

## UCLA research project uses math to predict possible crime

LAPD is working with UCLA to assist with research that may predict violence

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## By SARAH KHAN Updated: 5:55 PM

The weather forecast for the next day might predict a high chance of cloudless skies and 78degree weather. If Los Angeles gets hit with an earthquake, news stations may predict where and when future aftershocks are most likely to occur.

Now UCLA researchers are applying the same philosophy to predict the occurrence of crimes such as burglary and robbery in the neighborhoods of Los Angeles. In other words, researchers may one day be able to predict where and when crimes will most likely occur. Possibly Related UCLA researcher James Enstrom not reappointed to position 1:50 AM UCLA teaching fellows gain experience during summer sessions 1:46 AM U.S. News & World Report ranks USC above

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"We have a lot of mathematical models on weather," said Andrea Bertozzi, a professor of mathematics who is working on a research project to try and predict crimes. "If we can understand crime patterns in a similar way, we should try to use that information as best as possible."

The project has been in the works for about five years, Bertozzi said. Researchers are focused on using computer simulations in order to understand how crime happens and if it is possible to predict where it will happen in the future, she said.

According to Bertozzi, researchers at UCLA are working on this kind of technology in hopes of understanding large scale crime patterns within a city.

Bertozzi and other researchers are using statistical information of past crimes to find trends within the data, she said.

For instance, data from the research shows a house that has been burglarized once has a higher chance of being hit again, said Martin Short, a computational and applied mathematics assistant adjunct professor who is also working on the project.

Looking at such data can give researchers an idea of the overarching trends seen in criminal activity, Short said.

Researchers are trying to use mathematical models to simulate these large-scale patterns. Burglary

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and gang crimes are two specific crimes the team is looking at and trying to find trends for, Bertozzi said.

Gang crimes and rivalries, for instance, can be complex cases, Bertozzi said. Simulating the way gangs behave and interact with one another puts researchers a step closer to predicting where they will strike next, she added.

From this general information, Short said it may be possible to give day-by-day predictions of what crimes are more likely to occur in a neighborhood or city. The idea is to be able to make finer and finer predictions about what is going to happen, he added.

Using such methods may give police an edge over criminals when it comes to using the right law enforcement methods, Bertozzi said. Knowing where and when a crime is likely to occur means that police can do more than react to distress calls after the crime has already happened, she said.

Although the UCLA campus has not been used in any of the models, university police are interested in following the research to see the findings, said Nancy Greenstein, UCPD spokeswoman.

UCPD does much of its own crime analysis by looking at past incidences on campus, she said.

The Los Angeles Police Department has also expressed interest in the project by going to research meetings and supplying data on certain crimes to be used for the models, Bertozzi said.

But the simulations are not immediately being put to use. The project is still in the research phase and is not ready to be implemented by police forces, Bertozzi said.

"We're stepping very cautiously when it comes to dealing with the police and making suggestions for them," Bertozzi said. "We're spending most of our time ... developing models and comparing them with data."

While it is difficult to say when police will be using these models as a means of cracking down on crime, LAPD may receive a \$3 million grant to test the project's accuracy in real situations, Short said.

LAPD could not be reached for comment.

"Officers have a lot of personal experience out in the field," Bertozzi said. "(We) have to think about this as a very synergistic problem that involves a lot of pieces of information."

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