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Program helps identify likely violent parolees

By Faye Flam

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As part of an attempt to fight crime, Philadelphia is now the subject of an experiment never tried in another city: A computer is forecasting who among the city's 49,000 parolees is likeliest to rob, assault, or kill someone.

Since March, the city's Adult Probation and Parole Department has been using the system to reshuffle the way it assigns cases. Each time someone new comes through intake, a clerk enters his or her name and the computer takes just seconds to fish through a database for relevant information and deliver a verdict of high, medium, or low risk.

"It's a complete paradigm shift for the department," said chief probation and parole officer Robert Malvestuto. "Science has made this available to us. We'd be foolish not to use it."

Criminologists say the system works - it can identify those most likely to commit violent crimes. But whether Philadelphia can use that to intervene and change people's behavior is still not known. A full evaluation won't be done until the end of the year.

Yet some probation officers say the changes already are making it far harder for them to help those at lower risk to get off drugs and improve their lives.

The controversy over the new system cuts to the heart of a long-standing debate: whether parole agencies should control dangerous people or help them reclaim their lives.

The computer isn't merely crunching data - it is creating its own rules in what is known as "machine learning," a fast-growing technology that enables computers to encroach into the human realms of judgment and decision-making.

The Adult Probation and Parole Department started considering a technological upgrade in 2006, the year the murder rate hit a peak of 27.8 per 100,000 inhabitants, the highest of any of the nation's 10 largest cities.

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University of Pennsylvania criminologist Larry Sherman suggested the department go hightech, with the help of University of California statistician Richard Berk.

At the time, Berk had been doing computer modeling for the California prison system. "We were forecasting what types of inmates are likely to do nasty things in prison," he said.

Later that year, Berk took a job at Penn and started applying his statistical skills to predicting murder. He later added assault and robbery. "The idea was to forecast who the real bad guys were - so you could deliver special services to them and reduce the number of homicides," he said.

Berk is an expert in machine learning. Computers equipped with this capability, which is somewhat different than artificial intelligence, can execute surprising feats - predicting which products consumers will buy or which SAT essays will get top marks from panels of English teachers.

The computer doesn't use a formula, nor does it develop one that anyone could write down. Instead, it learns by itself after being fed reams of "training data," in this case on past parolees and their subsequent crimes. The system looks for patterns that connect such factors with subsequent crimes.

Only recently has computer data-processing power been up to the job of predicting crime. "You couldn't do this five years ago," Berk said.

To "train" the system, Berk fed in data on 30,000 past cases; about 1 percent had committed homicide or attempted homicide within two years of beginning probation or parole.

The data included the number and types of past crimes, sex, race, income, and other factors.

To test its power, he fed in a different set of data on 30,000 other parolees. This time he didn't tell the computer who would go on to kill.

Applying what it had previously learned, the system identified a group of several hundred who were considered especially dangerous. Of those, 45 in 100 did commit a homicide or attempted homicide within two years - much higher than the 1 in 100 among the general population of probationers and parolees.

The predictors that mattered most were age, age at first contact with adult courts, prior crimes involving guns, being male, and past violent crimes.

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