

**Parameter Efficient Fine Tuning for
Multi-scanner PET to PET Reconstruction
–Supplementary Materials–**

Table 1. Details of hyperparameter settings for parameter efficient fine-tuning (PEFT). We aimed to maintain consistent settings within each PEFT category.

(a) 3D CVT-GAN								
	No-FT Full FT	Selective methods			Additive methods			
		LayerNorm	BitFit	LoRA	Adapters	VPT	SSF	PETITE (<i>Ours</i>)
Learning rate	1e-3	1e-3	1e-3	1e-3	1e-2	1e-3	1e-2	1e-3
Weight Decay	1e-5	1e-5	1e-5	1e-5	1e-5	1e-5	1e-6	1e-5
Optimizer		adam					adamw	
Learning rate schedule				CosineAnneal				
Total epochs				150				

(b) UNETR								
	No-FT Full FT	Selective methods			Additive methods			
		LayerNorm	BitFit	LoRA	Adapters	VPT	SSF	PETITE (<i>Ours</i>)
Learning rate	1e-3	1e-3	1e-3	1e-3	1e-2	1e-2	1e-2	1e-3
Weight Decay	1e-5	1e-5	1e-5	1e-4	1e-4	1e-5	1e-5	1e-5
Optimizer				adamw				
Learning rate schedule		WarmupCosine					CosineAnneal	
Total epochs				200				

Table 2. Scanner specifications.

Scanner	Resolution	Voxel spacing	Manufacturer	Institution
1	(192, 192, 136)	(1.21875, 1.21875, 1.21875)	Siemens	Univ of California
2	(192, 192, 128)	(1.21875, 1.21875, 1.21875)	Siemens	Univ of California
3	(224, 224, 81)	(1.01821, 1.01821, 2.02699)	Siemens	Univ of California
4	(128, 128, 90)	(2, 2, 2)	Philips Healthcare	OHSU
5	(128, 128, 63)	(2.05941, 2.05941, 2.425)	Siemens	UCSD

Table 3. Computation costs of PEFT methods.

Method	Full-FT	LN	BitFit	LoRA	Adapters	SSF	VPT	PETITE (Ours)
(a) 3D CVT-GAN								
Train time (Sec)	450	360	355	340	360	420	398	307
GPU memory (MB)	8,430	7,899	6,092	6,416	6,075	8,225	8,066	4,725
(b) UNETR								
Train time (Sec)	580	330	417	480	420	432	424	409
GPU memory (MB)	8,430	6,525	7,805	7,812	8,026	4,918	4,875	5,940

Table 4. Feasible Mix-PEFT combinations with BitFit for 3D CVT-GAN.

Vit-based Encoder	Vit-based Decoder	%Param	PSNR(\uparrow)	SSIM(\uparrow)	NRMSE(\downarrow)
LoRA (r=8)	Adapters (rf=8)	0.69%	30.870	0.908	0.0394
	SSF	0.58%	30.556	0.862	0.0403
	VPT (32/8)	0.28%	30.970	0.908	0.0380
Adapters (rf=8)	LoRA (r=8)	0.69%	29.956	0.823	0.0343
	SSF	0.78%	30.821	0.860	0.0312
	VPT (32/8)	0.87%	31.203	0.910	0.0302
VPT (0/8/32)	LoRA (r=8)	0.32%	31.373	0.912	0.0298
	Adapters (rf=8)	0.28%	31.331	0.910	0.0300
	SSF	0.46%	30.059	0.826	0.0433
	VPT (32/8)	0.38%	31.314	0.904	0.0314
SSF	LoRA (r=8)	0.35%	30.522	0.812	0.0454
	Adapters (rf=8)	0.29%	30.728	0.882	0.0332
	VPT (32/8)	0.38%	31.314	0.904	0.0314

Table 5. Feasible Mix-PEFT combinations with BitFit for UNETR.

Vit-based Encoder	CNN-based Decoder	%Param	PSNR(\uparrow)	SSIM(\uparrow)	NRMSE(\downarrow)
LoRA (r=4)	Adapters (rf=4)	0.51%	31.545	0.860	0.0311
	SSF	0.51%	31.696	0.865	0.0292
Adapters (rf=16)	LoRA (r=4)	0.64%	30.921	0.839	0.0340
	SSF	0.95%	31.670	0.864	0.0310
VPT (50)	LoRA (r=4)	0.53%	31.193	0.819	0.0290
	Adapters (rf=4)	0.42%	31.06	0.832	0.0335
	SSF	0.11%	31.137	0.841	0.0339
SSF	Adapters (rf=4)	0.28%	31.207	0.840	0.0342
	LoRA (r=4)	0.52%	31.123	0.841	0.0294