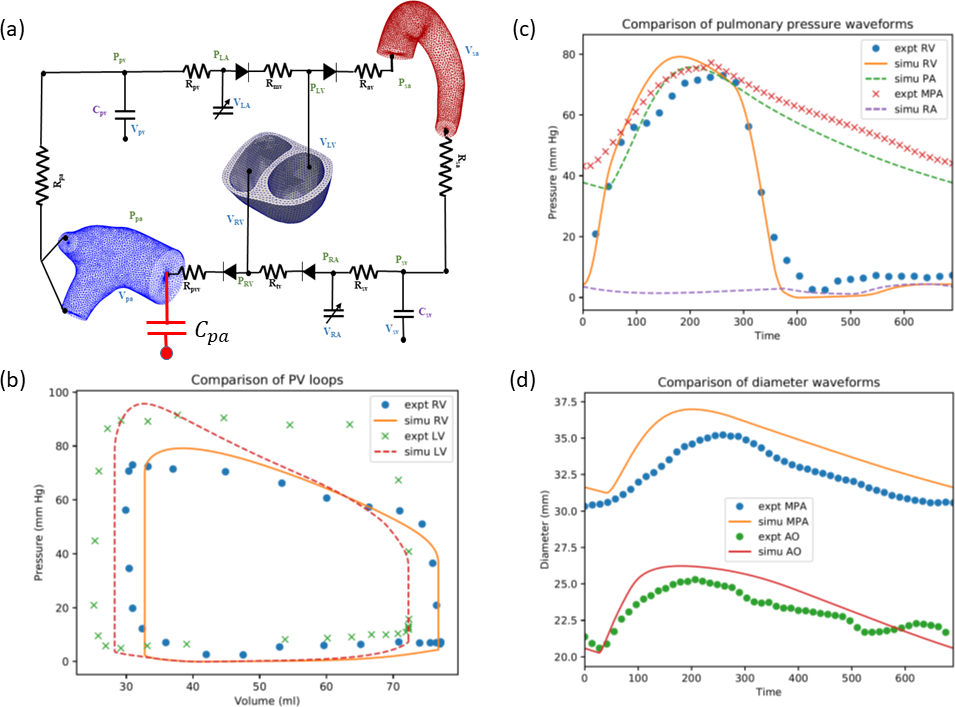
**Appendix**

We performed an additional study to determine if the addition of compliance (captured by an electrical analog of a capacitor) in parallel to the pulmonary arterial system (**Fig. S1a**) can match clinically-measured pressure and diameter waveforms more accurately. To do so, Eq. (1f) was modified as follows:

(A1a)

(A1b)

with as well as increasing the stiffness of the pulmonary arteries with the parameters = 90kPa, This addition of compliance led to a better match of the pulmonary artery pressure and diameter waveforms, as well as the pressure-volume loops with the experimental data (**Fig. S1b - d**).



**Figure S1 (a):** Modified framework with an additional compliance (in red) in the pulmonary circulation**.** Comparison of **(b):** pressure-volume loops**, (c):** pressure waveforms of the pulmonary circulation and **(d)** pressure-diameter waveform**.**