

# Novel Mobile-Oriented Neural Networks for Single Image Super-Resolution

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Single Image Super-Resolution (SISR) has achieved the most advanced accuracy through deep learning technology. However, how to balance between the efficiency and accuracy of super-resolution remains an open question. This dissertation discusses state-of-the-art SISR algorithms implemented on mobile devices. Several innovative algorithms are compared and discussed. Finally, I propose two efficient light-weighted SISR methods which are suitable for mobile devices. The first is NSAN, which learns hybrid residual features using non-local second-order attention network, based on which the residual HR image can be reconstructed. The second is ARSN, from which the specified residual blocks and skip connections were utilized for residual scaling, global and local residual learning. The proposed methods have different strengths; they both achieve good results in terms of performance, speed and hardware consumption, and have high practical value.