

Additional Experiments

Table 1: Performance Comparison of ours with two other data augmentations in *Activity Recognition* datasets where SimCLR is used as a framework for contrastive learning.

Method	UCIHAR		HHAR		USC	
	ACC $\uparrow$	MF1 $\uparrow$	ACC $\uparrow$	MF1 $\uparrow$	ACC $\uparrow$	MF1 $\uparrow$
SimCLR $\ddagger$	87.05 $\pm$ 1.07	86.13 $\pm$ 0.96	85.48 $\pm$ 1.16	84.31 $\pm$ 1.31	53.47 $\pm$ 1.10	52.09 $\pm$ 0.95
FrAug $\S$	84.12 $\pm$ 1.37	83.27 $\pm$ 1.11	83.31 $\pm$ 1.24	82.43 $\pm$ 1.51	51.74 $\pm$ 1.21	50.53 $\pm$ 1.10
TF-C *	82.75 $\pm$ 1.47	81.14 $\pm$ 1.35	81.75 $\pm$ 1.69	80.15 $\pm$ 1.67	48.89 $\pm$ 2.15	48.39 $\pm$ 2.31
Ours	91.60 $\pm$ 0.65	90.46 $\pm$ 0.53	88.05 $\pm$ 1.05	87.95 $\pm$ 1.10	60.13 $\pm$ 0.75	59.13 $\pm$ 0.69

$\ddagger$ The best traditional time-series augmentations, given in Appendix, are used with SimCLR framework

$\S$ The augmentations in "FrAug, frequency domain augmentation for time series forecasting" are used with SimCLR framework

* The augmentations in "Self-supervised contrastive pre-training for time series via time-frequency consistency" are used with SimCLR framework

Table 2: Performance Comparison of ours with two other data augmentations in *Heart Rate Prediction* datasets where SimCLR is used as a framework for contrastive learning.

Method	IEEE SPC12		IEEE SPC 22		DaLia	
	MAE $\downarrow$	RMSE $\downarrow$	MAE $\downarrow$	RMSE $\downarrow$	MAE $\downarrow$	RMSE $\downarrow$
SimCLR $\ddagger$	20.67 $\pm$ 1.13	26.35 $\pm$ 0.98	16.84 $\pm$ 1.10	22.23 $\pm$ 0.72	12.01 $\pm$ 0.65	21.09 $\pm$ 0.86
FrAug $\S$	22.11 $\pm$ 1.43	27.97 $\pm$ 1.33	18.21 $\pm$ 1.43	23.28 $\pm$ 1.61	16.31 $\pm$ 1.17	23.54 $\pm$ 1.45
TF-C *	21.56 $\pm$ 1.31	27.15 $\pm$ 1.31	17.31 $\pm$ 1.56	21.14 $\pm$ 1.45	14.45 $\pm$ 1.32	24.12 $\pm$ 1.37
Ours	16.26 $\pm$ 0.72	22.48 $\pm$ 0.95	12.25 $\pm$ 0.47	18.20 $\pm$ 0.61	10.57 $\pm$ 0.55	20.37 $\pm$ 0.73

Table 3: Performance Comparison of our method with different frameworks in *Activity Recognition* datasets

Method	UCIHAR		HHAR		USC	
	ACC $\uparrow$	MF1 $\uparrow$	ACC $\uparrow$	MF1 $\uparrow$	ACC $\uparrow$	MF1 $\uparrow$
SimCLR	87.05 $\pm$ 1.07	86.13 $\pm$ 0.96	85.48 $\pm$ 1.16	84.31 $\pm$ 1.31	53.47 $\pm$ 1.10	52.09 $\pm$ 0.95
SimCLR + Ours	91.60 $\pm$ 0.65	90.46 $\pm$ 0.53	88.05 $\pm$ 1.05	87.95 $\pm$ 1.10	60.13 $\pm$ 0.75	59.13 $\pm$ 0.69
TS-TCC *	88.36 $\pm$ 0.57	88.45 $\pm$ 1.03	86.94 $\pm$ 1.01	86.23 $\pm$ 1.03	55.39 $\pm$ 1.11	56.47 $\pm$ 1.11
TS-TCC + Ours $\S$	92.35 $\pm$ 0.43	91.15 $\pm$ 0.62	89.31 $\pm$ 0.91	88.38 $\pm$ 1.05	59.31 $\pm$ 1.10	59.04 $\pm$ 1.12

$\S$ Weak augmentation: Proposed Mixup. Strong augmentation: permutation-and-jitter

* Weak augmentation: Jitter-and-scale. Strong augmentation: permutation-and-jitter

Table 4: Performance Comparison of our method with different frameworks in *Heart Rate Prediction* datasets

Method	IEEE SPC12		IEEE SPC22		DaLia	
	MAE $\downarrow$	RMSE $\downarrow$	MAE $\downarrow$	RMSE $\downarrow$	MAE $\downarrow$	RMSE $\downarrow$
SimCLR	20.67 $\pm$ 1.13	26.35 $\pm$ 0.98	16.84 $\pm$ 1.10	22.23 $\pm$ 0.72	12.01 $\pm$ 0.65	21.09 $\pm$ 0.86
SimCLR + Ours	16.26 $\pm$ 0.72	22.48 $\pm$ 0.95	12.25 $\pm$ 0.47	18.20 $\pm$ 0.61	10.57 $\pm$ 0.55	20.37 $\pm$ 0.73
TS-TCC *	22.31 $\pm$ 1.16	26.76 $\pm$ 1.03	18.11 $\pm$ 1.17	23.18 $\pm$ 0.94	13.94 $\pm$ 0.95	22.56 $\pm$ 0.93
TS-TCC + Ours $\S$	15.13 $\pm$ 0.69	20.37 $\pm$ 0.91	13.28 $\pm$ 0.53	19.14 $\pm$ 0.61	9.63 $\pm$ 0.51	19.21 $\pm$ 0.65

$\S$ Weak augmentation: Proposed Mixup. Strong augmentation: permutation-and-jitter

* Weak augmentation: Jitter-and-scale. Strong augmentation: permutation-and-jitter