**Explored and Annotated**

## State-of-art analysis of image denoising methods using convolutional neural network

<https://ietresearch.onlinelibrary.wiley.com/doi/full/10.1049/iet-ipr.2019.0157>

Covers some math behind image denoising, CNN architecture, models for CNN systems to use, and good method comparisons along with datasets to train the CNNs with. Seems to primarily work with Gaussian noise and the derivatives of such. (cited by 33)

## PET Image Denoising Using a Deep Neural Network Through Fine Tuning

<https://ieeexplore.ieee.org/abstract/document/8502864>

Follows the process of using a deep CNN to denoise petscan images compared to standard gaussian denoising. Appears effective, covers the fine-tuning process, details of how the CNN was trained, creating an error metric (math included), and which error metrics were tested during the process. (cited by 115)

## Deep Learning for Image Denoising

<https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=2c8b55537a382c2dffdd17a3c8fcb79525b924c0>

Older article, covers details of deep learning approach for image denoising which outperformed then state-of-the-art methods for the same process. Utilized denoising auto-encoders that varied by a random corruption factor. Used normalized data to train.

# To Be Explored:

## Edge-preserving image denoising using a deep convolutional neural network

<https://www.sciencedirect.com/science/article/abs/pii/S0165168419300325> (institution sign on needed)

## BM3D page

https://en.wikipedia.org/wiki/Block-matching\_and\_3D\_filtering