

Human (Shopper and Offender) Signatures Initiative

Locate-ID-Track-Pattern

(Confidential for LPRC Members Only Information)

The LPRC's mission is to support member success by conducting research to enhance sales, customer experience, and safety.

Theft, fraud, and violence remain a growing concern across retail organizations, and the LPRC's LPIWG is establishing a **Signatures Innovation Chain Initiative** to formalize emerging recognition/identification/support R&D.

Humans generate biological, digital and other "exhaust" and footprints during their activities- we call these phenomenon signatures.

Signatures can help us:

- Protect and serve people, places and assets:
 - Provide informed, focused sales attention to a good customer
 - Perceive the possible mood or intent of a shopper or visitor
 - Better protect employees and visitors via access control: Gain access to a place or space
 - Detect the presence of crime tools like magnets, foil, and weapons
 - Identify a suspect, crime attempt, or pattern for action
 - Identify and track assets, and their status
 - Reconcile/validate checkout and return transactions with items and people

These technologies hold crime reduction and user safety enhancement promise by deterring, detecting or documenting active offenders, as well as notifying authorities and place managers.

- To detect these active and passive signatures we use fixed and mobile sensors

Signatures that help us identify a person, network, crew, or pattern:

- **Bio-signatures-**
 - **Feature-matching**
 - **Facial**
 - **Back of hand**
 - **Finger/palm prints**
 - **Eyes**
 - **DNA/microbes**
 - **Thermal**
 - **Gait**
 - **Voice/speech- ID, duress, patterns**
 - **Other**
- **Behavioral/electronic-signatures**

- **Asset location/movement/ID/status- GPS, RFID, beacons, isotopes, DNA**
 - **Phone usage/movement**
 - **Social media, search engine and dark web activity**
 - **Entertainment and travel activity- virtual and temporal spatial**
 - **Location and In-space access/movements/behaviors/patterns**
 - **Vehicle location, movement, occupant history, and emissions/signals**
 - **Theft and fraud tools i.e. skimmers, magnets, foil, cutting instruments**
 - **Weapon purchase, possession and use: gunshots/infrared, metal, spent cartridges/shells/wadding, etc.**
 - **Clothing/shoes/accessories**
 - **Financial/purchase/return/credit/collection/offending data and transactions**
- **Facial and other feature matching to limit entry to legitimate place users, or detect the entry of problematic individuals**
 - **Electronic device signature detection to enable better customer service while recognizing the entry of problematic people**
 - **Synthetic DNA, other isotopes, and electronic markers to positively identify individuals and assets**

Sensors include:

- Online
- Cameras: body-worn, fixed, vehicle-mounted, smart devices, etc.
- Noise/audio detectors and recognition
- Video analytics
- Microbe/odor/bio sensors
- Dogs
- People
- Metal and other material detectors; imaging

Initial issues include:

- **Technology capability enhancement, integration, and deployment tactics**
- **Overt notification tactics to promote deterrence, privacy, and place user awareness**
- **Known shopper/offender data-sharing protocols to promote sales, deterrence and privacy**
- **Pattern recognition/mapping/prediction/strategy**
- **Local and strategic response protocols**