Research Area – **Data Analytics, Artificial Intelligence**

Project Title: Influence of Demographics and HAbitual Patterns for COVID – 19 for predictive and prescriptive analytics – INDHAP - 2020

Expected Outcome:

- Demography patterns for COVID – 19 spread
- Habitual patterns for COVID – 19 patients and a visualization of the same
- Demography and Habitual data models
- Predictive algorithms for COVID – 19 patients
- Preventive care for COVID – 19 prone patients
- Visual representation of Demography and Habitual influence

Expected Timeline

Outcome\Month	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Demography Patterns												
Habitual Patterns												
Data models												
Predictive algorithm												
Preventive care												
Testing and Visualization												

Expected Budget:

Total Amount Rs. 2,49,688/-

Details	**Amount (Rs.)**
Internship Students remuneration for 12 months 6000 * 2 * 12	**1,44,000/-**
Travel	**30,000/-**
Contingency	**10,000/-**
Institute overhead	**27,600/-**
GST @ 18%	**38,088/-**
Total	**2,49,688/-**

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Summary of the Proposed Research:

COVID – 19 is a pandemic that is happening around the world. This is spreading basically by respiratory droplets and contact routes. The size of droplets plays a major role in deciding on the spread of this pandemic. However, there is a recent survey which indicated the influence of latitude in having a higher probability of the pandemic [1 – 6]. The influence of latitude is however very vague and has not been supported by WHO.

This work proposes to identify the influence of demographics which would also include latitude and other environmental conditions that influence the spread of COVID – 19. In addition, with the same demography the spread is not uniform among all patients. This work aims to collect data from hospitals regarding the patients and identify the habitual patterns of individuals in terms of life-style, food habits, working patterns, etc., that influences the possibility of COVID – 19. Based on the above said summary, the following objectives have been identified:

Objectives:

- To observe and identify patterns of COVID - 19 spread in the world based on demography
- To study the habitual patterns of COVID – 19 patients and document their food habits, working habits, lifestyle using text mining strategies
- To use deep learning algorithms to create data models that reflects the demography and habitual patterns
- To use deep learning algorithms to develop models for predicting the probability of an individual being prone to COVID positive
- To use prescriptive analytics to suggest appropriate measures for preventive care for possible COVID prone patients.

Expected Budget:

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References:

1. Moriarty LF, Plucinski MM, Marston BJ, et al. Public Health Responses to COVID-19 Outbreaks on Cruise Ships — Worldwide, February–March 2020. MMWR Morb Mortal Wkly Rep. ePub: 23 March 2020. DOI: http://dx.doi.org/10.15585/mmwr.mm6912e3external icon
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3. Zhao D, Yao F, Wang L, et al. A comparative study on the clinical features of COVID-19 pneumonia to other pneumonias. *Clinical Infectious Diseases*, ciaa247, March 12, 2020. DOI: https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciaa247/5803302external icon.
4. Wang S, Guo L, Chen L, et al. A case report of neonatal COVID-19 infection in China. *Clinical Infectious Diseases*, ciaa225, March 12, 2020. DOI: https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciaa225/5803274external icon
5. Burke RM, Midgley CM, Dratch A, et al. Active Monitoring of Persons Exposed to Patients with Confirmed COVID-19 — United States, January–February 2020. MMWR Morb Mortal Wkly Rep 2020;69:245–246. DOI: https://www.cdc.gov/mmwr/volumes/69/wr/mm6909e1.htm?s_cid=mm6909e1_w.
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