Supplementary Material
(Performance of MECG Generator)

The proposed method optimizes both MECG and FECG generations. Since the manuscript mainly concentrates on the FECG extraction, the performance of the MECG generation is shown in Table S.I for A&D FECG dataset:

TABLE S.I
THE PERFORMANCE OF THE ESTIMATED MECG SIGNAL ON TEST SET (CI 95% ARE REPORTED IN PARENTHESIS)

Subject	1	2	3	4	5
ICC	0.96 (0.94-0.97)	0.96 (0.94-0.97)	0.94 (0.92-0.95)	0.96 (0.94-0.97)	0.96 (0.94-0.97)
R-squared	0.95 (0.94-0.96)	0.93 (0.92-0.94)	0.91 (0.90-0.92)	0.94 (0.93-0.95)	0.95 (0.94-0.96)
WEDD	8.2 % (7.6–8.8) good	8.9 % (8.0-9.2) good	10.2% (9.6-10.8) good	8.6% (8.1-9.8) good	7.9% (7.1-8.6) good

Figure S.1 compares the generators loss function schemes ($E_x[\log(1 - D_y(G(x))]$ and $E_y[\log(1 - D_x(F(y))])$ on the test set (subject 1) when the algorithm is training on subjects 2-5 from the A&D FECG dataset. The proposed method could optimize both generators, while the MECG generator has a rather lower performance than FECG Generator. Moreover, Figure S.2 shows an example of 4000 samples of MECG generated by the proposed method.

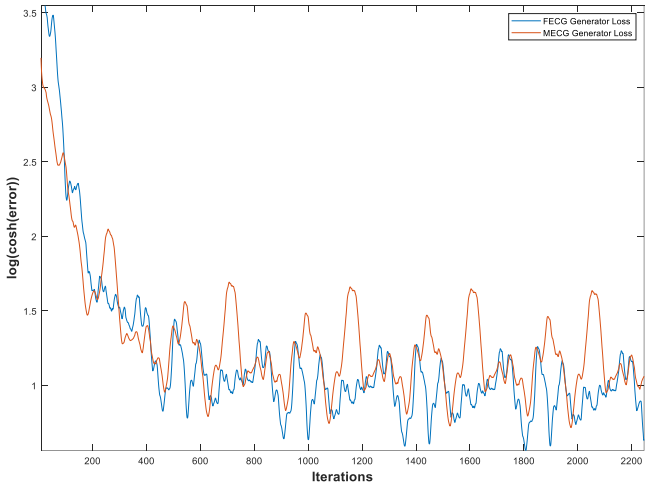

Figure S.1. Comparing the loss function of MECG and FECG generators on the test set (subject 1), when trained on other subjects from A&D FECG dataset. Both generators are converged, while the FECG generator achieved a better result.

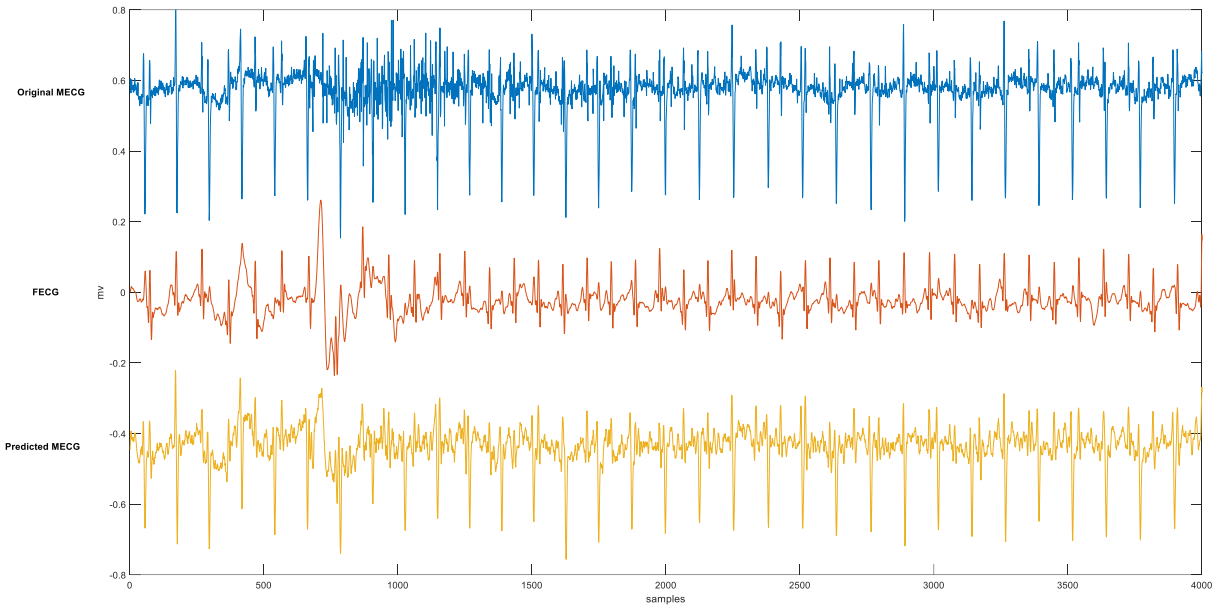

Figure S.2. An example of 4000-sample MECG signal generated using FECG signal of Subject 1 in the A&D FECG dataset. The generated MECG and original MECG signals are very similar despite having a noise on samples around sample 1000.