

Ground-Based Solar Image Enhancement with Deep Learning

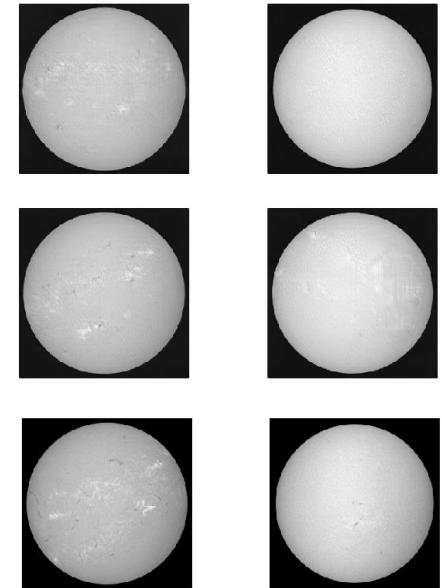
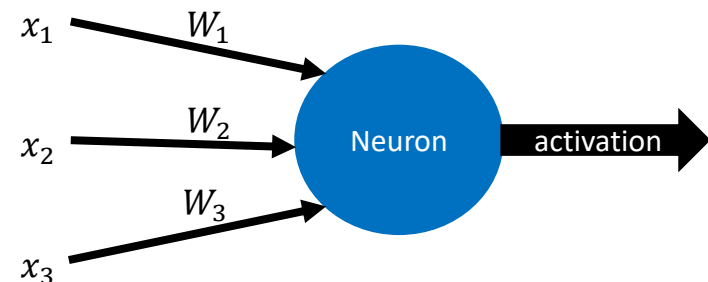
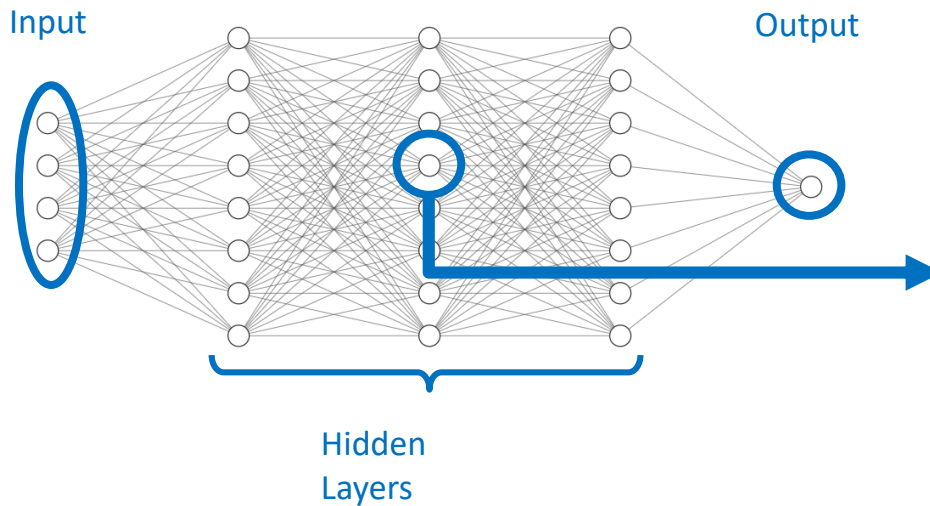
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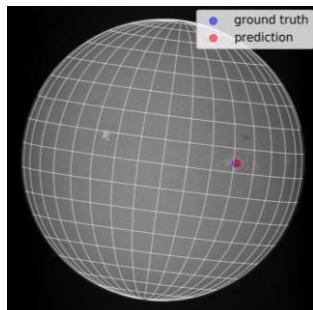
³Skolkovo Institute for Science and Technology, Moscow, Russia

- Neural networks are universal approximators.
- Advanced Architectures can be used to sample data.



Deep Learning Applications

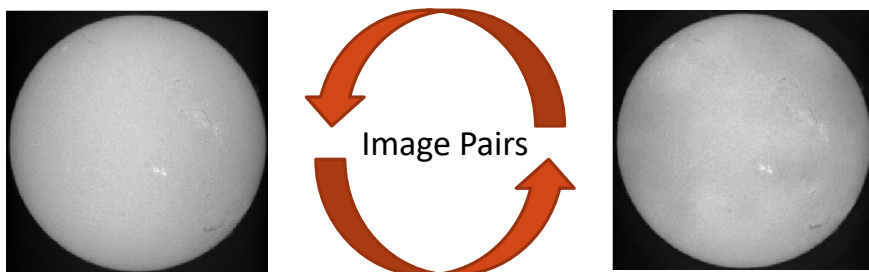
Flare Detection



Unsupervised detection of atmospheric effects



Reconstruction of distorted images



Coronal Hole Extraction

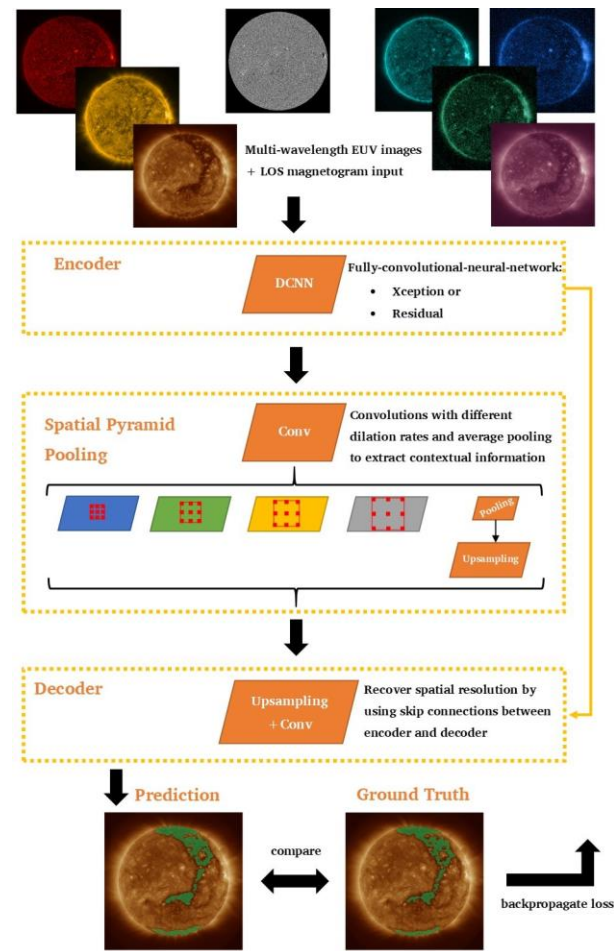
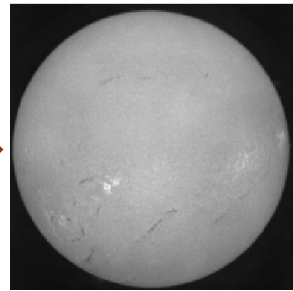
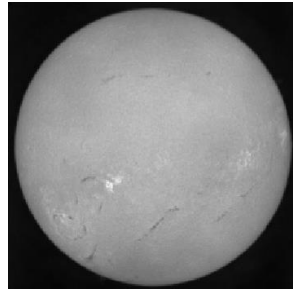
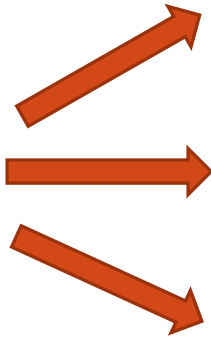
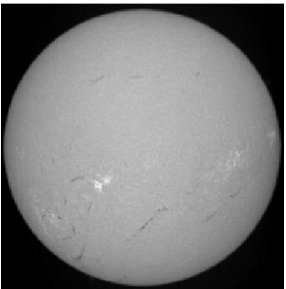


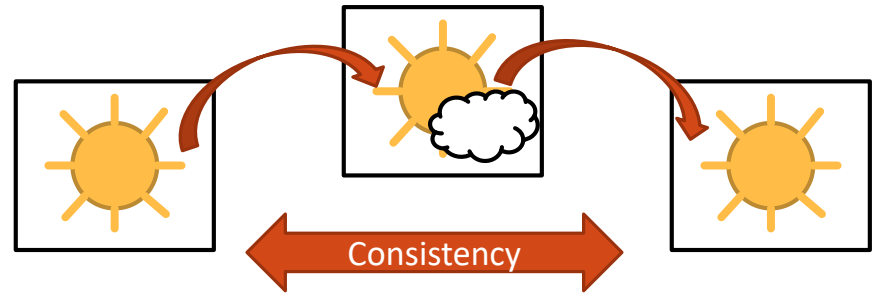
Image Enhancement

- With the use of cycle consistency the mapping between image domains can be learned.

Generation of various distortion effects



Translation between image domains



Enhancement of real degraded images

