Data and code for Bayesian convolutional neural network (BCNN) in simulated single-pixel imaging with MNIST dataset and three likelihood functions (Bernoulli, Laplacian and Gaussian).

Information of the simulated raw measurement data: 16× compression ratio, and 25dB SNR of noise added.

(1) ground\_truth.mat: ground-truth images;

(2) network\_input.mat: input images to BCNN;

(3) Bernoulli\_train.ipynb: code in jupyter notebook to train BCNN with the loss function for Bernoulli-distributed likelihood function;

(4) Bernoulli\_MCDropout.ipynb: code in jupyter notebook for BCNN predictions with Monte Carlo dropouts;

(5) Folders ‘bernoulli’, ‘laplacian’, and ‘gaussian’: BCNN predictions with Monte Carlo dropouts using Bernoulli-distributed, Laplacian-distributed, and Gaussian-distributed likelihood functions;

(6) plot\_results.m: code in Matlab for image post-processing and figure plots.