Skysong Innovations

Advancing the Arizona State University
Knowledge Enterprise

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VPRED: Violence Prediction Software

Gang violence in the United States accounts for 20 to 50 percent of homicides in many major cities each year. Law enforcement have existing data on many of these groups, such as the underlying social network structure. This information has previously proven useful in enabling smart policing tactics and improving law enforcement's understanding of a gang's organizational structure. However, there is still a need for tools that will enable more focused policing. By better understanding and predicting patterns of violence, police can more efficiently and effectively reduce gang violence.

Researchers at Arizona State University have developed a "psychosocial profiling" software tool to identify violent criminal offenders. This tool implements a number of techniques for social network monitoring and combines the information in a way to better predict the chance of a criminal being violent. In cases where the entire network was known, the software obtained a precision rate of 89% and a recall rate of 78%. These results out-perform current approaches used by law-enforcement. This software tool could facilitate more focused and effective policing efforts, thereby reducing gang violence and deaths.

Potential Applications

- Law enforcement
- Violence prediction and prevention
- Gang networks
- Terrorist networks

Benefits and Advantages

- Improvement on Existing Techniques – Higher precision and recall rates than current violence-prediction methods.
- Increased Accuracy - Lower number of false positives.
- Proven Results – Evaluated using real-world offender data from the Chicago Police Department.

For more information about the inventor(s) and their research, please see

Dr. Paulo Shakarian's directory webpage