**Data Science for prophylactic trials for pandemics/epidemics like Covid-19.**

We are much-much familiar in Data’s and its handling methodologies. But, how this Data science and its mechanism helps mankind to rid of such pandemics/epidemics in mere future.

To comprehend the future trajectory of the pandemic and to frame appropriate policy responses, we need insights from available granular data, based on contact tracing at the level of a city/district to provide information on three important epidemiological parameters.

One, evolution period, which is the interval between infection and symptoms. The distribution of this parameter helps the government and experts understand the nature, extent and possible future scenarios of the outbreak. It also informs in the evaluation of the disease-control strategy.

Two, the serial interval, which is the time between the onset of the illness in the primary case (infector) and illness onset in the secondary case (infectee). If the estimated average of the serial interval is shorter than the estimated average evolution period, then pre-symptomatic transmission is more likely to happen than symptomatic transmission. Research from Japan has indicated that the median serial interval for Covid-19 is 4.1 days, which is less than the mean evolution period of approximately five days. The public policy implication of this is that containment via case isolation might be a challenging task. Containment would, therefore, require to be guided by an aggressive testing and rapid contact tracing strategy.

Three, the basic reproduction ratio (also popularly known as R0), which is the average number of secondary cases per primary case. There has been a great deal of focus on this parameter, because if the R0 is greater than one, then the probability that there will be an outbreak is extremely high.

As overhead parameters, how the available raw/granular data can be transformed as insights for,

* Risk assessment and forecasting through artificial intelligence.
* AI-based data analytics and [predictive modelling](https://cio.economictimes.indiatimes.com/tag/predictive+modelling) are enabling medical professionals to understand more about a lot of diseases.
* AI-based risk assessment tools are being designed by AI research companies to provide clarity amongst the confusion caused by the pandemic.

These AI tools are helping in differentiating whether the patients have a common cold, flu, or COVID-19, whether or not the individual needs to be tested, and what tests are required.  
 These technologies can be implemented in crowded areas, hospitals, train stations, airports, etc., to identify sick people quickly and quarantine them before they infect a larger population. (which is hardly required in Country like India, China, etc.)

With the use of AI, more accurate forecasting about disease spread, medication, treatment, etc., could be done. Come with Data science using AI platforms or any Data Science/Analysis attitude, to acquire insights or approaches to address the COVID-19 or similar kind in future. 

* Data Science for health tailing on large-scale population.
* Data Science in trend prediction of pandemic/epidemic diseases.
* Data Science in public health management.
* Geo-Social Data Science analytics for pandemic/epidemic transmission routes analysis.
* Data Science for pathogenic analysis.
* Data-driven drug discovery for pandemic/epidemic diseases.
* Data Science driven analysis of implications of pandemic/epidemic deceases and their counter measures on social behaviour, industrial practices, and environmental impact.
* Tools that support the above functionality using automated processing and machine learning pipelines, or novel visualizations, targeting both expert and untrained users.
* In addition to this brief list of possible topics, we welcome submissions on other topics addressing Big Data, Deep Learning, Data Analytics, and Data Science in medical and pandemic/epidemic applications.