

User Guide

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Let us explain how to use the proposed ADMM-ADAM algorithm for solving the inpainting problem. Note that \mathbf{x}_{DL} can be computed using any other DL methods (mode=0), e.g., hyperspectral-based deep image prior (HDIP); in case you do not have any preference, you can use our GAN to compute the \mathbf{x}_{DL} (mode=1). Please download the open-source code below, then put the corresponding files into the related file folder.

- deep-hs-prior-master - <https://github.com/acecreamu/deep-hs-prior>
- tensor_toolbox-v3.1 - <https://www.tensor toolbox.org/>
- ndSparse_G4_2021_03_16 - <https://fr.mathworks.com/matlabcentral/fileexchange/29832-n-dimensional-sparse-arrays>

Prerequisites (Tested under Python 3.6.12 and CUDA 10.0 under Windows OS)

****Please make sure the compatibility between CUDA and PyTorch****

1. Create a conda environment for HDIP.

- “conda create -n admmadam python=3.6.12 -y ”
- “conda activate admmadam ”

2. Install all dependencies.

- “conda install pytorch torchvision -c pytorch ”
- “pip install matplotlib==3.2.0 ”
- “pip install scipy==1.5.0 ”

Run the code

Implementation of the inpainting processes are demonstrated in the “demo.m” file.

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