CheXtriev: Anatomy-Centered Representation for Case-Based Retrieval of Chest Radiographs

Supplementary Material

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Table 1. Comparison of **top-3** retrieval performance on MIMIC-CXR dataset against global baselines (CNN, ATH) and a local variant (AnaXNet). (.)* indicates $p < 0.05$.

	Global CNN			ATH [1]			AnaXNet [2]			CheXtriev		
Findings	AP	HR	RR	AP	HR	RR	AP	HR	RR	AP	HR	RR
LO	91.4*	85.8*	91.9*	89.7*	82.5*	90.6*	90.7*	84.0*	91.7*	**92.5**	**88.2**	**93.0**
PE	70.0*	56.2*	71.2	62.6*	47.6*	63.9*	64.8*	48.6*	65.7*	**72.1**	**59.4**	**73.0**
AT	60.8*	45.2*	61.9*	53.9*	36.8*	54.5*	59.7*	42.5*	61.1*	**64.9**	**48.5**	**65.8**
ECS	64.5*	49.3*	65.6*	61.6*	45.9*	62.5*	64.5*	48.3*	65.2*	**70.5**	**55.4**	**71.7**
PE/HO	55.3*	40.7*	56.1*	51.0*	36.0*	51.7*	53.7*	36.3*	54.5*	**64.0**	**49.1**	**65.2**
PTX	20.7*	11.5*	21.0*	7.6*	4.2*	7.8*	32.0	**16.3**	32.1	**29.7**	14.9	**29.7**
CONS	21.6*	12.9	21.8*	20.9*	13.0*	21.1*	25.6	15.0	25.8	**27.2**	**15.9**	**27.7**
FO/HF	11.2*	6.5*	11.3*	13.6*	7.3*	13.7*	15.0*	7.7*	15.1*	**26.3**	**13.6**	**26.4**
PN	37.1*	22.8*	37.5*	34.3*	21.4*	34.6*	39.4*	26.2*	39.7*	**44.8**	**28.2**	**45.4**
Mean	48.1	36.8	48.7	43.9	32.7	44.5	49.5	36.1	50.1	**54.7**	**41.5**	**55.3**
wMean	67.1	55.7	67.9	63.2	51.0	64.0	66.3	53.4	67.1	**71.3**	**59.8**	**72.0**

Table 2. Comparison of **top-10** retrieval performance on MIMIC-CXR dataset against global baselines (CNN, ATH) and a local variant (AnaXNet). (.)* indicates $p < 0.05$.

	Global CNN			ATH [1]			AnaXNet [2]			CheXtriev		
Findings	AP	HR	RR	AP	HR	RR	AP	HR	RR	AP	HR	RR
LO	89.0*	86.1*	92.2*	86.2*	82.0*	90.9*	87.3*	83.5*	91.9*	**90.5**	**87.7**	**93.2**
PE	64.4*	54.1*	73.2	58.2*	45.2*	67.2*	59.3*	46.4*	68.9*	**67.6**	**57.5**	**75.1**
AT	55.7*	43.5*	65.0*	50.5*	36.1*	59.2*	55.1*	41.4*	65.0*	**59.7**	**47.6**	**68.6**
ECS	59.8*	48.5*	68.5*	57.3*	43.8*	65.7*	59.5*	46.1*	68.3*	**64.6**	**53.1**	**74.1**
PE/HO	52.3*	39.1*	60.2*	48.4*	32.8*	56.1*	50.2*	34.0*	59.1*	**59.2**	**46.3**	**68.0**
PTX	23.6	6.8*	24.6*	10.3*	4.3*	11.3*	**32.1**	9.5*	35.3	31.4	**11.5**	**35.4**
CONS	26.3*	13.2	28.9	24.8*	10.8*	26.2*	27.2	11.3	30.7	**30.7**	**14.1**	**33.8**
FO/HF	16.5*	6.7*	16.9*	16.6*	6.7*	18.3*	18.9*	6.3*	20.3*	**29.8**	**10.7**	**32.1**
PN	38.1*	22.3*	44.2*	36.2*	22.2*	41.6*	39.5*	22.4*	45.5*	**42.8**	**22.5**	**50.7**
Mean	47.3	35.6	52.6	43.2	31.5	48.5	47.7	33.4	53.9	**52.9**	**39.3**	**59.0**
wMean	64.2	54.9	70.5	60.5	49.7	67.1	62.8	51.7	69.9	**67.9**	**58.3**	**74.3**

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Table 3. Statistics of the Chest ImageGenome [3] test dataset, which includes frontal chest radiographs (PA or AP view) with valid bounding box annotations for 18 anatomical regions. The data split is based on the official MIMIC-CXR [4,5] data splits.

Radiological Findings	#Radiographs
Lung Opacity	2679
Pleural Effusion	1340
Atelectasis	1241
Enlarged Cardiac Silhouette	1212
Pulmonary Edema / Hazy Opacity	819
Pneumonia	643
Consolidation	334
Fluid Overload / Heart Failure	169
Pneumothorax	96

References

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