Appendix A: Formulas used for Features

- Alveolar gas equation: $pAO_2 = \frac{FiO_2}{100} * (713.622 - 47) - \frac{CO_2}{0.82}$, assuming a prevailing atmospheric pressure of 713.622 mmHg and a saturated vapor pressure of water of 47 mmHg [1]
- Static compliance: $C_{stat} = \frac{RMV}{RR} * \frac{1000}{P_{plat} - PEEP} = \frac{V}{P_{plat} - PEEP}$, $where\ V = \frac{RMV}{RR} * 1000$ with RMV as the respiratory minute volume, RR as the respiratory rate, P_{plat} as the plateau pressure in cm H_20 and $PEEP$ as the positive end-expiratory pressure in cm H_20 [2]
- $Gadrey'spaO_2 = \frac{23400}{\frac{1}{SpO_2} - 0.99}^{\frac{1}{3}}$ [3]
- Feature and label scaling based on training data using the min-max normalization: $x_{scaled} = s * (max - min) + min,\ with\ s = (x - x_{min})/(x_{max} - x_{min})\ and\ min = 0,\ max = 1$ [4, 5]

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