

# COVID-19 Prescreening Tool Using Deep Neural Network

Isha Patel<sup>1</sup>, Ruchita Potamsetti<sup>2</sup>, Mayuri Ubale<sup>3</sup>, Vaishnodevi Ghodake<sup>4</sup>, Prof. Archana Dirgule<sup>5</sup>

Students, Department of Computer Engineering<sup>1,2,3,4</sup>

Faculty, Department of Computer Engineering<sup>5</sup>

Sinhgad College of Engineering, Pune, Maharashtra, India

**Abstract:** *The emergence of COVID-19 has led to unprecedented global disruptions. Over the course of the COVID-19 pandemic, efforts were made to rapidly scale diagnostic tests to increase access and throughput. Strict social measures in combination with existing tests and consequently dramatic economic costs were proven sufficient to significantly reduce pandemic numbers, but not to the extent of extinguishing the virus. It is well recognized that in order to limit outbreaks, testing is needed to identify as many individuals that are infected as quickly as possible so they and their contacts can be isolated. The speed, scarcity, supply chain, and costs of clinical tests such as antigen and polymerase chain reaction (PCR) tests are many of the key factors behind the rapid spread of COVID-19 across countries and continents. Developing countries continued to be impacted by several compounding issues: the spread of COVID-19, the challenges associated with testing, the challenges associated with mass vaccinations, and medical supply scarcity, even though mass vaccinations were being administered at record rates in developed countries. It becomes imperative that issues of testing improve and become more accessible and responsive. The use of acoustic signatures of COVID-19 to accurately discriminate between positive and negative subjects has been proposed in several recent studies. In this work, we propose an AI pre-screening tool that could test the whole world on a daily, or even hourly basis at essentially no cost. The user will record his cough audio on our UI which will be processed and the necessary features will be extracted. The features extracted will work as inputs to the DNN model which will in return give us the prediction within seconds.*

**Keywords:** DNN (Deep Neural Network), MLP(Multilayer Perceptron), feature extraction, K-fold Cross Validation

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