**Research Area:** Data analytics

**Project Title:** Predicting Hotspot detection to share resources effectively for COVID-19 control in Tamil Nadu using Deep learning

**Expected outcome: Software to predict hotspot location in Tamil Nadu**

**Expected Timeline: 2** months

**URL:** https://www.nitt.edu/home/academics/departments/ece/faculty/asstprof/gopi/

**Project summary:**

Due to availability of limited resources, it is important to predict the needy geographical locations and distributed well in advance, so that it can be used effectively. The resources include health care people, health care equipments and police force. The hotspots are different for different resource management. The COVID-19 hotspots are predicted using the previous time series to share health care people and health care equipments..

The matrix is constructed with the element representing the intensity of the infected people at the particular time instant. This are treated as the time series geographical data. These along with other features like Max temperature, Minimum temperature, Humidity, precipitation, literacy rate, etc, average income, etc are used to predict the hot spot using Deep learning (preferably LSTM Network) to share health care related resources.

In the same fashion, crowd intensity matrix, constructed as the time series, occurrences of COVID-19 cases , along with the importance of the day in the particular location (latitude and longitude), are used to predict the Crowd intensity hotspot to share the resources related to crowd management system (Mainly the police force). The Crowd flow information may be collected using mobile usage in the geographical location, Drone videos and other records.

**Earlier attempts:**

Sankar N Nair, **E.S.Gopi,** "Deep Learning Techniques for Crime Hotspot Detection", Optimization in Machine learning and Applications, **Springer**, 2020

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