Block	Layer	# filters	kernel size	# params	Output	Activation	Options
Encoder	Input				(23,3001)		
	Reshape				(1,23,3001)		
	Conv2D	23	(23,1)	23*23	(23,1,3001)		pad(0,0),stride(1,1)
	Permute				(1,3001,23)		
	Conv2D	16	(50,1)	16*50	(16,2952,23)		pad(0,0),stride(1,1)
	MaxPool2D		(13,1)		(16,227,23)		return_indices(in1)
	BatchNorm			2*16	(16,227,23)		
	Activation				(16,227,23)	ReLU	
	DepthwiseConv2D	16	(50,1)	16*50	(16,178,23)		pad(0,0),stride(1,1)
	MaxPool2D		(13,1)		(16,13,23)		return_indices(in2)
	BatchNorm			2*16	(16,13,23)		
	Activation				(16,13,23)	ReLU	
	Flatten				(4784)		
	Dropout				(4784)		p=0.5
Latent	Dense			128*4784	(128)	ReLU	
	BatchNorm			2*128	(128)		
	Dense (mu)			128*128	(128)	ReLU	
	BatchNorm			2*128	(128)		
	Dense (sigma)			128*128	(128)	ReLU	
	BatchNorm			2*128	(128)		
	Reparameterize				(128)		
Decoder	Dense			128*4784	(4784)		
	Unflatten				(16,13,23)		
	MaxUnpool2D		(13,1)	2*16	(16,178,23)		indices=in2
	BatchNorm				(16,178,23)		
	Activation				(16,178,23)	ReLU	
	DepthConvTrans2D	16	(50,1)	16*50	(16,227,23)		pad(0,0),stride(1,1)
	MaxUnpool2D		(13,1)	2*16	(16,2952,23)		indices=in1
	BatchNorm				(16,2952,23)		
	Activation				(16,2952,23)	ReLU	
	ConvTranspose2D	16	(50,1)	16*50	(1,3001,23)		pad(0,0),stride(1,1)
	Permute				(23,1,3001)		
	ConvTranspose2D	23	(23,1)	23*23	(1,23,3001)		pad(0,0),stride(1,1)
	Reshape				(23,3001)		
	Output				(23,3001)		
Discrim.	Dense			128*32	(32)	LeakyReLU	negSlope=0.2
	BatchNorm			2*128	(32)		
	Dense			32*8	(8)	LeakyReLU	negSlope=0.2
	BatchNorm			2*32	(8)		
	Dense			8*1	(1)	LeakyReLU	negSlope=0.2
	BatchNorm			2*1	(1)		
	Activation				(1)	Sigmoid	
Classif.	Dense			128*2	(2)		
	Activation				(2)	Softmax	