



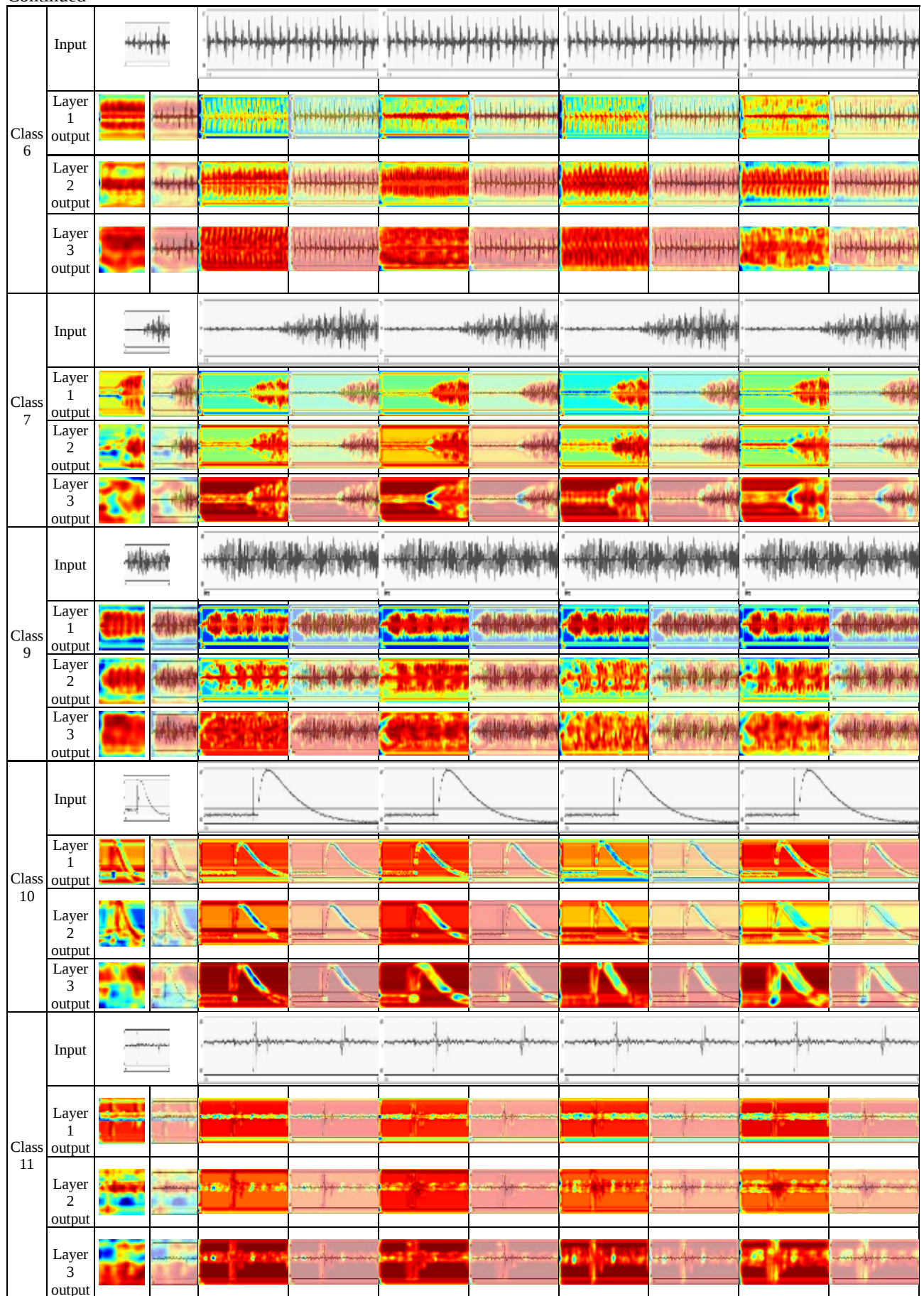
Appendix

Table S1 Visualization results of the model

Layer		Improved Lenet 32×32 (5×5)	Improved Lenet 50×130 (3×3)	Improved Lenet 50×130 (3×5)	Improved Lenet 50×130 (5×3)	Improved Lenet 50×130 (5×5)
Class 2	Input					
	Layer 1 output					
	Layer 2 output					
	Layer 3 output					
Class 3	Input					
	Layer 1 output					
	Layer 2 output					
	Layer 3 output					
Class 4	Input					
	Layer 1 output					
	Layer 2 output					
	Layer 3 output					
Class 5	Input					
	Layer 1 output					
	Layer 2 output					
	Layer 3 output					

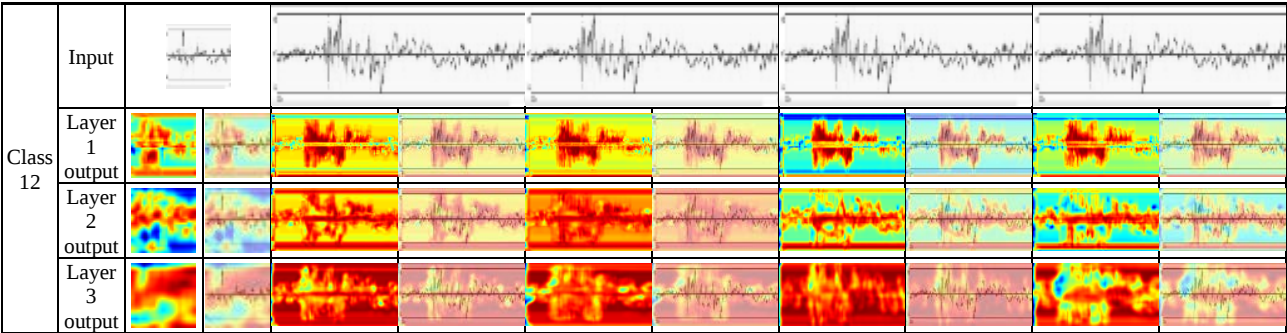
to be continued

Continued



to be continued

Continued



Note: Class 2 is system interference signal; Class 3 is whistle; Class 4 is construction disturbance; Class 5 is electricity; Class 6 is blower fan; Class 7 is half noise; Class 9 is ordinary noise; Class 10 is pulse current; Class 11 is weak rock fracture, and Class 12 is other signals.

The left images of the layer outputs 1, 2 and 3 are thermal maps of the areas of interest; the right images of the layer outputs 1, 2 and 3 are superpositions of the thermal maps and original maps.