| **Title:** | A survey into COVID-19 Induced Pneumonia Detection and Feasibility of using UWB Medical Imaging |
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| **Abstract:** |  |
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| This paper presents a survey into the currently thriving research on using machine learning for COVID-19 induced pneumonia detection through the use of radiographic scans, presents a brief review of the methodologies and assesses the classification results, and finally presents an alternative in the form of ultrawideband (UWB) imaging. Few works on UWB imaging is investigated and used as a source of inspiration for developing an UWB imaging system for detection of accumulation of  fluid in lungs. The goal is to extract information about dielectric property variation from backscattered UWB signals to detect pneumonia caused by COVID-19. An edge fed Vivaldi antenna along with a multilayer planar model for lung is simulated in CST microwave studio and subjected to UWB excitation. The backscattered signals in the form of S-parameters are analyzed with various Delay-and-Sum (DAS) algorithms and images are constructed for lung tissues of different permittivity and conductivity, where higher values are supported to allude to the  infected lungs.    |