

Project BreathEasy: OnScale and LEXMA partner to save lives during COVID-19 using Bio Simulation and AI

OnScale and LEXMA leverage massively scalable cloud simulation and AI to create “Digital Twins” of the lungs of COVID-19 patients to optimize utilization of limited ventilator and respiratory equipment and yield better patient outcomes



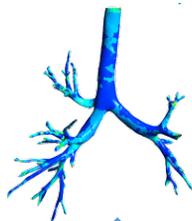
Problem: Latest COVID-19 outbreak predictions estimate that cases will far exceed available ventilator resources by 10X or more. COVID-19 patients die from acute respiratory distress syndrome (ARDS), and with only 62,000 ventilators in the U.S., maximizing per-patient utility of ventilators will be critical to **saving lives**. Doctors currently rely on textbook predictions of ventilator requirements, but more accurate predictions will maximize ventilator utility. **Even a 10% improvement will save thousands of lives.**

Solution – Simulation and AI Driven Digital Diagnostics: OnScale, the world leader in Cloud Simulation, and LEXMA a leading provider of advanced fluid-flow and biomechanical simulation technology, have partnered to create “Digital Twins” of the lungs of COVID-19 patients. Patient-specific digital twins accurately predict oxygen and blood flow in a patient’s lungs, **helping doctors make critical decisions about ventilator and intubation requirements for COVID-19 patients.**

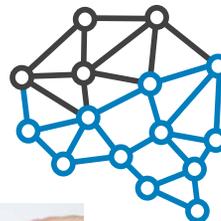
Image Lungs and Create 3D Model



Run Sims of Blood and Oxygen Flow



Train AI with Simulation Data



Predict Ventilation Requirements



Update Digital Twin

Each digital twin is patient-specific and built from a combination of medical images (e.g. from CT scans and x-rays) and many thousands of simulations of lung airflow and blood flow using the LEXMA Moebius fluid-dynamics solver running on OnScale’s Cloud Simulation platform. Digital twins are updated with real-time patient data. AI trained on simulated and real-time data is used to make fast and accurate predictions of oxygen and blood flow throughout the ventilation and intubation process.

The companies are currently testing the solution with medical experts. The companies are also actively seeking additional partners and advisors. For more information, contact info@onscale.com.