# Chicago-Crime-Analysis

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## Overview

This project is a Python-based data analysis designed to explore and derive insights from Chicago crime (<https://data.cityofchicago.org/Public-Safety/Crimes-2001-to-Present/ijzp-q8t2/about_data>) with the use of deep learning. The aim of this project is to analyze the Chicago crime data with a particular attention on being able to predict the type of future crimes. Being able to predict the most-likely crime accurately will enable targeted efforts at addressing these crimes at an institutional level as well as alerts and police presence. Moreover, a successful ability to predict crime will enable us to perform insightful feature importance.

The problem of crime is complex and influenced by multiple, time-varying factors, such as economic conditions. As a result, framing crime prediction as a time-series problem makes sense, since crime patterns tend to shift over time. Additionally, crime is often concentrated in specific geographic regions, suggesting that spatial modeling will also be important.

A further stretch goal this project aims at accomplishing is being able to use probabilistic models such as Gaussian Processes to include uncertainty quantifications as well as likelihood estimations. This portion of the project will be completed time permitting.

## Usage

There are a number of notebooks that will be created and used for this project. All the notebooks can be found under the source folder (src/)

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