

Table 7.1: Results of the data augmentation evaluation when unifying the training sets. p stands for probability, the blue-colored values indicate the best F-score value, and the red-colored values indicate the best IoU values. The values highlighted in green show the data augmentation techniques in which the P-value achieved values lower than 0.05, and thus the null hypothesis was rejected (i.e., there is a statistical difference and the results achieved are better than without data augmentation). The underscored values show the techniques where training with the unified set achieved a P-value lower than 0.05 when compared with training with a single training set, and the null hypothesis was rejected.

p	Augmentation	CC-CCII		MedSeg		MosMed		Ricord1a		Zenodo	
		F-score	IoU	F-score	IoU	F-score	IoU	F-score	IoU	F-score	IoU
	No Augmentation	<u>0.8636</u>	0.8087	0.8881	0.8253	0.8185	0.7547	0.8599	0.7947	0.9096	0.8514
0.05	CLAHE	0.8580	0.8025	0.8873	0.8247	<u>0.8198</u>	0.7554	0.8585	0.7932	<u>0.9098</u>	0.8521
	Coarse Dropout	<u>0.8624</u>	0.8071	0.8882	0.8260	<u>0.8266</u>	0.7631	0.8585	0.7930	<u>0.9097</u>	0.8517
	Elastic Transform	<u>0.8722</u>	0.8168	<u>0.8913</u>	0.8294	<u>0.8281</u>	0.7634	0.8553	0.7887	<u>0.9113</u>	0.8536
	Emboss	<u>0.8659</u>	0.8103	0.8876	0.8250	<u>0.8237</u>	0.7607	0.8552	0.7889	<u>0.9113</u>	0.8536
	Flip	<u>0.8659</u>	0.8103	<u>0.8911</u>	0.8290	<u>0.8265</u>	0.7628	<u>0.8610</u>	0.7958	<u>0.9111</u>	0.8535
	Gaussian Blur	<u>0.8641</u>	0.8089	0.8868	0.8242	<u>0.8189</u>	0.7555	0.8579	0.7925	0.9106	0.8527
	Grid Distortion	<u>0.8687</u>	0.8133	<u>0.8922</u>	0.8303	<u>0.8272</u>	0.7624	0.8605	0.7951	<u>0.9115</u>	0.8539
	Grid Dropout	<u>0.8631</u>	0.8069	0.8867	0.8243	0.8218	0.7576	0.8578	0.7917	0.9094	0.8511
	Image Compression	<u>0.8620</u>	0.8060	0.8870	0.8242	0.8203	0.7564	0.8589	0.7932	0.9101	0.8519
	Median Blur	<u>0.8608</u>	0.8055	0.8884	0.8259	<u>0.8227</u>	0.7584	0.8592	0.7933	<u>0.9103</u>	0.8526
	Optical Distortion	<u>0.8685</u>	0.8126	<u>0.8898</u>	0.8279	<u>0.8236</u>	0.7609	0.8608	0.7958	<u>0.9110</u>	0.8535
	Piecewise Affine	<u>0.8708</u>	0.8153	<u>0.8915</u>	0.8296	<u>0.8318</u>	0.7682	<u>0.8709</u>	0.8073	<u>0.9119</u>	0.8544
	Posterize	<u>0.8643</u>	0.8092	<u>0.8897</u>	0.8274	<u>0.8261</u>	0.7627	<u>0.8641</u>	0.7996	<u>0.9110</u>	0.8535
	RBC	<u>0.8614</u>	0.8054	0.8856	0.8226	<u>0.8207</u>	0.7569	0.8565	0.7905	<u>0.9103</u>	0.8522
	Random Crop	<u>0.8607</u>	0.8056	0.8870	0.8239	<u>0.8195</u>	0.7554	0.8524	0.7856	0.9088	0.8505
	Random Gamma	<u>0.8675</u>	0.8105	0.8854	0.8225	0.8192	0.7545	0.8526	0.7860	0.9087	0.8502
	Random Snow	<u>0.8647</u>	0.8096	0.8873	0.8244	<u>0.8213</u>	0.7580	0.8586	0.7931	<u>0.9103</u>	0.8527
	Rotate	<u>0.8695</u>	0.8144	<u>0.8902</u>	0.8279	<u>0.8277</u>	0.7635	0.8609	0.7956	<u>0.9118</u>	0.8543
	Sharpen	<u>0.8661</u>	0.8098	<u>0.8901</u>	0.8277	0.8167	0.7532	0.8545	0.7884	0.9108	0.8526
	Shift Scale Rotate	<u>0.8680</u>	0.8129	<u>0.8910</u>	0.8293	<u>0.8289</u>	0.7657	<u>0.8647</u>	0.8001	<u>0.9115</u>	0.8541
0.1	CLAHE	<u>0.8561</u>	0.8004	0.8866	0.8237	0.8172	0.7548	0.8606	0.7953	0.9084	0.8502
	Coarse Dropout	<u>0.8609</u>	0.8059	0.8883	0.8264	<u>0.8239</u>	0.7612	<u>0.8648</u>	0.8004	<u>0.9103</u>	0.8528
	Elastic Transform	<u>0.8720</u>	0.8176	<u>0.8927</u>	0.8313	<u>0.8315</u>	0.7676	0.8567	0.7904	<u>0.9122</u>	0.8552
	Emboss	<u>0.8633</u>	0.8083	0.8885	0.8263	<u>0.8189</u>	0.7564	0.8609	0.7958	<u>0.9114</u>	0.8539
	Flip	<u>0.8691</u>	0.8139	<u>0.8907</u>	0.8289	<u>0.8267</u>	0.7625	0.8542	0.7880	0.9104	0.8527
	Gaussian Blur	<u>0.8657</u>	0.8108	0.8880	0.8259	0.8134	0.7508	0.8576	0.7916	0.9098	0.8516
	Grid Distortion	<u>0.8713</u>	0.8173	<u>0.8935</u>	0.8317	<u>0.8319</u>	0.7685	0.8536	0.7870	<u>0.9119</u>	0.8545
	Grid Dropout	<u>0.8610</u>	0.8048	0.8873	0.8254	<u>0.8297</u>	0.7670	<u>0.8668</u>	0.8023	<u>0.9108</u>	0.8530
	Image Compression	<u>0.8634</u>	0.8081	0.8875	0.8250	<u>0.8205</u>	0.7570	0.8605	0.7950	0.9091	0.8511
	Median Blur	<u>0.8627</u>	0.8076	0.8890	0.8261	0.8155	0.7527	0.8561	0.7899	0.9100	0.8523
	Optical Distortion	<u>0.8629</u>	0.8085	<u>0.8911</u>	0.8291	<u>0.8255</u>	0.7615	0.8581	0.7925	<u>0.9115</u>	0.8539
	Piecewise Affine	<u>0.8729</u>	0.8180	<u>0.8937</u>	0.8320	<u>0.8306</u>	0.7666	0.8572	0.7910	<u>0.9121</u>	0.8547
	Posterize	<u>0.8621</u>	0.8074	0.8890	0.8265	<u>0.8212</u>	0.7576	0.8610	0.7958	<u>0.9106</u>	0.8526
	RBC	<u>0.8617</u>	0.8049	0.8885	0.8254	<u>0.8241</u>	0.7603	<u>0.8608</u>	0.7958	<u>0.9098</u>	0.8519
	Random Crop	<u>0.8606</u>	0.8050	0.8870	0.8239	0.8166	0.7536	0.8559	0.7899	0.9095	0.8513
	Random Gamma	<u>0.8645</u>	0.8091	0.8882	0.8253	<u>0.8197</u>	0.7550	0.8566	0.7906	0.9091	0.8510
	Random Snow	<u>0.8616</u>	0.8065	<u>0.8896</u>	0.8270	<u>0.8227</u>	0.7595	0.8576	0.7921	<u>0.9106</u>	0.8530
	Rotate	<u>0.8724</u>	0.8172	<u>0.8924</u>	0.8312	<u>0.8353</u>	0.7710	0.8568	0.7908	<u>0.9117</u>	0.8541
	Sharpen	<u>0.8633</u>	0.8080	0.8899	0.8278	<u>0.8236</u>	0.7603	<u>0.8633</u>	0.7985	<u>0.9116</u>	0.8545
	Shift Scale Rotate	<u>0.8743</u>	0.8204	<u>0.8926</u>	0.8317	<u>0.8297</u>	0.7653	0.8553	0.7890	<u>0.9118</u>	0.8544

Table 7.2: Results of the data augmentation evaluation when unifying the training sets (Continuation of Table 7.1). p stands for probability, the blue-colored values indicate the best F-score values, and the red-colored values indicate the best IoU values. The values highlighted in green show the data augmentation techniques in which the P-value achieved values lower than 0.05, and thus the null hypothesis was rejected (i.e., there is a statistical difference and the results achieved are better than without data augmentation). The underscored values show the techniques where training with the combined training sets achieved a P-value lower than 0.05 when compared with training with a single training set, and the null hypothesis was rejected.

p	Augmentation	CC-CCII		MedSeg		MosMed		Ricord1a		Zenodo	
		F-score	IoU	F-score	IoU	F-score	IoU	F-score	IoU	F-score	IoU
	No Augmentation	<u>0.8636</u>	0.8087	0.8881	0.8253	0.8185	0.7547	0.8599	0.7947	0.9096	0.8514
0.15	CLAHE	0.8548	0.7992	0.8883	0.8252	<u>0.8179</u>	0.7552	0.8602	0.7947	0.9088	0.8506
	Coarse Dropout	<u>0.8629</u>	0.8071	0.8895	0.8276	<u>0.8283</u>	0.7642	0.8610	0.7959	<u>0.9100</u>	0.8522
	Elastic Transform	<u>0.8734</u>	0.8203	<u>0.8920</u>	0.8310	<u>0.8345</u>	0.7704	0.8594	0.7938	<u>0.9111</u>	0.8537
	Emboss	<u>0.8643</u>	0.8097	<u>0.8908</u>	0.8291	<u>0.8229</u>	0.7591	0.8577	0.7918	<u>0.9115</u>	0.8541
	Flip	<u>0.8704</u>	0.8164	<u>0.8922</u>	0.8308	<u>0.8358</u>	0.7717	0.8587	0.7933	<u>0.9123</u>	0.8547
	Gaussian Blur	<u>0.8641</u>	0.8086	<u>0.8912</u>	0.8295	<u>0.8207</u>	0.7575	<u>0.8729</u>	0.8100	<u>0.9127</u>	0.8557
	Grid Distortion	<u>0.8736</u>	0.8193	<u>0.8939</u>	0.8326	<u>0.8353</u>	0.7720	<u>0.8612</u>	0.7961	<u>0.9136</u>	0.8568
	Grid Dropout	<u>0.8633</u>	0.8080	0.8873	0.8250	<u>0.8246</u>	0.7610	<u>0.8635</u>	0.7987	<u>0.9102</u>	0.8521
	Image Compression	<u>0.8654</u>	0.8103	0.8863	0.8235	0.8199	0.7561	0.8574	0.7915	0.9095	0.8511
	Median Blur	<u>0.8649</u>	0.8093	<u>0.8901</u>	0.8286	<u>0.8258</u>	0.7615	<u>0.8677</u>	0.8036	<u>0.9116</u>	0.8545
	Optical Distortion	<u>0.8676</u>	0.8130	<u>0.8914</u>	0.8297	<u>0.8245</u>	0.7610	0.8538	0.7874	<u>0.9114</u>	0.8541
	Piecewise Affine	<u>0.8758</u>	0.8225	<u>0.8944</u>	0.8335	<u>0.8353</u>	0.7713	0.8610	0.7955	<u>0.9135</u>	0.8565
	Posterize	<u>0.8623</u>	0.8070	<u>0.8905</u>	0.8280	<u>0.8242</u>	0.7604	<u>0.8617</u>	0.7967	<u>0.9097</u>	0.8520
	RBC	<u>0.8581</u>	0.8019	0.8884	0.8255	<u>0.8222</u>	0.7577	0.8570	0.7910	0.9086	0.8505
	Random Crop	<u>0.8648</u>	0.8095	0.8890	0.8267	<u>0.8238</u>	0.7602	<u>0.8668</u>	0.8026	<u>0.9109</u>	0.8533
	Random Gamma	<u>0.8609</u>	0.8045	0.8887	0.8258	<u>0.8176</u>	0.7536	0.8596	0.7938	0.9090	0.8508
	Random Snow	<u>0.8609</u>	0.8063	<u>0.8907</u>	0.8285	<u>0.8281</u>	0.7651	<u>0.8643</u>	0.7997	<u>0.9104</u>	0.8531
	Rotate	<u>0.8762</u>	0.8219	<u>0.8944</u>	0.8333	<u>0.8350</u>	0.7696	0.8517	0.7847	<u>0.9115</u>	0.8539
	Sharpen	<u>0.8641</u>	0.8087	0.8893	0.8273	<u>0.8220</u>	0.7580	<u>0.8663</u>	0.8022	<u>0.9128</u>	0.8558
	Shift Scale Rotate	<u>0.8766</u>	0.8234	<u>0.8941</u>	0.8336	<u>0.8374</u>	0.7744	<u>0.8652</u>	0.8007	<u>0.9144</u>	0.8576
0.2	CLAHE	<u>0.8569</u>	0.8020	0.8872	0.8240	0.8183	0.7546	0.8602	0.7946	<u>0.9093</u>	0.8509
	Coarse Dropout	<u>0.8597</u>	0.8052	0.8873	0.8255	<u>0.8244</u>	0.7605	0.8575	0.7915	0.9106	0.8528
	Elastic Transform	<u>0.8746</u>	0.8215	<u>0.8959</u>	0.8352	<u>0.8356</u>	0.7728	0.8572	0.7912	<u>0.9133</u>	0.8564
	Emboss	<u>0.8632</u>	0.8088	<u>0.8907</u>	0.8288	<u>0.8285</u>	0.7641	<u>0.8686</u>	0.8046	<u>0.9131</u>	0.8557
	Flip	<u>0.8722</u>	0.8177	<u>0.8926</u>	0.8310	<u>0.8316</u>	0.7672	0.8561	0.7900	<u>0.9119</u>	0.8542
	Gaussian Blur	<u>0.8615</u>	0.8067	0.8888	0.8264	0.8170	0.7527	<u>0.8616</u>	0.7965	<u>0.9116</u>	0.8541
	Grid Distortion	<u>0.8750</u>	0.8219	<u>0.8961</u>	0.8356	<u>0.8391</u>	0.7761	0.8597	0.7941	<u>0.9133</u>	0.8561
	Grid Dropout	<u>0.8613</u>	0.8058	0.8879	0.8259	<u>0.8240</u>	0.7611	0.8591	0.7934	0.9090	0.8506
	Image Compression	<u>0.8625</u>	0.8068	0.8876	0.8247	0.8166	0.7537	0.8569	0.7910	0.9091	0.8510
	Median Blur	<u>0.8656</u>	0.8104	<u>0.8901</u>	0.8282	0.8173	0.7545	<u>0.8630</u>	0.7979	<u>0.9108</u>	0.8531
	Optical Distortion	<u>0.8678</u>	0.8133	<u>0.8921</u>	0.8301	<u>0.8264</u>	0.7633	<u>0.8632</u>	0.7984	<u>0.9121</u>	0.8550
	Piecewise Affine	<u>0.8761</u>	0.8231	<u>0.8957</u>	0.8351	<u>0.8365</u>	0.7732	0.8603	0.7948	<u>0.9140</u>	0.8569
	Posterize	<u>0.8609</u>	0.8058	0.8889	0.8264	0.8201	0.7559	0.8530	0.7860	<u>0.9104</u>	0.8523
	RBC	<u>0.8599</u>	0.8045	0.8873	0.8240	<u>0.8209</u>	0.7565	0.8486	0.7812	0.9086	0.8502
	Random Crop	<u>0.8632</u>	0.8070	0.8871	0.8243	<u>0.8209</u>	0.7576	<u>0.8632</u>	0.7986	0.9103	0.8523
	Random Gamma	<u>0.8631</u>	0.8074	0.8860	0.8233	0.8206	0.7572	0.8587	0.7929	0.9096	0.8516
	Random Snow	<u>0.8632</u>	0.8089	<u>0.8909</u>	0.8286	<u>0.8278</u>	0.7650	<u>0.8622</u>	0.7971	<u>0.9116</u>	0.8540
	Rotate	<u>0.8753</u>	0.8216	<u>0.8949</u>	0.8343	<u>0.8391</u>	0.7741	0.8542	0.7878	<u>0.9121</u>	0.8544
	Sharpen	<u>0.8631</u>	0.8077	0.8895	0.8277	0.8202	0.7566	<u>0.8633</u>	0.7985	<u>0.9115</u>	0.8541
	Shift Scale Rotate	<u>0.8761</u>	0.8230	<u>0.8992</u>	0.8392	<u>0.8431</u>	0.7808	<u>0.8666</u>	0.8021	<u>0.9135</u>	0.8568

Table 7.3: Results of the data augmentation evaluation when unifying the training sets (Continuation of Tables 7.1 and 7.2). p stands for probability, the blue-colored values indicate the best F-score values, and the red-colored values indicate the best IoU values. The values highlighted in green show the data augmentation techniques in which the P-value achieved values lower than 0.05, and thus the null hypothesis was rejected (i.e., there is a statistical difference and the results achieved are better than without data augmentation). The underscored values show the techniques in which training with the combined training sets achieved a P-value lower than 0.05 when compared with training with a single training set, and the null hypothesis was rejected.

p	Augmentation	CC-CCII		MedSeg		MosMed		Ricord1a		Zenodo	
		F-score	IoU	F-score	IoU	F-score	IoU	F-score	IoU	F-score	IoU
	No Augmentation	<u>0.8636</u>	0.8087	0.8881	0.8253	0.8185	0.7547	0.8599	0.7947	0.9096	0.8514
0.25	CLAHE	0.8565	0.8006	0.8856	0.8227	<u>0.8212</u>	0.7579	<u>0.8654</u>	0.8010	0.9098	0.8516
	Coarse Dropout	<u>0.8635</u>	0.8084	<u>0.8899</u>	0.8279	<u>0.8292</u>	0.7653	<u>0.8637</u>	0.7988	<u>0.9113</u>	0.8538
	Elastic Transform	<u>0.8758</u>	0.8235	<u>0.8981</u>	0.8376	<u>0.8378</u>	0.7739	0.8594	0.7937	<u>0.9135</u>	0.8568
	Emboss	<u>0.8641</u>	0.8105	<u>0.8925</u>	0.8306	<u>0.8233</u>	0.7600	<u>0.8707</u>	0.8074	<u>0.9124</u>	0.8555
	Flip	<u>0.8717</u>	0.8178	<u>0.8926</u>	0.8311	<u>0.8338</u>	0.7697	0.8546	0.7884	<u>0.9113</u>	0.8532
	Gaussian Blur	<u>0.8604</u>	0.8060	0.8898	0.8279	<u>0.8218</u>	0.7582	<u>0.8682</u>	0.8040	<u>0.9115</u>	0.8542
	Grid Distortion	<u>0.8761</u>	0.8236	<u>0.8960</u>	0.8349	<u>0.8398</u>	0.7759	0.8547	0.7882	<u>0.9137</u>	0.8568
	Grid Dropout	<u>0.8628</u>	0.8072	0.8890	0.8270	<u>0.8270</u>	0.7634	0.8607	0.7952	0.9079	0.8499
	Image Compression	<u>0.8629</u>	0.8078	0.8892	0.8269	0.8195	0.7569	<u>0.8669</u>	0.8029	<u>0.9112</u>	0.8535
	Median Blur	<u>0.8622</u>	0.8081	0.8881	0.8261	<u>0.8219</u>	0.7585	<u>0.8632</u>	0.7981	<u>0.9123</u>	0.8550
	Optical Distortion	<u>0.8699</u>	0.8161	<u>0.8927</u>	0.8317	<u>0.8307</u>	0.7681	<u>0.8636</u>	0.7987	<u>0.9126</u>	0.8560
	Piecewise Affine	<u>0.8778</u>	0.8250	<u>0.8959</u>	0.8357	<u>0.8425</u>	0.7791	<u>0.8633</u>	0.7982	<u>0.9144</u>	0.8577
	Posterize	<u>0.8627</u>	0.8068	0.8882	0.8259	0.8160	0.7521	0.8522	0.7857	0.9089	0.8506
	RBC	<u>0.8602</u>	0.8035	0.8882	0.8255	<u>0.8228</u>	0.7586	0.8602	0.7948	0.9098	0.8517
	Random Crop	<u>0.8632</u>	0.8072	0.8883	0.8257	<u>0.8220</u>	0.7587	<u>0.8634</u>	0.7990	<u>0.9101</u>	0.8526
	Random Gamma	<u>0.8640</u>	0.8087	0.8893	0.8272	<u>0.8229</u>	0.7600	0.8611	0.7957	0.9096	0.8518
	Random Snow	<u>0.8634</u>	0.8093	<u>0.8913</u>	0.8291	<u>0.8288</u>	0.7665	<u>0.8665</u>	0.8021	<u>0.9130</u>	0.8556
	Rotate	<u>0.8762</u>	0.8221	<u>0.8952</u>	0.8343	<u>0.8409</u>	0.7758	0.8514	0.7848	<u>0.9118</u>	0.8539
	Sharpen	<u>0.8625</u>	0.8074	<u>0.8906</u>	0.8282	0.8183	0.7549	0.8576	0.7919	<u>0.9115</u>	0.8540
	Shift Scale Rotate	<u>0.8774</u>	0.8244	<u>0.8973</u>	0.8372	<u>0.8432</u>	0.7799	0.8602	0.7945	<u>0.9133</u>	0.8560
0.3	CLAHE	0.8564	0.8001	0.8854	0.8229	<u>0.8202</u>	0.7569	<u>0.8648</u>	0.8000	0.9096	0.8516
	Coarse Dropout	<u>0.8632</u>	0.8084	<u>0.8910</u>	0.8290	<u>0.8284</u>	0.7645	0.8598	0.7945	0.9094	0.8517
	Elastic Transform	<u>0.8747</u>	0.8235	<u>0.8978</u>	0.8383	<u>0.8414</u>	0.7781	<u>0.8622</u>	0.7971	<u>0.9147</u>	0.8583
	Emboss	<u>0.8657</u>	0.8110	<u>0.8901</u>	0.8280	<u>0.8219</u>	0.7593	<u>0.8682</u>	0.8039	<u>0.9127</u>	0.8557
	Flip	<u>0.8732</u>	0.8193	<u>0.8933</u>	0.8323	<u>0.8297</u>	0.7658	0.8501	0.7831	0.9108	0.8523
	Gaussian Blur	<u>0.8644</u>	0.8085	0.8899	0.8281	0.8154	0.7530	<u>0.8718</u>	0.8085	<u>0.9121</u>	0.8548
	Grid Distortion	<u>0.8750</u>	0.8225	<u>0.8994</u>	0.8394	<u>0.8448</u>	0.7814	<u>0.8625</u>	0.7975	<u>0.9141</u>	0.8575
	Grid Dropout	<u>0.8563</u>	0.8019	0.8881	0.8262	<u>0.8277</u>	0.7646	<u>0.8627</u>	0.7973	0.9094	0.8511
	Image Compression	<u>0.8629</u>	0.8078	0.8882	0.8259	<u>0.8243</u>	0.7607	<u>0.8639</u>	0.7993	<u>0.9115</u>	0.8538
	Median Blur	<u>0.8647</u>	0.8093	<u>0.8900</u>	0.8274	0.8190	0.7550	0.8608	0.7954	<u>0.9124</u>	0.8552
	Optical Distortion	<u>0.8700</u>	0.8157	<u>0.8928</u>	0.8316	<u>0.8238</u>	0.7613	<u>0.8637</u>	0.7989	<u>0.9141</u>	0.8575
	Piecewise Affine	<u>0.8764</u>	0.8229	<u>0.8952</u>	0.8349	<u>0.8384</u>	0.7750	0.8598	0.7942	<u>0.9137</u>	0.8567
	Posterize	<u>0.8625</u>	0.8067	<u>0.8902</u>	0.8281	<u>0.8243</u>	0.7597	0.8593	0.7940	<u>0.9111</u>	0.8536
	RBC	<u>0.8591</u>	0.8028	0.8904	0.8281	<u>0.8299</u>	0.7653	<u>0.8632</u>	0.7982	0.9094	0.8514
	Random Crop	<u>0.8631</u>	0.8073	0.8859	0.8228	0.8193	0.7558	<u>0.8659</u>	0.8017	0.9107	0.8527
	Random Gamma	<u>0.8635</u>	0.8077	0.8883	0.8254	<u>0.8199</u>	0.7562	0.8574	0.7912	0.9092	0.8511
	Random Snow	<u>0.8659</u>	0.8112	<u>0.8901</u>	0.8284	<u>0.8333</u>	0.7703	<u>0.8671</u>	0.8029	<u>0.9125</u>	0.8557
	Rotate	<u>0.8774</u>	0.8237	<u>0.8964</u>	0.8356	<u>0.8401</u>	0.7757	0.8494	0.7823	0.9112	0.8533
	Sharpen	<u>0.8635</u>	0.8085	0.8890	0.8270	0.8144	0.7512	<u>0.8629</u>	0.7980	<u>0.9113</u>	0.8539
	Shift Scale Rotate	<u>0.8767</u>	0.8239	<u>0.8984</u>	0.8382	<u>0.8417</u>	0.7786	0.8583	0.7924	<u>0.9126</u>	0.8554

Table 7.4: Results of the data augmentation evaluation when unifying the training sets (Continuation of Tables 7.1, 7.2 and 7.3). p stands for probability, the blue-colored values indicate the best F-score values, and the red-colored values indicate the best IoU values. The values highlighted in green show the data augmentation techniques in which the P-value achieved values lower than 0.05, and thus the null hypothesis was rejected (i.e., there is a statistical difference and the results achieved are better than without data augmentation). The underscored values show the techniques in which training with the combined training sets achieved a P-value lower than 0.05 when compared with training with a single training set, and the null hypothesis was rejected.

p	Augmentation	CC-CCII		MedSeg		MosMed		Ricord1a		Zenodo	
		F-score	IoU	F-score	IoU	F-score	IoU	F-score	IoU	F-score	IoU
	No Augmentation	<u>0.8636</u>	0.8087	0.8881	0.8253	0.8185	0.7547	0.8599	0.7947	0.9096	0.8514
0.35	CLAHE	<u>0.8542</u>	0.7986	0.8867	0.8233	<u>0.8205</u>	0.7568	<u>0.8656</u>	0.8012	0.9086	0.8507
	Coarse Dropout	<u>0.8647</u>	0.8105	<u>0.8904</u>	0.8284	<u>0.8343</u>	0.7706	<u>0.8673</u>	0.8031	<u>0.9118</u>	0.8541
	Elastic Transform	<u>0.8771</u>	0.8250	<u>0.8989</u>	<u>0.8394</u>	<u>0.8459</u>	<u>0.7834</u>	<u>0.8647</u>	0.7997	<u>0.9147</u>	<u>0.8581</u>
	Emboss	<u>0.8643</u>	0.8100	<u>0.8913</u>	0.8295	<u>0.8229</u>	0.7592	<u>0.8713</u>	<u>0.8079</u>	<u>0.9130</u>	0.8561
	Flip	<u>0.8714</u>	0.8171	<u>0.8951</u>	0.8338	<u>0.8348</u>	0.7714	0.8519	0.7855	<u>0.9107</u>	0.8523
	Gaussian Blur	<u>0.8668</u>	0.8113	<u>0.8909</u>	0.8293	<u>0.8211</u>	0.7574	<u>0.8691</u>	0.8050	<u>0.9122</u>	0.8548
	Grid Distortion	<u>0.8786</u>	<u>0.8266</u>	<u>0.8985</u>	0.8381	<u>0.8379</u>	0.7744	0.8548	0.7884	<u>0.9138</u>	0.8568
	Grid Dropout	<u>0.8615</u>	0.8069	<u>0.8883</u>	0.8263	<u>0.8284</u>	0.7636	0.8570	0.7907	<u>0.9089</u>	0.8505
	Image Compression	<u>0.8658</u>	0.8097	0.8864	0.8239	0.8146	0.7515	0.8569	0.7910	<u>0.9110</u>	0.8531
	Median Blur	<u>0.8628</u>	0.8071	0.8900	0.8283	0.8187	0.7545	<u>0.8621</u>	0.7970	<u>0.9123</u>	0.8549
	Optical Distortion	<u>0.8726</u>	0.8185	<u>0.8935</u>	0.8325	<u>0.8262</u>	0.7634	0.8566	0.7908	<u>0.9136</u>	0.8567
	Piecewise Affine	<u>0.8774</u>	0.8251	<u>0.8982</u>	0.8386	<u>0.8413</u>	0.7788	<u>0.8623</u>	0.7970	<u>0.9138</u>	0.8570
	Posterize	<u>0.8584</u>	0.8033	<u>0.8908</u>	0.8286	<u>0.8249</u>	0.7607	<u>0.8642</u>	0.7994	<u>0.9100</u>	0.8520
	RBC	<u>0.8609</u>	0.8046	0.8883	0.8252	<u>0.8236</u>	0.7595	0.8570	0.7912	<u>0.9092</u>	0.8514
	Random Crop	<u>0.8588</u>	0.8038	0.8885	0.8257	<u>0.8212</u>	0.7573	0.8585	0.7928	<u>0.9088</u>	0.8509
	Random Gamma	<u>0.8644</u>	0.8083	<u>0.8892</u>	0.8263	0.8158	0.7531	<u>0.8623</u>	0.7975	<u>0.9102</u>	0.8523
	Random Snow	<u>0.8670</u>	0.8121	<u>0.8910</u>	0.8290	<u>0.8323</u>	0.7691	<u>0.8657</u>	0.8011	<u>0.9120</u>	0.8549
	Rotate	<u>0.8787</u>	0.8248	<u>0.8959</u>	0.8354	<u>0.8405</u>	0.7765	0.8498	0.7832	<u>0.9111</u>	0.8530
	Sharpen	<u>0.8625</u>	0.8072	<u>0.8920</u>	0.8303	<u>0.8194</u>	0.7560	0.8598	0.7946	<u>0.9110</u>	0.8533
	Shift Scale Rotate	<u>0.8783</u>	0.8257	<u>0.8977</u>	0.8377	<u>0.8454</u>	0.7826	0.8598	0.7943	<u>0.9135</u>	0.8565
0.4	CLAHE	<u>0.8530</u>	0.7973	<u>0.8865</u>	0.8233	0.8154	0.7524	<u>0.8642</u>	0.7994	<u>0.9097</u>	0.8517
	Coarse Dropout	<u>0.8635</u>	0.8076	<u>0.8896</u>	0.8279	<u>0.8253</u>	0.7619	0.8594	0.7938	<u>0.9105</u>	0.8527
	Elastic Transform	<u>0.8771</u>	0.8252	<u>0.8975</u>	0.8378	<u>0.8403</u>	0.7772	0.8582	0.7923	<u>0.9144</u>	<u>0.8575</u>
	Emboss	<u>0.8652</u>	0.8104	<u>0.8902</u>	0.8285	<u>0.8246</u>	0.7610	<u>0.8681</u>	0.8042	<u>0.9119</u>	0.8549
	Flip	<u>0.8722</u>	0.8173	<u>0.8935</u>	0.8321	<u>0.8360</u>	0.7713	0.8484	0.7813	<u>0.9096</u>	0.8505
	Gaussian Blur	<u>0.8637</u>	0.8093	<u>0.8909</u>	0.8293	<u>0.8247</u>	0.7601	<u>0.8714</u>	<u>0.8080</u>	<u>0.9122</u>	0.8551
	Grid Distortion	<u>0.8784</u>	0.8260	<u>0.8989</u>	0.8390	<u>0.8402</u>	0.7767	0.8558	0.7895	<u>0.9140</u>	0.8570
	Grid Dropout	<u>0.8629</u>	0.8070	<u>0.8886</u>	0.8261	<u>0.8235</u>	0.7604	0.8531	0.7866	<u>0.9083</u>	0.8496
	Image Compression	<u>0.8642</u>	0.8087	0.8887	0.8265	<u>0.8203</u>	0.7570	0.8593	0.7939	<u>0.9106</u>	0.8527
	Median Blur	<u>0.8644</u>	0.8084	0.8883	0.8264	0.8158	0.7523	0.8556	0.7893	<u>0.9120</u>	0.8540
	Optical Distortion	<u>0.8714</u>	0.8169	<u>0.8916</u>	0.8303	<u>0.8287</u>	0.7641	0.8557	0.7897	<u>0.9135</u>	0.8564
	Piecewise Affine	<u>0.8745</u>	0.8227	<u>0.8965</u>	0.8363	<u>0.8409</u>	0.7788	0.8600	0.7943	<u>0.9142</u>	0.8573
	Posterize	<u>0.8621</u>	0.8075	<u>0.8923</u>	0.8304	<u>0.8210</u>	0.7575	<u>0.8641</u>	0.7991	<u>0.9103</u>	0.8528
	RBC	<u>0.8596</u>	0.8029	0.8870	0.8238	<u>0.8213</u>	0.7573	0.8510	0.7840	0.9079	0.8494
	Random Crop	<u>0.8632</u>	0.8078	0.8883	0.8262	<u>0.8217</u>	0.7575	<u>0.8610</u>	0.7959	<u>0.9092</u>	0.8515
	Random Gamma	<u>0.8650</u>	0.8090	0.8886	0.8258	<u>0.8169</u>	0.7541	0.8581	0.7923	<u>0.9093</u>	0.8515
	Random Snow	<u>0.8700</u>	0.8157	<u>0.8922</u>	0.8304	<u>0.8343</u>	0.7719	<u>0.8690</u>	0.8051	<u>0.9124</u>	0.8554
	Rotate	<u>0.8770</u>	0.8233	<u>0.8954</u>	0.8353	<u>0.8408</u>	0.7767	0.8491	0.7822	<u>0.9110</u>	0.8529
	Sharpen	<u>0.8623</u>	0.8068	<u>0.8917</u>	0.8298	0.8180	0.7543	<u>0.8636</u>	0.7990	<u>0.9123</u>	0.8552
	Shift Scale Rotate	<u>0.8784</u>	<u>0.8267</u>	<u>0.8993</u>	<u>0.8399</u>	<u>0.8472</u>	<u>0.7845</u>	0.8598	0.7943	<u>0.9143</u>	0.8574

Table 7.5: Results of the data augmentation evaluation when unifying the training sets (Continuation of Tables 7.1, 7.2, 7.3 and 7.4). p stands for probability, the blue-colored values indicate the best F-score values, and the red-colored values indicate the best IoU values. The values highlighted in green show the data augmentation techniques in which the P-value achieved values lower than 0.05, and thus the null hypothesis was rejected (i.e., there is a statistical difference and the results achieved are better than without data augmentation). The underscored values show the techniques in which training with the combined training sets achieved a P-value lower than 0.05 when compared with training with a single training set, and the null hypothesis was rejected.

p	Augmentation	CC-CCII		MedSeg		MosMed		Ricord1a		Zenodo	
		F-score	IoU	F-score	IoU	F-score	IoU	F-score	IoU	F-score	IoU
	No Augmentation	<u>0.8636</u>	0.8087	0.8881	0.8253	0.8185	0.7547	0.8599	0.7947	0.9096	0.8514
0.45	CLAHE	0.8524	0.7972	0.8851	0.8217	0.8177	0.7537	0.8543	0.7878	0.9081	0.8494
	Coarse Dropout	0.8666	0.8114	<u>0.8918</u>	0.8302	<u>0.8333</u>	0.7694	<u>0.8703</u>	0.8064	<u>0.9117</u>	0.8544
	Elastic Transform	<u>0.8778</u>	0.8256	<u>0.8991</u>	0.8392	<u>0.8454</u>	0.7831	<u>0.8633</u>	0.7981	<u>0.9152</u>	0.8587
	Emboss	<u>0.8626</u>	0.8084	<u>0.8895</u>	0.8273	0.8183	0.7543	0.8571	0.7909	<u>0.9112</u>	0.8537
	Flip	<u>0.8722</u>	0.8176	<u>0.8935</u>	0.8322	<u>0.8339</u>	0.7707	0.8486	0.7817	<u>0.9084</u>	0.8489
	Gaussian Blur	<u>0.8612</u>	0.8060	<u>0.8908</u>	0.8296	<u>0.8188</u>	0.7563	0.8707	0.8073	<u>0.9131</u>	0.8561
	Grid Distortion	<u>0.8771</u>	0.8253	<u>0.8994</u>	0.8393	<u>0.8452</u>	0.7826	<u>0.8620</u>	0.7967	<u>0.9151</u>	0.8585
	Grid Dropout	<u>0.8632</u>	0.8077	<u>0.8900</u>	0.8280	<u>0.8279</u>	0.7645	<u>0.8646</u>	0.7998	<u>0.9097</u>	0.8515
	Image Compression	<u>0.8610</u>	0.8054	0.8878	0.8253	<u>0.8218</u>	0.7582	0.8588	0.7935	<u>0.9106</u>	0.8527
	Median Blur	<u>0.8652</u>	0.8099	<u>0.8904</u>	0.8288	<u>0.8181</u>	0.7546	<u>0.8626</u>	0.7973	<u>0.9113</u>	0.8539
	Optical Distortion	<u>0.8726</u>	0.8199	<u>0.8962</u>	0.8361	<u>0.8322</u>	0.7693	<u>0.8672</u>	0.8030	<u>0.9146</u>	0.8585
	Piecewise Affine	<u>0.8771</u>	0.8253	<u>0.8962</u>	0.8360	<u>0.8426</u>	0.7792	0.8586	0.7926	<u>0.9135</u>	0.8564
	Posterize	<u>0.8611</u>	0.8054	<u>0.8905</u>	0.8282	0.8204	0.7570	0.8599	0.7944	<u>0.9098</u>	0.8518
	RBC	<u>0.8586</u>	0.8035	0.8888	0.8258	<u>0.8196</u>	0.7563	0.8532	0.7866	<u>0.9096</u>	0.8513
	Random Crop	<u>0.8608</u>	0.8064	0.8863	0.8231	<u>0.8180</u>	0.7538	0.8548	0.7885	<u>0.9088</u>	0.8505
	Random Gamma	<u>0.8630</u>	0.8076	0.8873	0.8240	<u>0.8184</u>	0.7549	0.8574	0.7917	<u>0.9111</u>	0.8532
	Random Snow	<u>0.8628</u>	0.8091	<u>0.8926</u>	0.8306	<u>0.8347</u>	0.7716	<u>0.8681</u>	0.8041	<u>0.9125</u>	0.8555
	Rotate	<u>0.8790</u>	0.8250	<u>0.8990</u>	0.8389	<u>0.8477</u>	0.7841	0.8500	0.7834	<u>0.9105</u>	0.8525
	Sharpen	<u>0.8604</u>	0.8055	<u>0.8914</u>	0.8298	<u>0.8251</u>	0.7608	<u>0.8704</u>	0.8069	<u>0.9136</u>	0.8570
	Shift Scale Rotate	<u>0.8766</u>	0.8239	<u>0.8987</u>	0.8389	<u>0.8457</u>	0.7819	0.8558	0.7897	<u>0.9126</u>	0.8555
0.5	CLAHE	<u>0.8561</u>	0.8002	0.8847	0.8216	<u>0.8136</u>	0.7513	0.8544	0.7879	0.9088	0.8503
	Coarse Dropout	<u>0.8585</u>	0.8031	<u>0.8921</u>	0.8306	<u>0.8329</u>	0.7692	0.8604	0.7950	<u>0.9112</u>	0.8535
	Elastic Transform	<u>0.8780</u>	0.8263	<u>0.8991</u>	0.8396	<u>0.8443</u>	0.7820	<u>0.8622</u>	0.7969	<u>0.9147</u>	0.8580
	Emboss	<u>0.8662</u>	0.8112	<u>0.8894</u>	0.8277	<u>0.8221</u>	0.7591	<u>0.8646</u>	0.7999	<u>0.9116</u>	0.8544
	Flip	<u>0.8688</u>	0.8137	<u>0.8955</u>	0.8341	<u>0.8396</u>	0.7761	0.8488	0.7818	0.9084	0.8491
	Gaussian Blur	<u>0.8649</u>	0.8098	<u>0.8905</u>	0.8287	<u>0.8214</u>	0.7582	<u>0.8681</u>	0.8040	<u>0.9124</u>	0.8548
	Grid Distortion	<u>0.8782</u>	0.8271	<u>0.9002</u>	0.8403	<u>0.8431</u>	0.7796	0.8555	0.7892	<u>0.9145</u>	0.8577
	Grid Dropout	<u>0.8628</u>	0.8070	<u>0.8887</u>	0.8263	<u>0.8244</u>	0.7616	0.8586	0.7926	<u>0.9073</u>	0.8487
	Image Compression	<u>0.8596</u>	0.8054	0.8879	0.8255	<u>0.8172</u>	0.7547	0.8595	0.7942	<u>0.9108</u>	0.8531
	Median Blur	<u>0.8662</u>	0.8113	0.8896	0.8278	0.8206	0.7565	<u>0.8615</u>	0.7963	<u>0.9120</u>	0.8547
	Optical Distortion	<u>0.8710</u>	0.8172	<u>0.8958</u>	0.8355	<u>0.8310</u>	0.7675	<u>0.8647</u>	0.7999	<u>0.9147</u>	0.8586
	Piecewise Affine	<u>0.8800</u>	0.8283	<u>0.8994</u>	0.8401	<u>0.8453</u>	0.7833	<u>0.8636</u>	0.7987	<u>0.9153</u>	0.8586
	Posterize	<u>0.8631</u>	0.8072	<u>0.8915</u>	0.8293	<u>0.8217</u>	0.7571	<u>0.8613</u>	0.7962	<u>0.9111</u>	0.8534
	RBC	<u>0.8566</u>	0.8004	0.8891	0.8265	<u>0.8225</u>	0.7581	0.8499	0.7827	0.9084	0.8501
	Random Crop	<u>0.8654</u>	0.8098	0.8887	0.8261	<u>0.8221</u>	0.7585	0.8600	0.7948	0.9101	0.8523
	Random Gamma	<u>0.8644</u>	0.8081	0.8889	0.8261	<u>0.8203</u>	0.7568	0.8569	0.7910	<u>0.9095</u>	0.8514
	Random Snow	<u>0.8664</u>	0.8115	<u>0.8911</u>	0.8290	<u>0.8362</u>	0.7732	<u>0.8675</u>	0.8030	<u>0.9122</u>	0.8550
	Rotate	<u>0.8806</u>	0.8273	<u>0.8986</u>	0.8384	<u>0.8470</u>	0.7826	0.8487	0.7820	<u>0.9098</u>	0.8514
	Sharpen	<u>0.8641</u>	0.8093	<u>0.8903</u>	0.8283	<u>0.8240</u>	0.7601	0.8704	0.8066	<u>0.9136</u>	0.8568
	Shift Scale Rotate	<u>0.8780</u>	0.8261	<u>0.8996</u>	0.8405	<u>0.8477</u>	0.7852	0.8586	0.7929	<u>0.9137</u>	0.8568