Diffusion models are a promising generative artificial intelligence (AI) technique for denoising and synthetic data generation. A de-noising diffusion model is applied to the atmospheric correction problem. In place of true noise, the model is trained based on predictions from the physics-based atmospheric radiative transfer tool, MODTRAN, to constrain the training environment. In this paper, we present results from a trained diffusion-based neural network model applied to hyperspectral image data and assess performance compared to conventional empirical atmospheric correction algorithms.

Keywords: Machine Learning, Diffusion Models, Atmospheric Correction