Let I be the m-by-n image, and let M be the m-by-n mask.

The new image, Inew, will be m-by-n and have zeros everywhere there is a zero in M and will be the grayscale value wherever M has a one.

Inew = I.\*M;

If the image is RGB (i.e. I is m-by-n-by-3), then use the command

Inew = I.\*repmat(M,[1,1,3]);