# Image enhancement by 2 D non - separable quaternionic filter bank - based thresholding neural network

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The thresholding neural network with a 2-D non-separable paraunitary filter bank based on quaternion multipliers (2-D NSQ-PUFB) for image enhancement is proposed. Due to the high characteristics of the multi-bands 2-D NSQ-PUFB (structure 64in-64out, CG2D =17,15 dB, prototype filter bank (8x24) Q-PUFB), which forms the basis of the TNN, the results of noise editing in comparison with the approaches based on the two-channel wavelet transform in terms of PSNR are 1 1.5 dB higher.