

A Novel 2-lead to 12-lead ECG Reconstruction Methodology for Remote Health Monitoring Applications

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Table 1: Performance results of 2 to 12 reconstruction

Leads	Healthy Control			Bundle Branch Block			Myocardial Infarction		
	R^2	r_x	b_x	R^2	r_x	b_x	R^2	r_x	b_x
V1	91.77	0.955	0.918	88.84	0.937	0.888	92.59	0.960	0.923
V3	95.77	0.978	0.958	93.79	0.968	0.938	93.97	0.968	0.940
V4	90.81	0.950	0.908	84.71	0.918	0.847	82.98	0.904	0.830
V5	92.97	0.962	0.930	82.51	0.903	0.825	78.29	0.871	0.783
V6	92.11	0.960	0.927	86.82	0.921	0.856	77.54	0.865	0.814
II	88.21	0.935	0.882	78.18	0.874	0.782	63.17	0.768	0.632
Average	91.94	0.957	0.921	85.81	0.920	0.856	81.42	0.889	0.820

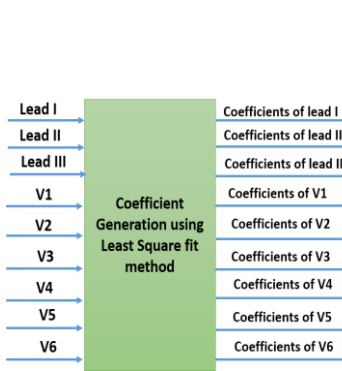


Figure 1. Generation of the coefficients for all the leads

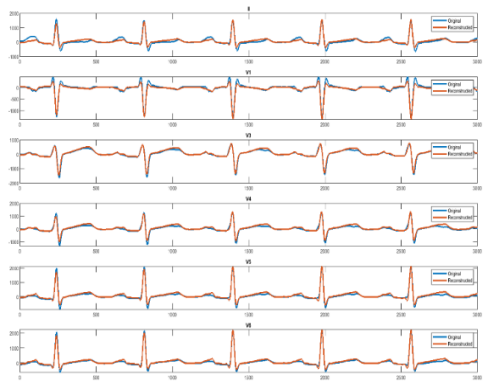


Figure 3. Original vs Reconstructed signals

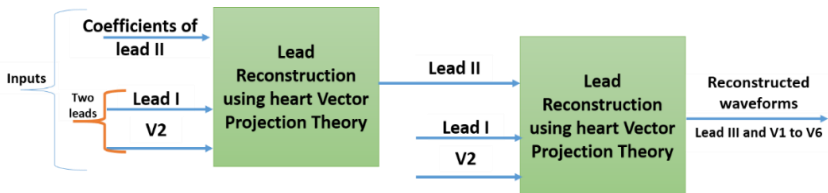


Figure 2. Reduced lead system to reconstruct the 12 lead using the 2 lead ECG data