University of Alberta and Edmonton Police Service Seed Grant – Approved Projects

2020/21

Project Title: Building a Partnership to Catalyze Police System Evolution

PI: Dr. Melissa Tremblay – Educational Psychology

EPS Partner: Dan Jones – Edmonton Police Service

Description: Controversial calls for police reform are echoing across the world, and the voices of youth rarely reverberate in the polarizing debates on this topic. Thus, there are four objectives for this project. We will aim to (1) solidify an emerging partnership of service providers, youth, and academics who are interested in understanding how police can better work with marginalized youth, (2) conduct a realist synthesis of strategies for police to work effectively with marginalized youth, (3) create a robust research proposal based on our realist synthesis, and (4) document our partnership processes. We will build on relationships with the Edmonton Police Service and with two community organizations that serve Indigenous youth, sexual and gender minority youth, and youth experiencing homelessness, addictions, and mental health challenges. Our ultimate aim is to lay the groundwork for shaping actionable recommendations for police systems to improve their ability to serve marginalized youth.

Project Title: Access to Justice Apps: A Tool to Support Community-Accountable Policing?

PI: Dr. Nidhe Hegde – Computing Science

EPS Partner: Dan Jones – Edmonton Police Service

Description: This project builds on pre-existing legal apps developed at UAlberta to support access to justice. It seeks to understand and test how such tools might - by earning trust - increase trust in a policing system that centres community members as beneficiaries.

The access to justice apps help members of the public assert fairness in policing. They help people submit complaints related to police conduct, and independently verify their rights during live interactions with police. Aggregate data from these apps could inform practice and policy development, if appropriate controls for fairness and privacy are possible. These need to be explored with vulnerable population protection as a top priority.

This research project will examine one or more access to justice apps to consider the extent to which the data, interface and content aspects of the apps protect user privacy and promote fairness when deployed. Next, the project will consider if and how aggregate data from such apps could be ethically collected and analysed in a privacy-preserving manner.

We hope this baseline work lays a foundation for developing further partnerships that bring together law and computing science in the service of communities that are the intended beneficiaries of access to justice apps. With some baseline understanding of the apps and their potential, we hope to have a good foundation to respectfully engage communities directly.

Project Title: Using AI to improve latent fingerprint identification

PI: Dr. Matthew E. Taylor - Alberta Machine Intelligence Institute
   Dr. Miguel A. Medina-Pérez - Technológico de Monterrey

EPS Partner: Devin Laforce – Edmonton Police Service
            Brad Mandrusiak – Edmonton Police Service

Description: Automated methods for identifying latent fingerprints (those which are not visible to the human eye) have grown in popularity in the past years. However, as the use of these systems grows, new challenges have emerged that impede the marking of some of the basic features needed to represent fingerprints. Even the absence of two features can make a fingerprint no longer identifiable, creating barriers to the implementation of automated methods.

To meet this challenge, we are developing an AI-enabled system to improve feature labelling for latent fingerprint identification. The system will predict the impact of including or not including certain features for a latent fingerprint identification system. The project seeks to develop a tool that can be used to support trained fingerprint examiners and in the training of individuals with little or no experience in the field. The project will focus on human-in-the-loop, a method of AI development that requires human interaction with the system, and will be supported by the Edmonton Police Service.