

## **CPS International Conference ‘Street policing in a smart society’**

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### **Academic panel session 1: Predictive policing in the big data era**

This academic panel session focuses on predictive policing, big data and new technologies. Each of the authors will offer a different yet complementary view on these topics, by applying advanced techniques.

#### **Panel Chair**

Prof. dr. Wim Hardyns

The Institute of International Research on Criminal Policy (IRCP), Ghent University

#### **Panel Papers:**

##### **New and emerging data sources for spatio-temporal analyses: Opportunities and threats for big data policing**

Thom Snaphaan (speaker); Wim Hardyns

The Institute of International Research on Criminal Policy (IRCP), Ghent University

##### **Social capital variables at the neighbourhood level as predictors in a predictive policing model**

Anneleen Rummens (speaker); Wim Hardyns

The Institute of International Research on Criminal Policy (IRCP), Ghent University

##### **Automated Suspicion: Offender-Based Predictive Policing in the Age of Big Data**

Bob Rigo (speaker)

The Institute of International Research on Criminal Policy (IRCP), Ghent University

#### **Panel Abstract**

This academic panel session focuses on predictive policing, big data and new technologies. Each of the authors will offer a different yet complementary view on these topics, by applying advanced techniques.

The first study (**Thom Snaphaan & Wim Hardyns**) is about new and emerging data sources for spatio-temporal analyses, and the opportunities and threats for big data policing. In the contemporary data-rich or data-intensive era, researchers and practitioners increasingly making use of new and emerging forms of data. The proliferation of these new and emerging forms of data in crime-related research delivers large opportunities, and this is particularly useful in a micro-level examination of crime, place and time. Given the interdisciplinary nature of criminology, it is inherent to our research field that we can learn from disciplines like – among others – psychology, geography and economics. Therefore, in this scoping review, the authors have searched for interdisciplinary empirical applications of new and emerging data sources as measurements of key theoretical concepts relevant to a spatio-

temporal assessment of crime. This look around the corner of the criminologist's own research field, learns that an interdisciplinary approach has the potential to foster our understanding of how and why crime concentrates at micro places (hot spots) and on specific times (burning times), and, hence, provide useful perspectives for big data policing. Nonetheless, the use of big data in policing has drawbacks too, which will be discussed together with the opportunities.

The second study (**Anneleen Rummens & Wim Hardyns**) is about the construction of a predictive policing model. Predictive policing models aim to predict crime events based on available crime and socio-economic data at a micro-geographic level. The aim of this study is to investigate the potential of including data on social capital, disorder and fear of crime for improving prediction performance of the predictive policing model. To this end, data is used from the Social capital and Well-being In Neighbourhoods in Ghent (SWING) survey, the Social Capital in Neighbourhoods (SCAN) project and the quality of life monitor from the city of Ghent. These datasets are based on extensive surveys at the neighbourhood level in Ghent and contain variables related to among others social capital, collective efficacy, social and physical disorders, and fear of crime. The prediction performance of two models are compared against each other: one model with the social capital variables included and one base model without these variables, with only basic crime and socio-economic variables included. The results of this analysis and its implications for the prediction performance of the predictive policing model will be discussed.

The third study (Bob Rigo) is about offender-based predictive policing in the age of big data. With the rapid development of new technologies and the expansion of available data, law enforcement agencies (LEAs) are increasingly relying on big data for predictive policing techniques. However, the use of data-driven algorithms to assess the "risk" associated with an individual is highly contentious and fraught with personal privacy concerns. The European data protection framework aims to incorporate technological developments and balance the seriousness of the risk of future criminal activity with the intrusion into an affected person's life. Because LEAs are on the verge of using these techniques to their fullest potential, it is essential that there is full clarity on the protection offered by the recent Law Enforcement Directive. In order to contribute to our understanding of the legal challenges brought by the consequences of disruptive technological innovations, the research aims to uncover both strengths and weaknesses of person-based predictive policing techniques from the viewpoint of LEAs and balance this against the risks in terms of protection of the data-subject. Afterwards a thorough analysis of the EU data protection acquis should shed light on the question if the current measures and safeguards prescribed by law are adequate to counteract the risk of infringing on our individual and collective freedoms and fundamental rights, this infringement being a theme running through contemporary policy documents and academic literature.