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MADISON POLICE | TECH

Analysts help Madison police find patterns in crime

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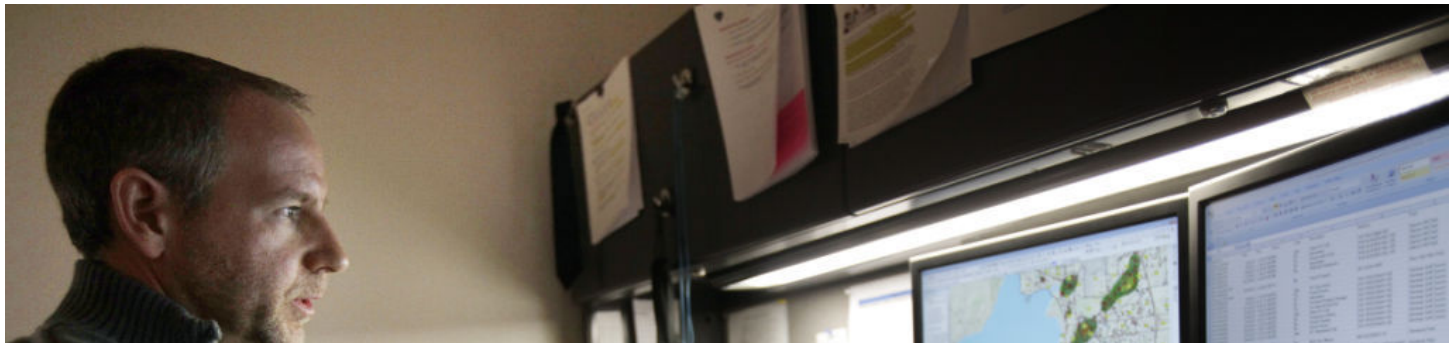

As UW-Madison students packed up to go home for winter break in December, the crime analysts at the Madison Police Department's Downtown offices knew what was coming next: A wave of burglary reports as students returned to campus in January, finding their apartments broken into and valuables stolen.

So the analysts worked with officers, residents and property managers in the Near West Side neighborhoods around College Court, getting the word out to students to take precautions and lock up as they left their campus-area homes.

That's the job of the department's three crime analysts — to pore over police reports and data, spot trends and use that work to give officers and the public guidance on when and where crimes could happen.

Such forecasts, known as "predictive policing," are helping officers better focus their efforts, officials say.

"With very limited resources and money, we can be able to police smarter and more efficiently," analyst Caleb Klebig said.

The use of analytic software and crime mapping in Madison is part of a growing trend of police departments using data to drive some of their decision-making.

And policing is one of many industries being reshaped by the so-called “big-data” revolution, in which experts in fields from health care to transportation are quickly able to analyze mountains of data to work more efficiently.

“Just about anything that one can think of it being transformed,” said Jignesh Patel, a UW-Madison professor and expert in the use of big data.

The unit, which has been with the department for about 10 years, garnered headlines earlier this month when Klebig and a Madison police detective noticed patterns in a string of bank robberies.

Klebig told police in Madison and nearby cities the robber could strike again at one of 11 possible targets on the afternoon of March 5 or 6. Sure enough, police said, a man responsible for a string of bank robberies showed up to one of the targets at 2:40 p.m. on March 5 and was arrested by Middleton police officers, who were there waiting for him.

The analysts work in all sorts of domains, from bank robberies and burglaries to problems like city parks that draw complaints from neighbors.

The old model of collecting data, Patel said, emphasized just keeping those pieces of information considered most important.

But in the past 10 years, as technology has made it far cheaper to store and parse vast amounts of data, the focus has switched to collecting as much of it as possible — on the chance that those seemingly insignificant pieces illuminate a pattern, Patel said.

“Let’s collect everything that we have, or that we can get access to, then figure out if we can get information from this,” he said.

The use of that method in some contexts — most famously the National Security Agency's collection of phone and email records — has sparked strong debate over the balance between problem solving and citizens' expectations of privacy, Patel said.

Finding that balance is an "open question" society hasn't yet answered, he said.

Still, the idea of collecting as much information as possible applies particularly well to policing.

Madison's crime analysts use software programs to tap into a database of the department's reports and records and break down that data to find meaningful patterns, analyst Tom Scholten said.

Analysts aren't just looking at where or when crimes occur; they're also looking for more subtle common threads, said Sgt. Tim Radke, who oversees the unit. Not just that someone kicked in a door, but how it was kicked in; not just that a robber had a gun, but how he or she held it and demanded money, Radke and Klebig said.

Like anyone else, Klebig said, criminals are often creatures of habit.

"When they find their niche, they're most likely going to continue to do that," Klebig said.

Although the patterns aren't perfect indicators, identifying those habits can give a much better idea how a criminal will act next. Having that information lets officers focus their resources where they are needed most, police say.

Getting that level of specific data requires good reporting from officers on the street, of course, since the civilian analysts aren't usually at crime scenes.

But officers appreciate those minute details, Radke said, and recognize the value of the analysts' work. The unit has been called upon more frequently over the years, he said, a trend he expects to continue.

Efforts to put big data's potential to use — whether in policing or any other field — are nowhere near their limits, Patel said.

"We've made a lot of progress, but there's a long way to go," Patel said.

Madison police launch new detective units aimed at violent crimes, burglaries