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Workshop/Tutorial title: Machine Learning based decision support system for early-stage prediction of complications and risk stratification of COVID 19 patients

Organizers	**Luca Romeo**, **Michele Bernardini**, **Emanuele Frontoni**, Dep. of Information Engineering (DII), Università Politecnica delle Marche, Ancona (Italy) **Jonathan Montomoli**, Dep. of Intensive Care, Hospital Infermi, Rimini Dep. of Intensive Care Medicine, Erasmus medical Center, Rotterdam, Netherlands **Maggie Cheng**, Illinois Institute of Technology, USA **Farshad Firouzi**, Duke University, USA
Short Description	During the COVID-19 emergency, intensive care achieved its limit, and the doctors were forced to choose their ICU patients who have the best chance for survival. This worldwide emergency highlighted the need to define a predictive care model capable of providing an accurate estimate of resources and preventive medicine. The analytical capability of machine learning (ML) methods has proven to be extremely accurate and in some cases superior to classical statistical approaches for solving this task. This WS aims to cover all aspects related to ML methodologies for providing risk profiles of the individual patients from which a different intensity of care can be deduced.
Contents	Timeline (27 July 2021 CET time 5.45 – 7 pm) 5:45 - 5:50 pm: Welcome by the workshop organizers, 5:50 - 6:00 pm: **Prof Noam Shomron**, Predicting Covid19 and other infections, Prof. Noam Shomron, Functional Genomic Team at the Faculty of Medicine at Tel Aviv University, 6:00– 6:10 pm: **Prof Elena Giovanna Bignami**, Artificial Intelligence in Anesthesia and Perioperative Medicine, 6:10– 6:20 pm: **Professor Massih Reza Amini**, A Semi-Supervised Multi-Task Learning Approach for Predicting Short-Term Kidney Disease Evolution, 6:20– 6:30 pm: **Dr Patrick Thoral**, Artificial Intelligence on the Intensive Care unit, 6:30– 6:40 pm: **Prof. Khan Shehroz**, Anomaly Detection Approach to Identify Early Cases in a Pandemic using Chest X-rays, 6:40 – 6:55 pm: Q&A session, 6:55 – 7:00 pm: Closing remarks
CVs of the Organizers	**Luca Romeo** is currently a PostDoc Researcher at the DII, Università Politecnica delle Marche, **Michele Bernardini** is a candidate PhD at the DII, Università Politecnica delle Marche, **Emanuele Frontoni** is Professor at the DII, Università Politecnica delle Marche, **Jonathan Montomoli** completed his PhD in Clinical Epidemiology at Aarhus University in 2014, **Maggie Cheng** is currently a professor of Applied Mathematics at the Illinois Institute of Technology, **Farshad Firouzi** is an Adj. Assistant Professor at the Electrical and Computer Engineering Department of Duke University.