Automated Watchlist Identification System for Enhanced Security at Border Crossings (PI: Dr. Pathak Ajay Kumar; 2012/13)

Currently available methods of 'watchlist identification' at border-crossings are largely manual and/or operate under constrained settings that require high degree of cooperation from the users. The use of facial masks and makeup, which can also be due to religious belief and/or practices, have posed new challenges on commonly practiced face recognition based watchlist identification. Therefore the screening process at border-crossings is often not accurate and/or is highly time-consuming, especially when a large number of subjects/suspects are to be examined. Therefore there is pressing need to develop an automated system for border-crossings that can examine vital details around eyes which are more effectively/conveniently observed under multispectral illumination, identify spoof/fake biometric features, and operate in unconstrained manner. This project will design and develop such a unique watchlist identification system (along with the hardware and software) using simultaneous multispectral imaging of passengers passing through the immigration crossings. The developed product/system will be built on our recent research results and exploit recent advances in multispectral imaging-based biometrics technologies. The system will also generate alerts even for the non-watchlist passengers whenever spoof biometric samples, like face masks or iris stamps, are suspected. The developed system will have range of applications from immigration crossings using e-channel and passport inspections, to law-enforcement and will provide critical early warning support for our protection against criminals, terrorist, and other human-based threats.