

Table S1. Lists the coefficients for the linear transformation between Standard 12-lead ECG and Frank XYZ VCG.

	I	II	III	aVR	aVL	aVF	V1	V2	V3	V4	V5	V6
Kors' regression-related (1990)												
X	0.380	-0.070	0.000	0.000	0.000	0.000	-0.130	0.050	-0.010	0.140	0.060	0.540
Y	-0.070	0.930	0.000	0.000	0.000	0.000	0.060	-0.020	-0.050	0.060	-0.170	0.130
Z	0.110	-0.230	0.000	0.000	0.000	0.000	-0.430	-0.060	-0.140	-0.200	-0.110	0.310
Kors' quasi-orthogonal (1990)												
X	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000
Y	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.500	0.000	0.000	0.000	0.000
Bjerle quasi-orthogonal (1986)												
X	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.060
Y	0.000	0.000	0.000	0.000	0.000	1.880	0.000	0.000	0.000	0.000	0.000	0.000
Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.523	0.000	0.000	0.000	0.043
Inverse Dower (1988)												
X	0.632	0.235	-0.397	-0.434	0.515	-0.081	-0.515	0.044	0.882	1.212	1.125	0.831
Y	-0.235	1.066	1.301	-0.415	-0.768	1.184	0.157	0.164	0.098	0.127	0.127	0.076
Z	0.059	-0.132	-0.191	0.037	0.125	-0.162	-0.917	-0.139	-1.277	-0.601	-0.086	0.230
Hyttinen (1995)												
X	0.000	1.155	-0.560	0.000	0.000	0.000	0.305	0.299	-0.052	-0.038	2.412	-4.275
Y	0.682	0.000	-0.563	0.000	0.000	0.000	-0.130	0.053	-0.001	0.072	1.004	0.217
Z	0.857	-1.295	0.000	0.000	0.000	0.000	0.410	-0.019	0.010	-0.086	0.238	-0.034
Dawson post-MI (2009)												
X	0.3147	-0.1877	0.000	0.000	0.000	0.000	-0.1031	0.0340	-0.0001	0.0875	0.0816	0.6587
Y	-0.274	0.8959	0.000	0.000	0.000	0.000	0.0062	-0.0233	0.027	-0.0024	-0.1002	0.1696
Z	0.0817	-0.2669	0.000	0.000	0.000	0.000	-0.3386	0.0783	-0.1659	-0.152	-0.2008	0.3614
Dawson Control (2009)												
X	0.334	-0.077	0.000	0.000	0.000	0.000	-0.097	0.134	-0.305	0.503	-0.2824	0.795
Y	-0.289	0.810	0.000	0.000	0.000	0.000	0.0825	-0.0562	0.049	-0.0275	-0.0308	0.143
Z	-0.0217	-0.1466	0.000	0.000	0.000	0.000	-0.459	-0.0228	-0.2089	-0.0146	-0.3007	0.2951
Guillem (2006)												
X	0.199	-0.018	0.000	0.000	0.000	0.000	-0.147	-0.058	0.037	0.139	0.232	0.226
Y	-0.146	0.503	0.000	0.000	0.000	0.000	0.023	-0.085	-0.003	0.033	0.060	0.104
Z	0.085	-0.130	0.000	0.000	0.000	0.000	-0.184	-0.163	-0.190	-0.119	-0.023	0.043

Table S2. Hyperparameter optimization variables, bounds, and sampling transformations.

Hyperparameter Name	Search Bound	Transformations Applied for Sampling
Number of Hidden Units	[10, 50]	Linear and Uniform
Minibatch	[16, 32]	Linear and Uniform
Learning Rate Schedule	'none' or 'piecewise' (reduced by a factor of 0.1 every 10 epochs)	Linear and Uniform
Learning rate	$[1 \times 10^{-3}, 1 \times 10^{-1}]$	Log-scaled and Uniform
β_1	[0.9, 0.999]	Log-scaled and Uniform
β_2	[0.9, 1]	Log-scaled and Uniform