

Nayar Prize II Phase III Quarter I Progress Report – February 2019

Project: A Data-Driven Crime Prevention Program

The objective of “A Data-Driven Crime Prevention Program” is to design, implement, and deploy a flexible, innovative model for crime prevention that can be translated to a wide array of communities in the United States and beyond, thereby achieving far-reaching societal impact. The project has succeeded in producing advances in predictive modeling technology based on machine learning, along with a legal-ethical framework for appropriately employing this technology to crime prevention in a way that respects constitutional rights and achieves acceptance by the community.

Progress Summary

In Year 3 of the project, we will be evaluating the use of the predictive algorithm by the Elgin Police Department (EPD) to provide social services, improving the risk model, comparing the impact of varied interventions, and influencing the national debate on the issue of predictive policing. In the first quarter of Year 3, we have made progress toward these goals.

IMPLEMENTATION OF THE ALGORITHM: During this quarter, Professors Miles Wernick and Yongyi Yang developed candidates for scientific research questions and corresponding statistical analysis approaches to obtain findings that will then shed light on key issues and inform the development of the algorithm and the intervention approaches. These will be further developed and finalized in consultation with EPD. Retrospective studies will be performed in part using a propensity scoring methodology that uses *post hoc* identification of control and treatment groups.

LIAISON WITH ELGIN: The Elgin Police Department has a new police chief. Miles Wernick and Lori Andrews, through meetings and conference calls with the chief and other EPD personnel, have discussed the way in which the algorithm works and what the next steps might be to test the algorithm and to use it to prioritize the delivery of social services in order to reduce crime. The Elgin participants expressed an interest in the relationship of homelessness and mental health issues to crime. Based on this interest, Lori Andrews and students at IIT Chicago-Kent College of Law reviewed articles in criminology and psychology literature to determine how the services offered might take into consideration homelessness and mental health.

STUDENT AND ALUMNI INVOLVEMENT: In this quarter, Patricia Villa Berger began a Ph.D. program at IIT Chicago-Kent College of Law with Professor Lori Andrews as her advisor. Her dissertation focuses on the use of AI in policing and in the criminal justice field. She is taking classes at the law school in data analytics, technology assessment,

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and computer programming. Villa Berger wrote a paper this quarter on the use of predictive algorithms in sentencing. Prior to attending IIT Chicago-Kent, Villa Berger worked in Mexico in the criminal justice system. She can help bring the ideas of our project to other nations. Using other research funds, Lori Andrews also enlisted the help of alumna Alexandra Franco (LAW '16) to expand on work she had done as a law student about alternative approaches to the prediction of crime.