

Subject	IMU hand		IMU chest		IMU ankle	
	Count	%	Count	%	Count	%
1	1454	0.39	509	0.14	1327	0.35
2	2729	0.61	387	0.09	2445	0.55
3	522	0.21	183	0.07	527	0.21
4	2214	0.67	213	0.06	1101	0.33
5	1541	0.41	312	0.08	1980	0.53
6	1021	0.28	343	0.09	1372	0.38
7	1506	0.48	257	0.08	1037	0.33
8	2151	0.53	1308	0.32	1951	0.48

Table 1. The count and percentage of missing values in PAMAP2.

Subject	Mean <sup>1</sup>		Sample <sup>2</sup>		LOCF <sup>3</sup>		Linear <sup>4</sup>		PMM <sup>5</sup>	
	MAE	RMSE	MAE	RMSE	MAE	RMSE	MAE	RMSE	MAE	RMSE
1	7.949	15.723	11.163	22.291	0.431	1.737	0.264	1.206	6.231	13.144
2	5.238	9.932	7.422	14.038	0.338	1.315	0.207	0.97	4.171	8.593
3	4.757	8.909	6.709	12.623	0.289	0.991	0.179	0.668	3.605	7.537
4	5.367	10.467	7.633	14.759	0.299	0.856	0.191	0.567	4.192	8.720
5	5.457	10.692	7.783	15.119	0.387	1.471	0.235	1.047	4.637	9.510
6	5.438	10.286	7.683	14.503	0.432	1.923	0.259	1.416	4.555	9.121
7	5.396	10.391	7.657	14.735	0.372	1.764	0.242	1.339	3.919	8.256
8	5.315	10.091	7.537	14.288	0.377	1.741	0.233	1.256	4.094	8.223

Table 2. Evaluation of different imputation methods on PAMAP2 dataset. <sup>1</sup>Unconditional mean imputation; <sup>2</sup>Random sample from observed values; <sup>3</sup>Last observation carried forward; <sup>4</sup>Linear Interpolation; <sup>5</sup>Predictive mean matching

Raw Bias (RBias), has a similar form Mean Absolute Error (MAE):

$$\text{RBias} = \frac{1}{n} \sum_{i=1}^n |\hat{Q} - Q| \quad (1)$$

Percent Bias (PBias):

$$\text{PBias} = \frac{1}{n} \sum_{i=1}^n |(\hat{Q} - Q)/Q| \times 100 \quad (2)$$

Root Mean Square Error (RMSE)

$$\text{RMSE} = \sqrt{\frac{1}{n} \sum_{i=1}^n (\hat{Q} - Q)^2} \quad (3)$$

where  $Q$  is missing values,  $\hat{Q}$  is the corresponding predicted values, and  $n$  is the count of missing values.

$$X_e[k] = \sum_{n=0}^{N-1} X_e[n] e^{-j \frac{2\pi kn}{N}}, \quad S_e[k] = |X_e[k]|^2. \quad (4)$$

$$\bar{E} = \frac{\sum_{k=0}^{N-1} S_e[k]}{N}, \quad \text{SNR} = \frac{S_e[\frac{N}{3}]}{\bar{E}}. \quad (5)$$