

# **DSS-GAN (Directional State Space GAN): A Generative Adversarial Network with Directional State Spaces Utilizing the Mamba Architecture**

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DSS-GAN is the first generative adversarial network to utilize the Mamba architecture as a hierarchical generator, synthesizing images from noise under class-conditional settings. The key contribution is the Directional Latent Routing (DLR) mechanism, which decomposes the latent vector and class signal into direction-specific sub-vectors, each independently conditioning the corresponding scanning direction along various spatial axes of the feature map.

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