

Table. Task reproduction

Number	Illustration	Task (number of repetitions)	Dataset(Proportion of positive and negative samples)	Model	Epoch	Learning rate	Batch
1	Fig. 2a	Alignment of label& IS and AS (1)	2-3:3600 samples(1:1)	RDNet41	100	2×10^{-4}	512
2	Figs. 2c-f Supplementary Fig. 13	Alignment of label&OS and AS (1)	2-3:9000 samples(1:1)				
3	Supplementary Figs. 11a-f Supplementary Figs. 19	Alignment of label&OS and AS (3)					
4	Figs. 2g, 2i	Alignment of label&OS and AS(transfer training final layer) (1)	2-2:500 samples(1:1)		1000	8×10^{-2}	
5	Supplementary Figs. 11h-j	Alignment of label&OS and AS(transfer training final layer) (3)			100	2×10^{-4}	
6	Figs. 2g, 2 h	Alignment of label&OS and AS (training from start) (1)					
7	Fig. 2g	Alignment of label&OS and AS (globally transfer training) (1)			500	1×10^{-6}	
8	Supplementary Figs. 15a-e	Alignment of label&OS and AS (3)	3-1:10000 samples(1:1)			2×10^{-4}	
9	Supplementary Figs. 15f-j		3-2:14000 samples(1:1)				
10	Supplementary Figs. 16c-h		3-3:3800 samples(1:1)				
11	Supplementary Fig. 20d	Arc detection based on OS (1)	2-2:508 samples(1:1)+ 2-3:9626 samples(1:1)	RSNet1		1×10^{-6}	128
12	Supplementary Fig. 20e					1×10^{-5}	256
13	Supplementary Fig. 20f						
14	Figs. 3a-c	Alignment of label&OS and AS (3)	2-3:9000 samples(1:1)	RRNet18 RRNet10 RMNet MNet4 MMet3 RDNet41 RDNet13 MNet2_64 MNet2_32 MNet2_16 MNet2_8 MNet2_4 MNet2_2 MNet2_1	100	2×10^{-4}	512
15	Figs. 3d-f		2-3:50-9000 samples(1:1)	RDNet13	2×10^{-4} 4×10^{-4} 2×10^{-3}		
16	Supplementary Fig. 24			MNet2_1	2×10^{-4} 2×10^{-2} 1×10^{-1} 5×10^{-1}		
17	Figs. 3g-i		2-3:5000 samples(1:8 - 8:1)	RDNet41	2×10^{-4}		
18	Supplementary Fig. 26		2-3:50-9000 samples(1:1)	/	/	/	
19	Figs. 4b-c Supplementary Fig. 28	Alignment of label&AS and AS (3)	Generated data: 9000 samples(1:1)	GRU	200	1×10^{-2}	512
20	Supplementary Figs. 29a-c	Alignment of label&IS and IS (3)	2-3: 5000 samples(1:1)	RSNet1	100	2×10^{-3}	128
21	Supplementary Figs. 29d-f	Alignment of label&OS and OS (3)	2-3: 9000 samples(1:1)			MLP	
22	Supplementary Figs. 29g-i	Alignment of label&OS and OS feature (3)		1×10^{-3}			1024
23	Figs. 4d-f Supplementary Figs. 29j-l	Alignment of label&function output and function input (3)	Generated data: 500(1:1)	SVM	/	/	/
24	Supplementary Fig. 30	Alignment of function output and function input (3)	Generated data: 500		/	/	/
25	Figs. 4g-i Supplementary Fig. 31	Alignment of feature vector&OS and OS (3)	2-3: 9000 samples(1:1)	RANet	50	1×10^{-4}	128