Education and Workforce Training Modules for Artificial Intelligence in Criminal Activity Recognition: Computing and Criminology Perspectives

LEAD PI: M. HADI AMINI

Criminal Investigative Processes

SUMMARY

Increasing cyber-crimes and widespread integration of Artificial Intelligence (AI) tools that can be exploited for cyber-criminal activities make it imperative to offer education and workforce development to the Homeland Security Enterprise (HSE) workforce. HSE professionals must be able to deal not only with existing criminal activities, but also to identify and neutralize AI-based cyber-crimes. We propose to develop and integrate educational modules that cover the emerging problems from both computing and criminology perspectives.

PROBLEM STATEMENT

There is a need for education and workforce development modules to train the HSE workforce in four major AI techniques—Machine Learning, Natural Language Processing, Automation, and Robotics, and Computer Vision—some of the hands-on tools to use these techniques to prevent cyber-criminal activities, and familiarity with the consequences of misusing these tools. There is also a need to provide DHS components that directly deal with cyber-crimes with state-of-the-art training in the criminology implications of using AI.

APPROACH

Our project will develop three types of educational activities: 1) course modules that will be integrated by the faculty members, including the PI team, both at Florida International University (as a minority-serving institution) and Southern Illinois University at Carbondale; 2) a certificate program with FIU's Office of Micro-Credentials that will be available to students, practitioners, and existing HSE workforce for training purposes; and 3) a half-day webinar with active participation of experts from DHS COEs, our local HSE partners in Miami, and distinguished researchers who work on AI topics.

ANTICIPATED IMPACT FOR DHS

Education and workforce training developed under this project will support the HSE workforce in understanding and integrating AI applications with criminal activity recognition.

The primary DHS components whose missions this research would serve are HSI C3, the Federal Law Enforcement Training Center (FLETC) and CISA. CINA will socialize progress and results with the components by presenting research findings and results to HSI's Cybercrime Division and FLETC Technical Operations Directorate, as well as CISA's Cybersecurity Division and the Joint Cyber Defense Collaborative.