

CoReEcho: Continuous Representation Learning for 2D+time Echocardiography Analysis

Supplementary Material

Table 1. Model input size, preprocessing steps, and augmentation implemented for each dataset. The embedding size of C_E is 512. The dropout rate in the \mathcal{F}_R is 0.4.

	EchoNet-Dynamic	CAMUS	HMC-QU
Model Input Size	$36 \times 112 \times 112$	$16 \times 112 \times 112$	$12 \times 224 \times 224$
Preprocessing	Already preprocessed	Resizing to 112×112 Spline interpolation (time) into 16 frames	Center cropping to remove texts & ECG Resizing to 224×224 Spline interpolation (time) into 12 frames
Augmentation	Zero-padding to 124×124 followed by random cropping to 112×112	Random rotation ($\pm 20^\circ$) Random scaling (0.8 to 1.1) Random translation (10%)	Random rotation ($\pm 20^\circ$) Random scaling (0.8 to 1.1) Random translation (10%)

Table 2. Train hyperparameters. (*): 25 epochs for the 1st training stage and 5 epochs for the 2nd stage.

	EchoNet Dynamic	CAMUS		HMC-QU	
		MLP-P	FT	MLP-P	FT
Optimizer		AdamW		Madgrad	
Batch size	16	16	8	16	
Epoch	25.5 (*)	100		50	
Base learning rate	$1e-4$	$2e-4$	$1e-4$	$1e-5$	
Optimizer momentum	$\beta_1, \beta_2=0.9, 0.999$			0.9	
Weight decay		$1e-4$		0	
Scheduler	Step LR	-		-	

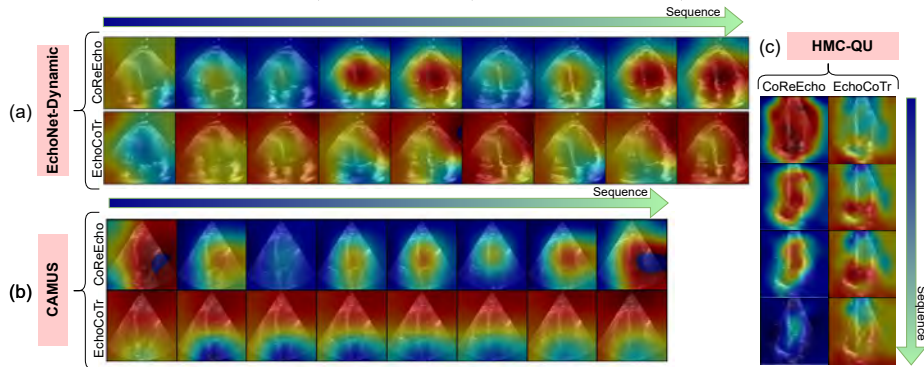


Fig. 1. Grad-CAM. CoReEcho \mathcal{F}_E exhibits reduced focus on backgrounds and more focus on the LV.

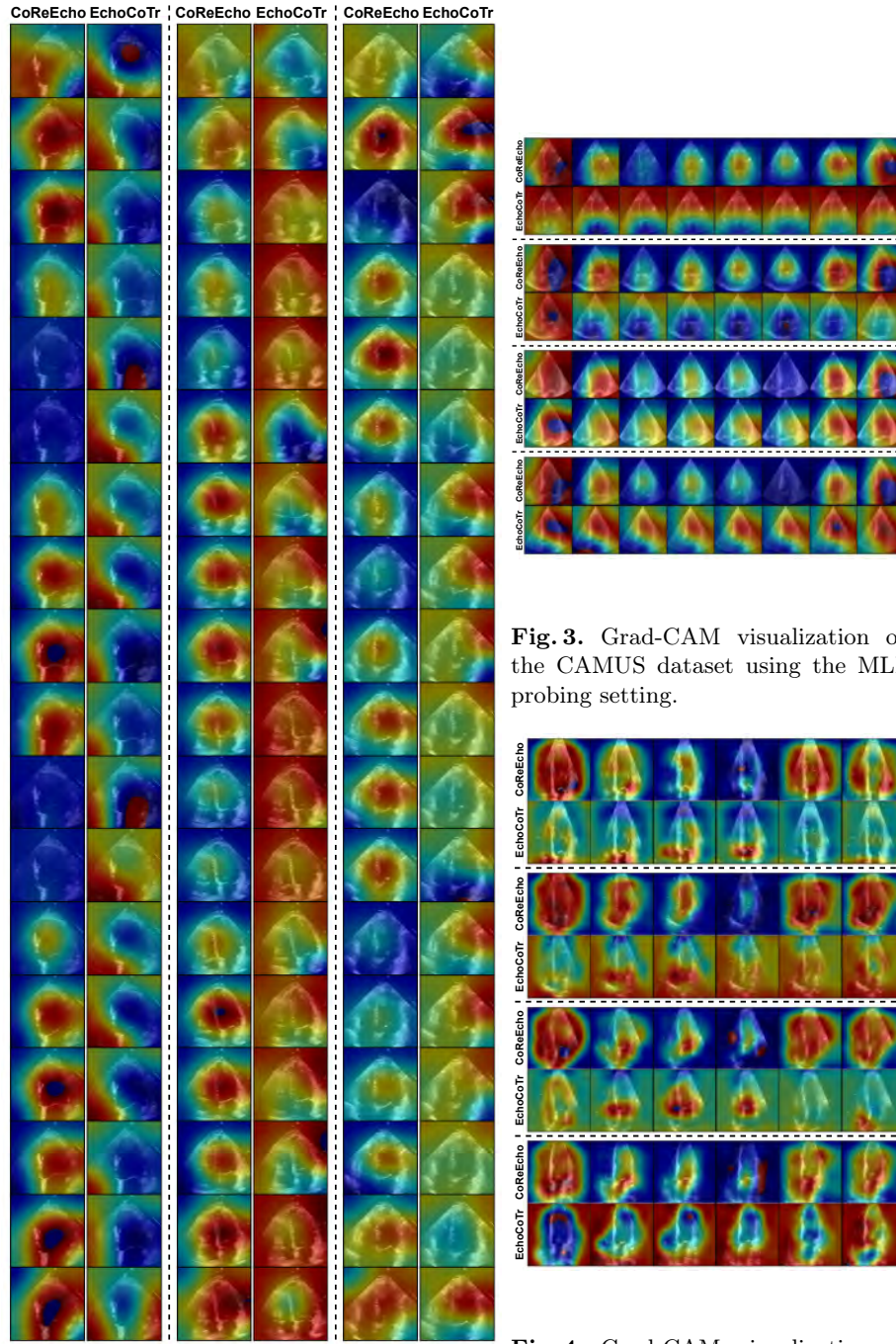


Fig. 2. Grad-CAM samples on the EchoNet-Dynamic test set. CoReEcho can place a higher emphasis on the LV region. CoReEcho also exhibits reduced focus on backgrounds, in contrast to EchoCoTr.

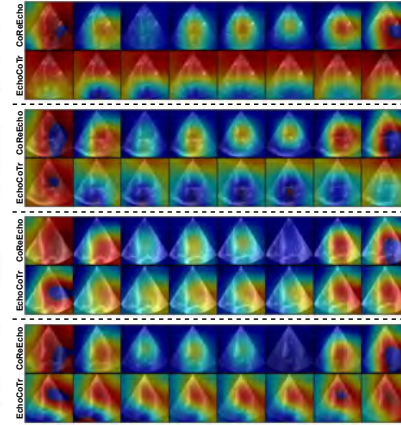


Fig. 3. Grad-CAM visualization on the CAMUS dataset using the MLP probing setting.

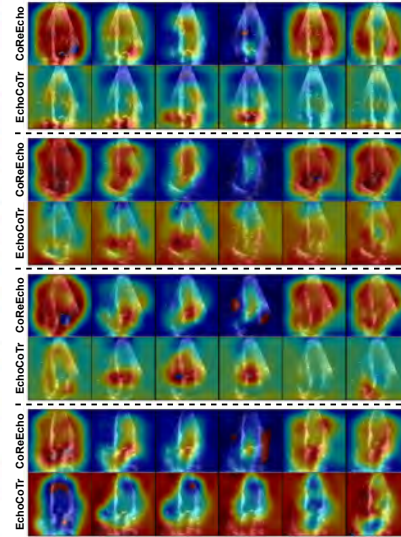


Fig. 4. Grad-CAM visualization on the HMC-QU dataset using the MLP probing setting.