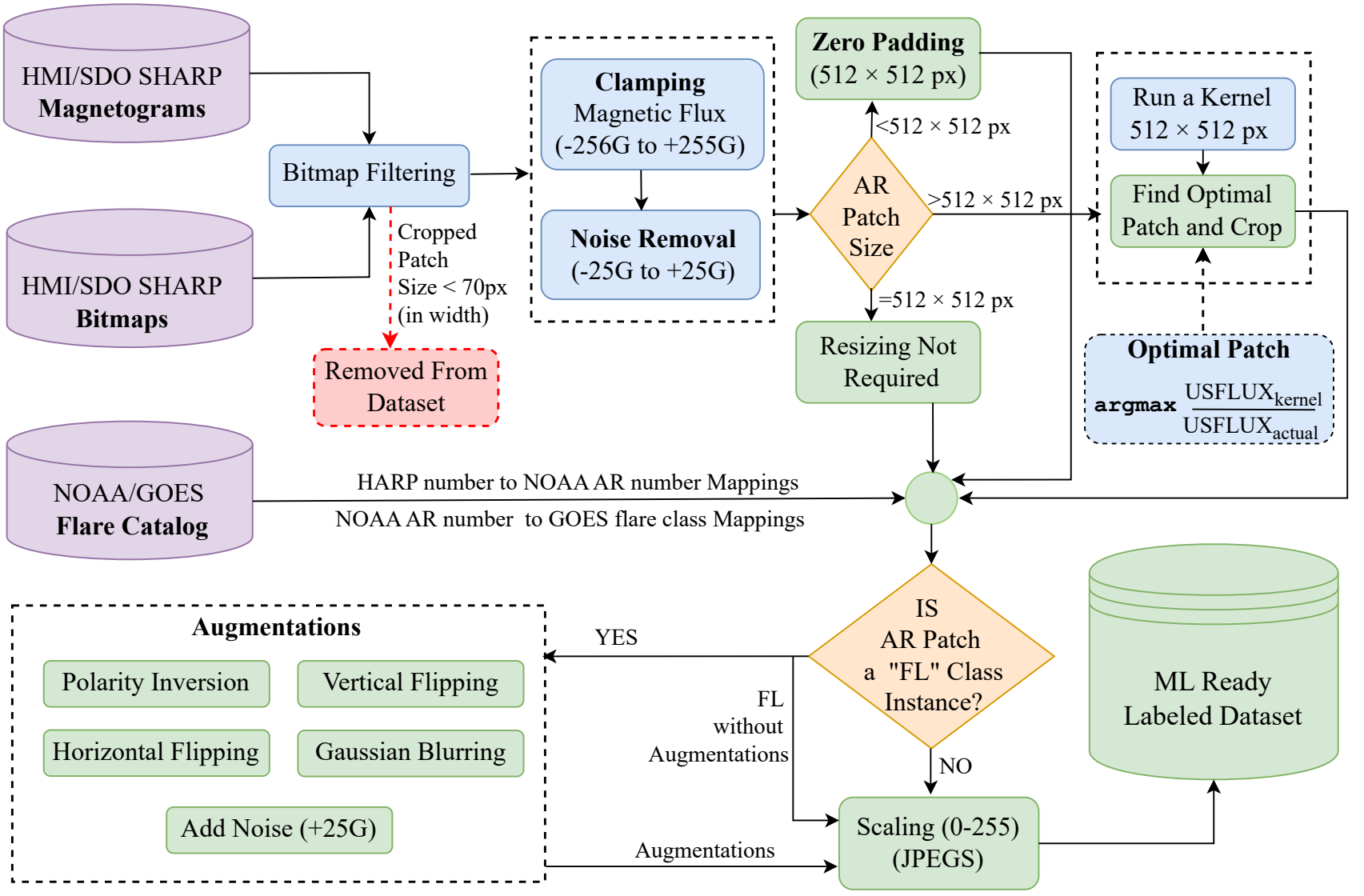
HMI/SDO SHARP
Magnetograms
HMI/SDO SHARP
Bitmaps
NOAA/GOES
Flare Catalog
Bitmap Filtering
Cropped
Patch
Size < 70px
(in width)
Removed From
Dataset
Clamping
Magnetic Flux
(-256G to +255G)
Noise Removal
(-25G to +25G)
Zero Padding
(512 × 512 px)
<512 × 512 px
AR
Patch
Size
>512 × 512 px
=512 × 512 px
Resizing Not
Required
Run a Kernel
512 × 512 px
Find Optimal
Patch and Crop
Optimal Patch
argmax USFLUX_kernel / USFLUX_actual
HARP number to NOAA AR number Mappings
NOAA AR number to GOES flare class Mappings
IS
AR Patch
a "FL" Class
Instance?
YES
FL
without
Augmentations
NO
Augmentations
Scaling (0-255)
(JPEGS)
ML Ready
Labeled Dataset
Augmentations
Polarity Inversion
Vertical Flipping
Horizontal Flipping
Gaussian Blurring
Add Noise (+25G)