Paper

- **Title**: Residual Dense Network for Image Super-Resolution
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- **Link**: https://arxiv.org/abs/1802.08797
- **Tags**: Residual Dense Network, Image Super-Resolution, hierarchial features, residual dense block, contiguous memory
- **Year**: 2018
- **Code**: https://github.com/yulunzhang/RDN

Summary

What

The authors propose to use Residual Dense Network (RDN) based on the Residual Dense Blocks (RDB) to solve the task of Image Super-Resolution - generate high-resolution image from its degraded low-resolution (LR). Comparing the current work with the related works authors note that the methods from the related works neglect to fully use information of each convolutional layer and neglect to use hierarchial features for reconstruction.

Experiments on benchmark datasets with different degradation models show that RDN achieves favorable performance against state-of-the-art methods.

How

i , , i RDN with proposed RDB makes use of all the hierarchial features from the original LR image. RDB consists dense connected layers and local feature fusion with local residual learning (Figure 1).

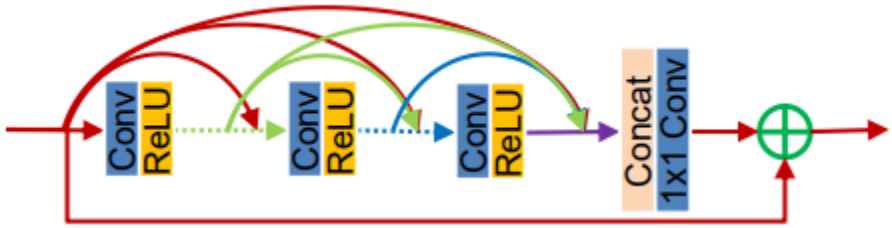

Figure 1: Residual dense block

The output of one RDB has direct access to each layer of the next RDB. Each convolutional layer in RDB has access to all the subsequent layers. Each layer has direct access to the original LR input (Figure 2).

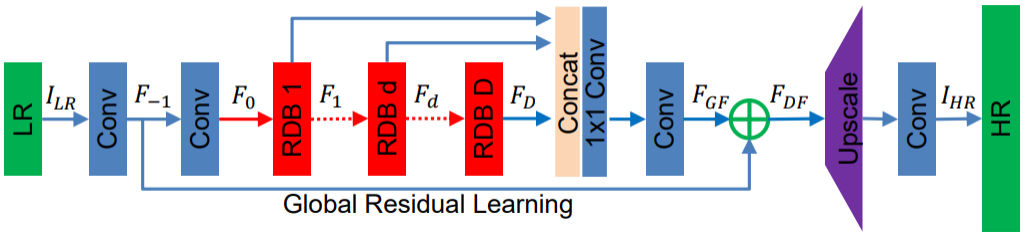

Figure 2: Residual dense network

Results

CNN Visualization