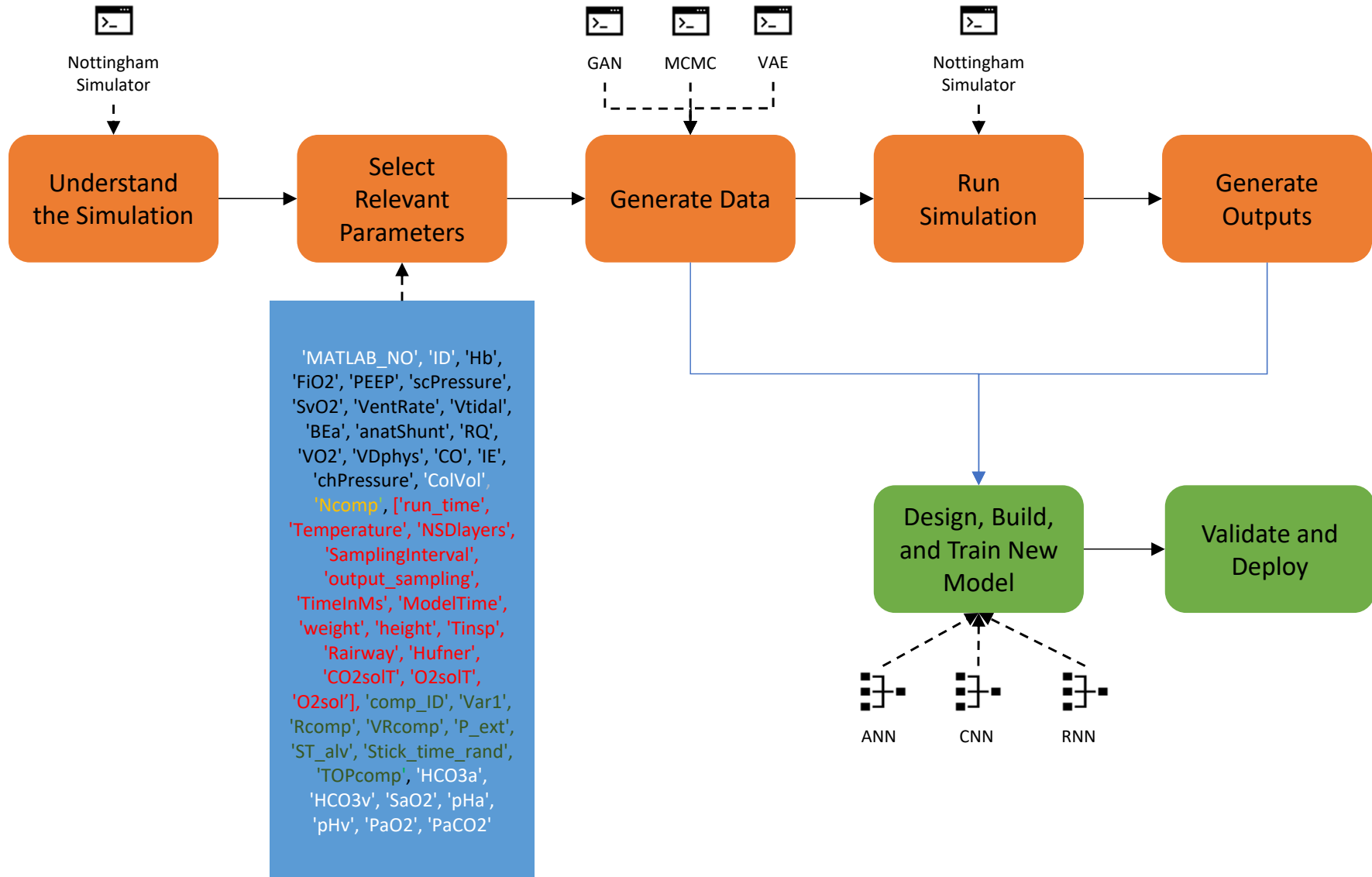




# Research on Features

Chadi Barakat & Morris Riedel  
FZJ & University of Iceland  
ASIC Workshop, 4.5.2022

# The Goal of the Research Being Done

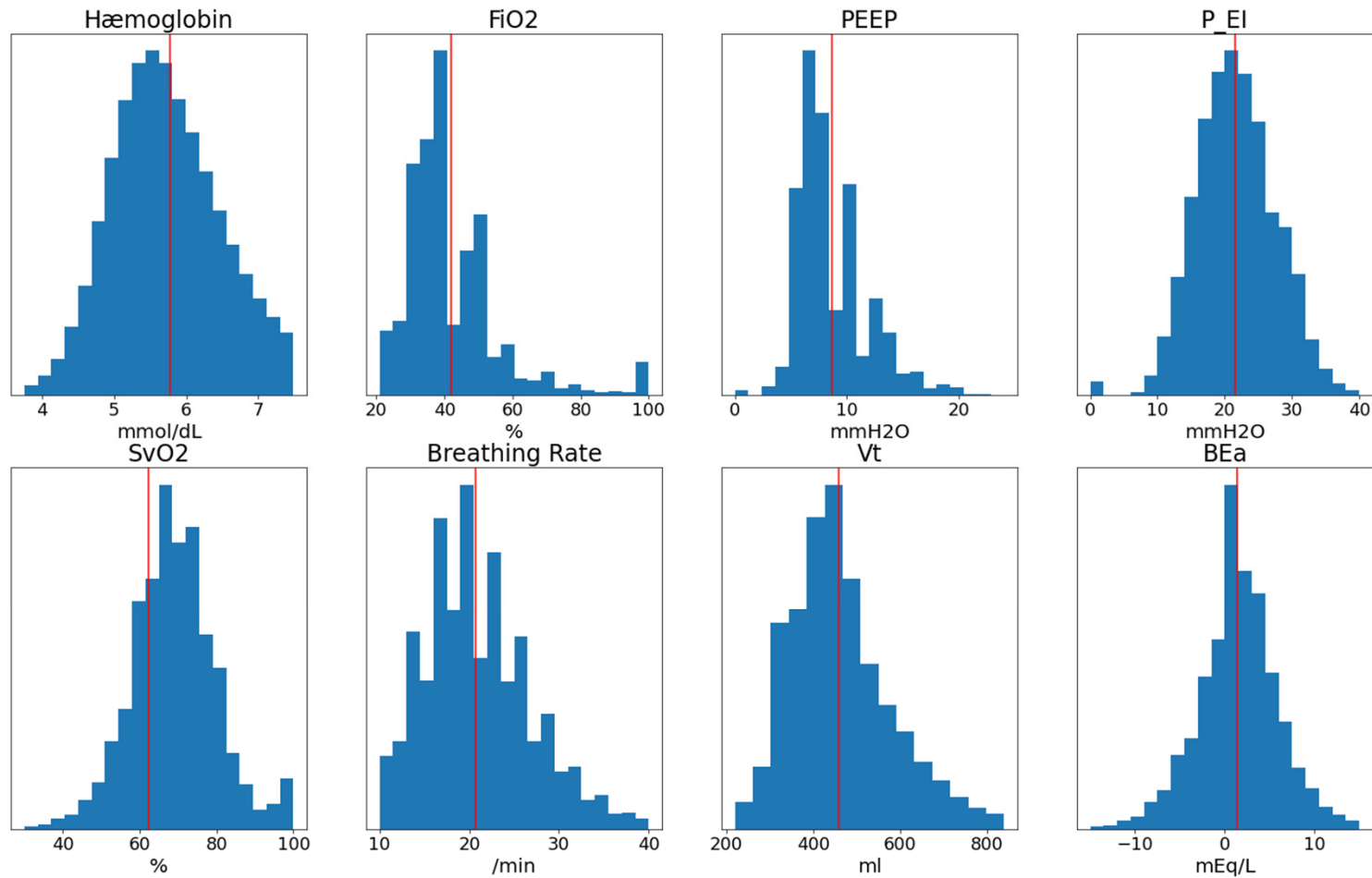


# The Different Features that Will Need to Be Generated (and their Ranges)

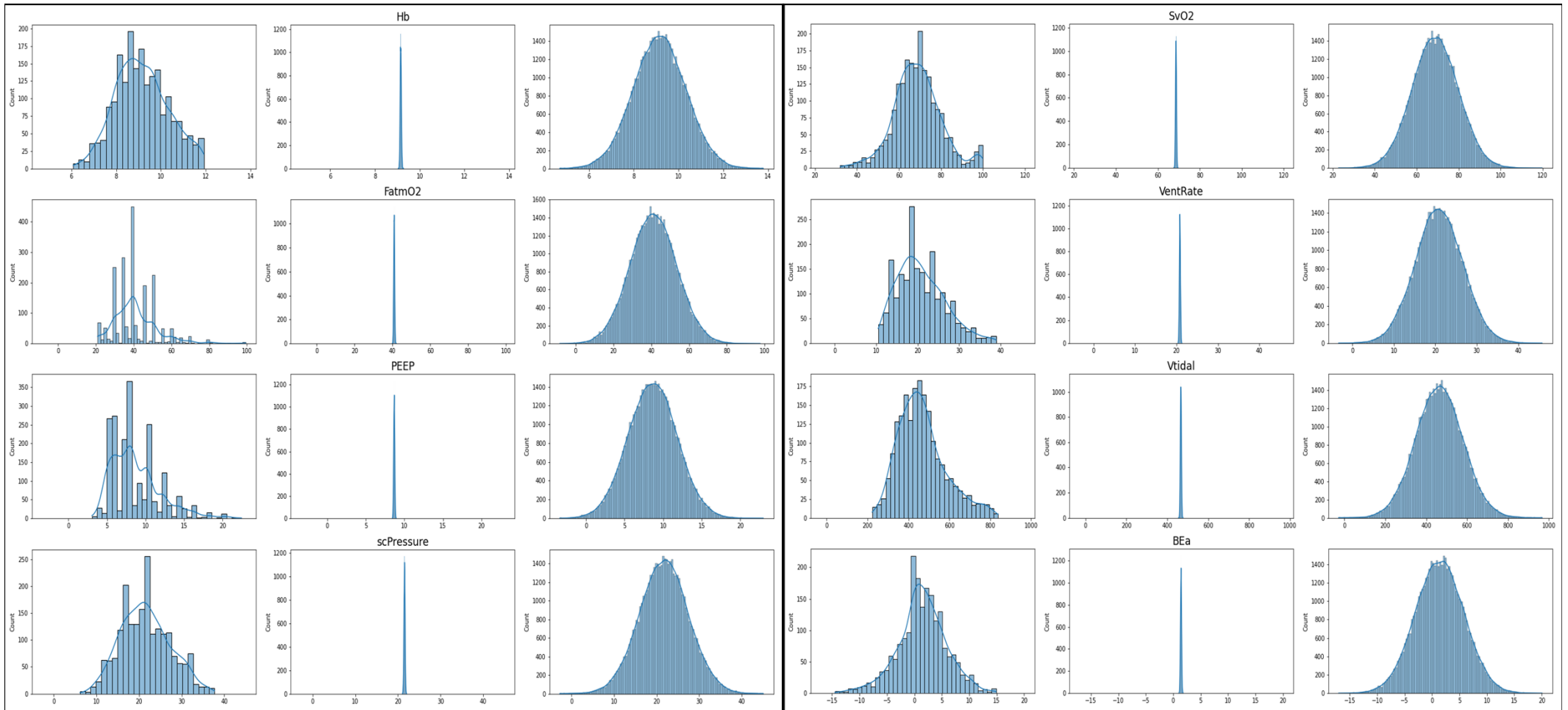
10<sup>19</sup> Combinations

	v_sR	v_inR	v_sVR	v_inVR	v_nc	v_asht	v_RQ	v_VO2	v_VD	v_CO	v_IE								
0	-20.000000	0.000000	0.000000	0.000000	0	0.010000	0.600000	250.000000	50.000000	3300.000000	0.170000								
1	-17.777778	0.000033	28.888889	417.777778	9	0.042222	0.644444	255.555556	61.111111	3822.222222	0.206667								
2	-15.555556	0.000067	57.777778	835.555556	18	0.074444	0.688889	261.111111	72.222222	4344.444444	0.243333								
3	-13.333333	0.000100	86.666667	1253.333333	27	0.106667	0.733333	266.666667	83.333333	4866.666667	0.280000								
4	-11.111111	0.000133	115.555556	1671.111111	36	0.138889	0.777778					<b>Hb</b>	<b>FatmO2</b>	<b>PEEP</b>	<b>scPressure</b>	<b>SvO2</b>	<b>VentRate</b>	<b>Vtidal</b>	<b>BEa</b>
5	-8.888889	0.000167	144.444444	2088.888889	44	0.171111	0.822222	6.000000	20.000000	0.000000	0.000000	30.000000	10.000000	220.000000	-15.000000				
6	-6.666667	0.000200	173.333333	2506.666667	53	0.203333	0.866667	6.666667	28.888889	2.666667	4.444444	37.777778	13.333333	288.888889	-11.666667				
7	-4.444444	0.000233	202.222222	2924.444444	62	0.235556	0.911111	7.333333	37.777778	5.333333	8.888889	45.555556	16.666667	357.777778	-8.333333				
8	-2.222222	0.000267	231.111111	3342.222222	71	0.267778	0.955556	8.000000	46.666667	8.000000	13.333333	53.333333	20.000000	426.666667	-5.000000				
9	0.000000	0.000300	260.000000	3760.000000	80	0.300000	1.000000	8.666667	55.555556	10.666667	17.777778	61.111111	23.333333	495.555556	-1.666667				
								9.333333	64.444444	13.333333	22.222222	68.888889	26.666667	564.444444	1.666667				
								10.000000	73.333333	16.000000	26.666667	76.666667	30.000000	633.333333	5.000000				
								10.666667	82.222222	18.666667	31.111111	84.444444	33.333333	702.222222	8.333333				
								11.333333	91.111111	21.333333	35.555556	92.222222	36.666667	771.111111	11.666667				
								12.000000	100.000000	24.000000	40.000000	100.000000	40.000000	840.000000	15.000000				

# Feature Distributions



# Generated Feature Distributions



# Data Dimensionality Problem Reduced

Running All Possible Combinations	Following Normal Distribution
10 <sup>19</sup> combinations	Tunable Number of Combinations. Currently set to 50.000/Node
Creates a lot of Noisy data	Mirrors the distribution of these parameters in patients