<!DOCTYPE html>

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<h1>Spatio-temporal prediction of crime occurrence using the deep gated recurrent unit network</h1>

<p>Crimes and violations are a threat to justice that affects the quality of life and well-being of residents and must be controlled. Accurate foresight and future trends can also help increase the safety of metropolitan areas.The ability to predict the time and place of a crime is helping prevent it, and is done by organizing police patrols, but there is still a need for accurate predicting algorithms that lead police patrols to criminal activities. In previous studies, data from various fields such as demography, economics and education have been used. In this study, crime time series data, distance from police stations and holidays in New York City were used, and the study area was considered as a 10-by-10 grid, then a gated recurent unit architecture was used. After network training, the model was evaluated with test data and the mean squared error criterion and reached an error of 0.027. To study the developed model in more detail, two multilayer perceptron architectures and a simple return network were used. After training, these two networks obtained errors of 0.048 and 0.033, respectively, which had more errors compared to the proposed model. This study found that networks with memory will perform better than simple architectures, and if the time step in the data is large, the use of architectures that prevent gradient explosions will be much more successful.</p>

<p style="text-align: center;">AKS10</p>

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