**Objectives**

- Explain and predict crimes in hotspot areas using **Social Control Theory** (*Buy-in concept*).
- Measure Spatial dissonance between the two processes: where crimes are happening frequently, but street checks are not.

---

**Theft and Assault Time Analysis (2010 – 2015)**

<table>
<thead>
<tr>
<th>Crime Category</th>
<th>Total</th>
<th>Weekday</th>
<th>Weekend</th>
<th>Weekend/Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burglary</td>
<td>48,178</td>
<td>36,911</td>
<td>11,267</td>
<td>23.39%</td>
</tr>
<tr>
<td>Larceny</td>
<td>70,126</td>
<td>51,657</td>
<td>18,469</td>
<td>26.34%</td>
</tr>
<tr>
<td>Theft from Motor Vehicle</td>
<td>51,016</td>
<td>36,593</td>
<td>14,423</td>
<td>28.27%</td>
</tr>
<tr>
<td>Simple Assault</td>
<td>49,266</td>
<td>32,719</td>
<td>16,547</td>
<td>33.59%</td>
</tr>
<tr>
<td>Aggravated Assault</td>
<td>35,192</td>
<td>20,590</td>
<td>14,602</td>
<td>41.49%</td>
</tr>
</tbody>
</table>

---

**Statistical Methodology**

- In order to identify hotspots where the Policing Pill Model can be implemented, we take a probabilistic approach.
- Statistically, crimes are an example of events in a spatial point process, generated by a Poisson Distribution.

\[
\lambda(s) = \lim_{|A| \to 0} \frac{E[N(s)]}{|A|} = \sum_{x \in N(s)} \frac{h(s - x)}{c(s)} \quad f_D = \frac{\lambda_{SC}}{f(\lambda_D)}
\]

**Optimization Model**

- **Parameters**: Weight of crimes, Location of crimes.
- **Variables**: Location of each patrol.
- **Objective**: Minimize total distance between patrols and crimes in surrounding areas.
- **Constraints**:
  - Crimes evenly distributed between patrols.
  - At least one patrol serves each crime.

---

**Simulated K-function (n=100)**