

MBA13

DEEP LEARNING MODELS FOR PREDICTION OF PULMONARY FIBROSIS PROGRESSION

Honggang Wang

Cal Poly Pomona, Pomona, CA, USA

Abstract

Imagine one day, your breathing became consistently labored and shallow. Months later you were finally diagnosed with pulmonary fibrosis, a disorder with no known cause and no known cure, created by scarring of the lungs. If that happened to you, you would want to know your prognosis. That's where a troubling disease becomes frightening for the patient: outcomes can range from long-term stability to rapid deterioration, but doctors aren't easily able to tell where an individual may fall on that spectrum. Machine learning analytics may be able to aid in this prediction, which would dramatically help both patients and clinicians. In this research, we will predict a patient's severity of decline in lung function based on a CT scan of their lungs together with some other patient clinic data. The lung function is determined based on FVC output from a spirometer, which measures the volume of air inhaled and exhaled. One major challenge of this work is about accurately uncovering such multiple-dimensional temporal patterns unstructured 3D scan images and time series. Some preliminary results using real-life patient datasets will be presented and discussed.

Conference Track

MIS and Business Analytics