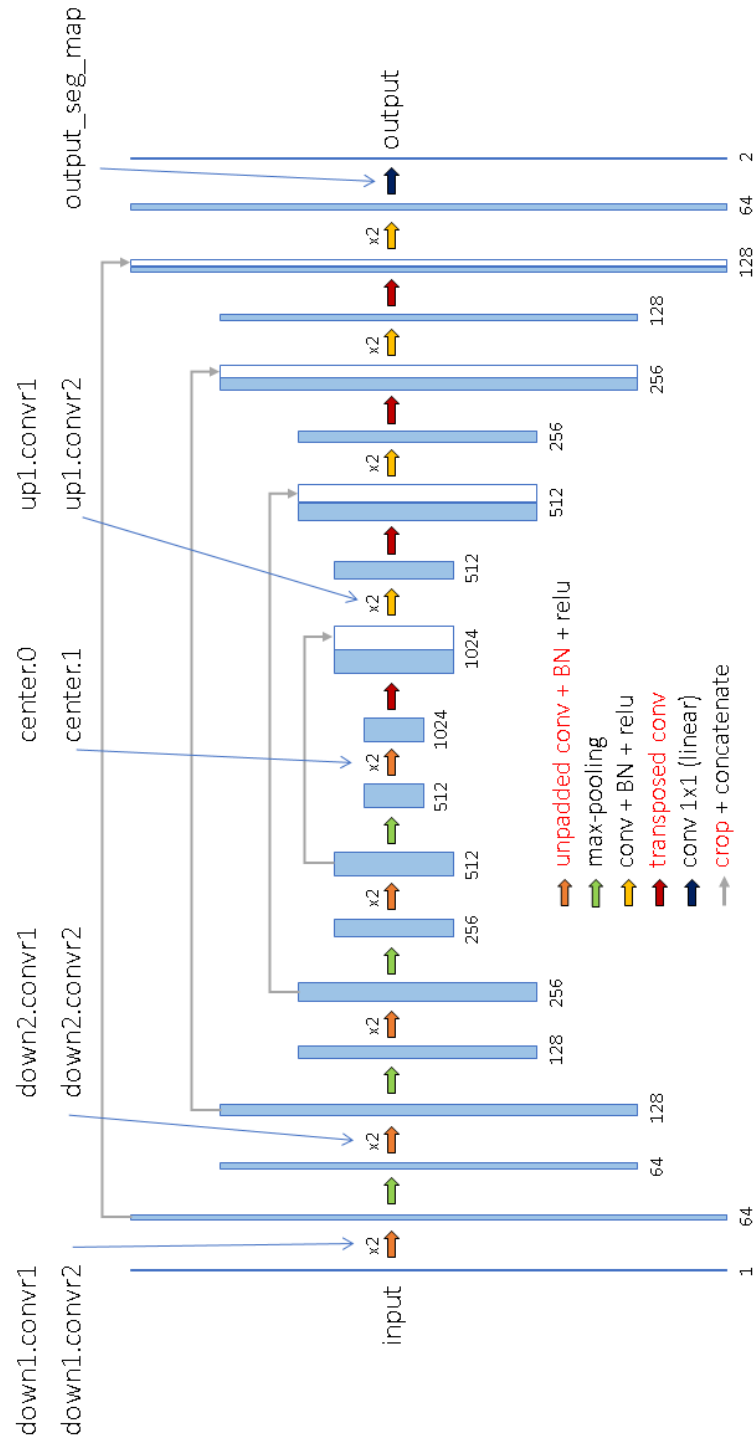


Table 1: Number of images and their lath-shaped bainite content for each fold of each of the four data sets.

Dataset	Fold	0	1	2	3	4
LOM	Number of tile images	151	151	151	151	150
	Bainite pixel percentage [%]	27	26.3	27.4	31.2	29.8
LOM downscaled	Number of tile images	36	36	36	36	35
	Bainite pixel percentage [%]	30.6	26.7	25.2	28	25.4
SEM	Number of tile images	83	83	83	82	82
	Bainite pixel percentage [%]	50.9	58.6	62.3	63.2	60.2
SEM downscaled	Number of tile images	27	27	27	27	27
	Bainite pixel percentage [%]	50.9	46.8	55.3	55.1	59.5

Vanilla U-Net + Convolution Layer Designations



U-Net VGG16

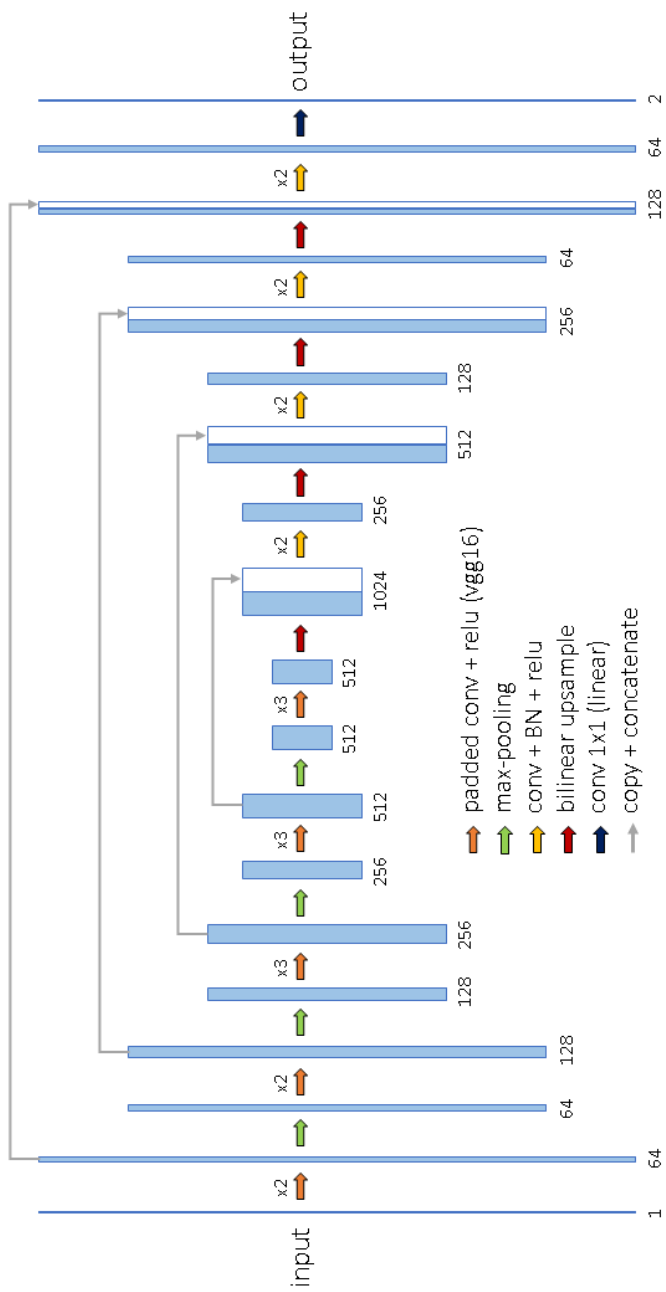


Table 1: Description of individual augmentations applied for vanilla U-Net models on LOM images

Augmentation type	Description: aug. type / parameter(s)	x_{lim}	p
Affine transformation	Linear transformation / rotate, shift and scale limit	30, 0.1, 0.1	0.8
Rotation 90°	- / -	-	0.25
Reflection	- / -	-	0.25
Elastic transformation	Local deformations / alpha affine, alpha, sigma, approx.	0, 15.86, 5.15, True	0.35
Optical distortion	Barrel or pincushion / distort limit, shift limit	0.07, 0.23	0.25

Table 2: Description of individual augmentations applied for vanilla U-Net models on SEM images

Augmentation type	Description: aug. type / parameter(s)	x_{lim}	p
Affine transformation	Linear transformation / rotate, shift and scale limit	30, 0.1, 0.1	0.8
Rotation 90°	- / -	-	0.25
Reflection	- / -	-	0.25
Elastic transformation	Local deformations / alpha affine, alpha, sigma, approx.	0, 40.52, 7.77, True	0.35
Optical distortion	Barrel or pincushion / distort limit, shift limit	0.14, 0.42	0.25
Gaussian blurring	Convolution Gaussian kernel / blur kernel size	9	0.2
Motion blurring	Convolution motion-blur kernel / blur kernel size	7	0.2

Table 3: Description of augmentations applied for UNet-Vgg16 models

Augmentation type	Description: aug. type / parameter(s)	x_{lim}	p
Affine transformation	Linear transformation / rotate, shift and scale limit	45, 0, 0.2	0.7
Reflection	- / -	-	0.5
Elastic transformation	Local deformations / alpha affine, alpha, sigma, approx.	0, 40, 6, True	0.5
Grid Distortion	Local deformations / num steps, distort limit	5, 0.2	0.5
Gaussian blurring	Convolution Gaussian kernel / blur kernel size	7	0.2
Motion blurring	Convolution motion-blur kernel / blur kernel size	5	0.2
Gaussian noise	- / var limit	(10,50)	0.2
Contrast	- / limit	0.15	0.7
Brightness	- / limit	0.1	0.7

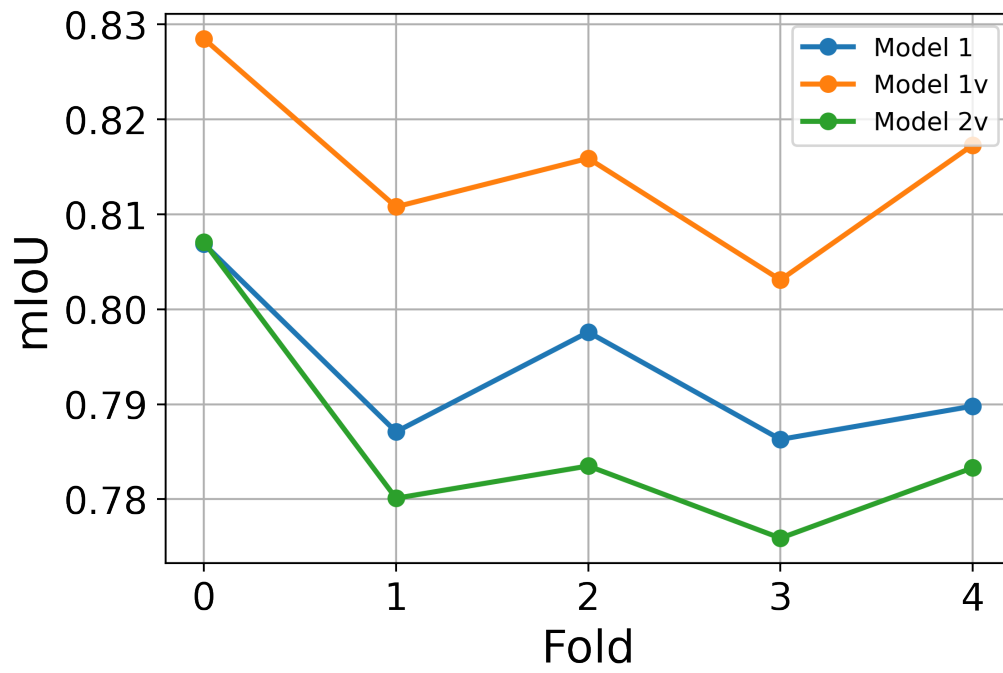


Figure 1: Class-averaged IoU for the different folds for three exemplary models.