to occur.

Minneapolis police are part of a national movement that is producing revolutionary results in predicting criminal behavior.

By MATT McKINNEY, Star Tribune

Last update: January 26, 2011 - 7:11 AM

Ryan Hughes, a young, spiky-haired computer analyst for the Minneapolis Police Department, pulls up a map of the Twin Cities on his screen.

"Here, here, here," he begins, pointing to six red dots. Each marks a robbery probably committed by the same man.

"And here," Hughes continues, pointing to a dot just northeast of Minneapolis, "is where I predicted he would go next."

Simple as a crime map, seemingly as far-fetched as ESP, such scenes are becoming more common. Police departments from Minneapolis to Los Angeles are turning to the emerging science of using recent crime data to predict where criminals will strike next.

The potentially revolutionary step could fundamentally alter the nature of police work.

The idea is that everyone, even criminals, are creatures of habit. With enough information about past crimes, it's possible to forecast their future target.

"We usually look at the last week and say, 'This is what happened in the last week,'" said Minneapolis Chief Tim Dolan. "Well we've added to that, saying, 'This is what we think's going to happen next week.'"

That kind of thinking has just begun in Minneapolis, but Dolan says it's already paid off in north and southwest Minneapolis, areas that led the city last year in reducing overall crime rates.

The strategy looks slightly different everywhere it's used, but predictive policing relies mainly on a police department's ability to accumulate deep databases of crime information that detail time, location, methods and numerous other bits of revealing data. Crunched

by a computer analyst, the numbers reveal patterns.

That's the task facing a crew of five such crime analysts who work out of a second floor office in City Hall. Every day, they pore over recent crime data, slicing it different ways and sometimes using software to crunch it further. If a pattern emerges, they mark it down for consideration on an internal crime map that gets passed along to the chief for his weekly meeting with top inspectors and lieutenants.

A handful of police departments around the country have spent tens of thousands of dollars on more advanced software, or are working with university researchers and technology companies on algorithms to help them spot crime trends. It's akin to predicting where an earthquake's aftershocks will be felt, says a Santa Clara University mathematician developing formulas for such police work.

As for Hughes' prediction of where the Minneapolis robber would strike next? It was made using free software distributed by the National Institute of Justice. The software examines the location and timing of each crime to draw its conclusions. The estimate of the robber's next target turned out to be a mile off. But in the world of crime prediction, that's still counted as a success -- the kind of information that could put a patrol car close to the action.

Hughes, who hopes the Minneapolis department will eventually use more high-powered software for predictive policing, said that his maps have accurately predicted the locations of 45 percent of the city's violent crime.

"I have a better batting average than Joe Mauer," Hughes said.

Stocking Pop-Tarts

To better understand predictive policing, consider the Pop-Tarts story.

Businesses such as Wal-Mart have long anticipated customers' needs based on weather and time of year. Coastal stores knew that as hurricanes approached, customers stocked up on bottled water and duct tape. Those things made sense, but looking more closely at customer data and comparing it to weather patterns, analysts at Wal-Mart noticed that customers anticipating a hurricane also bought more strawberry Pop-Tarts.

It's the sort of anecdote that the emerging industry of predictive policing embraces because it shows how analyzing data can turn up surprises, things that can be used to predict future behavior.

The promise of doing the same thing with crime has prompted some large police departments such as Los Angeles to invest in partnerships with university researchers to devise predictive algorithms or formulas. As exotic as it sounds, it's just the next step in the changing world of police work, said William Bratton, the celebrated former chief of police in Los Angeles and New York City.

"It's really the continuation of the evolution of policing," Bratton said.

Starting in the 1990s, when police began using crime reports to identify hot spots, the focus has been on putting police officers near high-crime areas. Putting laptops in squad cars and publishing crime maps helped shorten response time. Now, police departments can quickly analyze a lot of crime data to spot crime trends as they're occurring.

"So after two or three incidents we can put a stop to it instead of waiting for 20 or 30," said Bratton, who now works as an independent security consultant.

"This is potentially labor-saving," he said. "That's very important because as we're going into very tough times with public financing, it's going to become more and more critical."

The hope is that predictive policing will help supplant random patrolling, which studies have shown doesn't work well.

"It's not enough to send people out and expect that they will have an impact on crime," said Chuck Wexler, executive director of the Police Executive Research Forum in Washington.

Narrowing the field

Minneapolis police estimate that half of the city's most serious crime takes place on 6 percent of its land area. Many of the worst areas are under video surveillance, as the city expands its use of closed circuit cameras. But even within those high crime areas, there might be a few blocks that are particularly rough on any given week, said Sgt. Jeff Egge, the head of the department's Crime Analysis Unit.

His staff of five analysts make predictions by printing color-coded maps that show blocks or small sectors where they expect crimes such as burglary, robbery and aggravated assaults. The techniques are less effective for "episodic" crimes such as homicide, which are more random.

The strategy adds a predictive element to the department's CODEFOR program, begun in 1998 to map the city's crime hot spots.

"When we started CODEFOR, we looked at where crime occurred last week," said Deputy Chief Rob Allen. "What we've asked people to do is to focus more on where we anticipate crime is going to occur next week. We've made it sort of future-oriented rather than assuming the same patterns will continue."

It's had its successes, police say.

Last October, two felons walked into the Dunn Brothers coffee shop in Uptown, pistol-whipped one of the two clerks, tied them up in a back room and took a bag of cash.

Witnesses called 911. Police arrived in time to catch the robbers. The two now face federal charges due to their criminal histories.

Fifth Precinct Inspector Ed Frizell said it was no coincidence that officers arrived so quickly. Fifth

Precinct officers were looking out for storefront robberies along Lake Street as part of the precinct's predictive analysis.

"The officers of the Fifth Precinct have absolutely made this thing work," Frizell said. "They have total buy-in."

Frizell said he knows the color-coded maps issued by the Crime Analysis Unit are taken seriously by his patrol officers because he sees them taking notes off of fresh maps hung in the precinct.

It's easier than handing an officer a stack of the latest intelligence, said Lt. Jeff Rugel, who runs the Gang Enforcement Team out of the department's new strategic information center. "A commander issuing orders can say, 'See where it's red? Go be where it's red,' " Rugel said. "It makes it very easy to see what's going on as opposed to charts and charts of data."

It can be tough to gauge the success of predictive policing because analysts don't know whether added police presence at predicted hot spots deters the predicted crime.

"You can't measure things that don't happen," said Capt. Amelia Huffman, commander of the criminal investigations division.

If a prediction helps police catch someone doing a lot of crimes, the effect on local crime rates can be remarkable. For example, said Huffman, if a prolific burglar is captured, burglary dots on the weekly crime maps will "melt away."

Plain common sense?

Sometimes, predictive policing looks a lot more like common sense than science fiction, said Egge, who gave the example of how his unit analyzed years of data on burglaries that occurred each year during the week the University of Minnesota started classes.

Laptops, GPS units, iPods and other expensive items are often left in cars or hallways as students unpack, and many are stolen.

This past fall, crime analysts Hughes and Susan McPhee came up with maps of the Dinkytown area that highlighted the spots that historically have the most crime during opening week. Then crime prevention specialists warned students in that area to use caution while officers kept an eye on the worst spots. Crimes were down sharply, police said.

Last month, Chief Dolan spoke at the grand opening of a police intelligence center where a few officers can monitor hundreds of live video feeds from across the city on three movie screens. They just have to know where to look.

Dolan said predictive policing has just begun in Minneapolis and will grow as the department becomes more accustomed to it. In the end, he said, it's just one more tool to put police where they should be.

"The most efficient thing we can do is prevent a crime," Dolan said. "Solving a crime is all good once a crime's occurred. It is much more efficient to be

trying to prevent crime for a community."

Matt McKinney • 612-217-1747