

PatchTSMixer Modules and Ops

Modules

Module	Role / Description
Patchify	Convert input sequence into overlapping patches.
Linear Patch Projection	Map each patch to d_model dimension.
Positional Encoding	Add positional information to patches.
PatchMixerBlock	Mix information across patches.
FeatureMixerBlock	Mix hidden features within each patch.
ChannelFeatureMixerBlock	Mix features across input channels.
PatchTSMixerLayer	Apply patch, feature, and optional channel mixing.
PatchTSMixerBlock	Stack multiple PatchTSMixer layers.
PredictionHead	Project latent representation to forecast horizon.

PyTorch Operations

Operation	Purpose
nn.Unfold	Extract sliding windows for patch creation.
nn.Linear	Apply learnable linear projection.
nn.LayerNorm	Normalize features along last dimension.
nn.BatchNorm1d	Normalize across batch/time for BN mode.
nn.Dropout	Regularization to prevent overfitting.
F.gelu	Non-linear activation inside MLP.
Softmax	Compute attention weights.
add (x + residual)	Residual skip connections.
transpose / permute	Rearrange tensor dimensions.
reshape / flatten	Prepare features for projection or mixing.
matmul	Used inside attention layers (optional).