

Xlearn: A deep learning toolbox for synchrotron X-ray imaging

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Xlearn toolbox is an open-source software of deep learning algorithms for multiple synchrotron X-ray imaging problems. It includes three fundamental functions of deep neural networks for image process: image classification, image transformation, and inverse solver. I developed these basic functions for tomographic rotation axis calibration, low-dose tomography enhancement, super-resolution X-ray microscopy, X-ray image segmentation, missing angle tomography reconstruction, and phase retrieval. I will present the basic applications of the toolbox. I will also demonstrate hands-on examples of using this toolbox for image segmentation.