

Included	Source	Publication Year	Title	Authors	Journal/ MICCAI volume	DOI	Diagnosis focus	Classification task	Test set	Class ratio in test set	Main classification performance metric	Other classification performance metrics REPORTED	Calibration reported or discussed	Calibration metric
Yes	MICCAI Proceedings	2019	Endotracheal Tube Detection and Segmentation in Chest Radiographs Using Synthetic Data	Maayan Frid-Adar, Rula Amer, Hayit Greenspan	X-Ray Imaging	10.1007/978-3-030-32226-7_87	Endotracheal tube	Binary	ChestXray-14	Balance	AUC-ROC	Sensitivity/Specificity	No	---
Yes	MICCAI Proceedings	2020	Domain Aware Medical Image Classifier Interpretation by Counterfactual Impact Analysis	Dimitrios Lenis, David Major, Maria Wimmer, Astrid Berg, Gert Sluter, and Katja Buhler	Machine Learning Methodologies	10.1007/978-3-030-59710-8_31	Tuberculosis	Binary	Private set	Balance	AUC-ROC	---	No	---
Yes	MICCAI Proceedings	2019	Adaptive Image-Feature Learning for Disease Classification Using Inductive Graph Networks	Hendrik Burwinkel, Anees Kazi, Gerome Vivar, Shadi Albarqouni, Guillaume Zahnd, Nassir Navab	X-Ray Imaging	10.1007/978-3-030-32226-7_71	Several findings	Multilabel	ChestXray-14	Imbalance	Accuracy	---	No	---
Yes	MICCAI Proceedings	2019	Automated Detection and Type Classification of Central Venous Catheters in Chest X-Rays	Vaishnavi Subramanian, Hongzhi Wang, Joy T. Wu, Ken C. L. Wong, Arjun Sharma, Tanveer Syeda-Mahmood	X-Ray Imaging	10.1007/978-3-030-32226-7_58	Catheter	Binary/Multiclass	ChestXray-14	Imbalance	Accuracy	Precision/Sensitivity/AUC-ROC	No	---
Yes	MICCAI Proceedings	2019	Automatic Radiology Report Generation Based on Multi-view Image Fusion and Medical Concept Enrichment	Jianbo Yuan, Haofu Liao, Rui Luo, Jiebo Luo	X-Ray Imaging	10.1007/978-3-030-32226-7_80	Several findings	Multilabel	CheXpert and ChestXray14	Imbalance	AUC-ROC	---	No	---
Yes	MICCAI Proceedings	2019	GraphX: NET Chest X-Ray Classification Under Extreme Minimal Supervision	Angelica I. Aviles-Rivero, Nicolas Papadakis, Ruoteng Li, Philip Sellars, Qingnan Fan, Robby T. Tan	X-Ray Imaging	10.1007/978-3-030-32226-7_56	Several findings	Multilabel	ChestXray-14	Imbalance	AUC-ROC	---	No	---
Yes	MICCAI Proceedings	2019	InfoMask: Masked Variational Latent Representation to Localize Chest Disease	Saeid Asgari Taghanak, Mohammad Havaei, Tess Berthier, Francis Dutil, Lisa Di Jorio, Ghassan Hamarneh	X-Ray Imaging	10.1007/978-3-030-32226-7_82	Several findings	Multilabel	ChestXray-14	Imbalance	Accuracy	AUC-ROC	No	---
Yes	MICCAI Proceedings	2019	Learning Interpretable Features via Adversarially Robust Optimization	Ashkan Khakza, Shadi Albarqouni, Nassir Navab	X-Ray Imaging	10.1007/978-3-030-32226-7_88	Several findings	Multilabel	ChestXray-14	Imbalance	AUC-ROC	---	No	---
Yes	MICCAI Proceedings	2019	Longitudinal Change Detection on Chest X-rays Using Geometric Correlation Maps	Dong Yul Oh, Jihang Kim, Kyong Joon Lee	X-Ray Imaging	10.1007/978-3-030-32226-7_83	Longitudinal change	Binary	Private set	Imbalance	AUC-ROC	Sensitivity/Specificity	No	---
Yes	MICCAI Proceedings	2019	Multi-label Thoracic Disease Image Classification with Cross-Attention Networks	Congbo Ma, Hu Wang, Steven C. H. Hoi	X-Ray Imaging	10.1007/978-3-030-32226-7_81	Several findings	Multilabel	ChestXray-14	Imbalance	AUC-ROC	---	No	---
Yes	MICCAI Proceedings	2019	Quantifying and Leveraging Classification Uncertainty for Chest Radiograph Assessment	Florin C. Ghesu, Bogdan Georgescu, Eli Gibson, Sebastian Guendel, Mannudeep K. Kalra, Ramandeep Singh	X-Ray Imaging	10.1007/978-3-030-32226-7_75	Several findings	Multilabel	ChestXray-14 and PLCO	Imbalance	AUC-ROC	F1-score	Yes	Predictive uncertainty
Yes	MICCAI Proceedings	2019	Semi-supervised Learning by Disentangling and Self-ensembling over Stochastic Latent Space	Prashna Kumar Gyawali, Zhiyuan Li, Sandesh Ghimire, Linwei Wang	X-Ray Imaging	10.1007/978-3-030-32226-7_85	Several findings	Multilabel	CheXpert	Imbalance	AUC-ROC	---	No	---
Yes	MICCAI Proceedings	2019	TUNA-Net: Task-Oriented Unsupervised Adversarial Network for Disease Recognition in Cross-domain Chest X-rays	Yuxing Tang, Youbao Tang, Veit Sandfort, Jing Xiao, Ronald M. Summers	X-Ray Imaging	10.1007/978-3-030-32226-7_48	Pneumonia	Binary	Guangzhou and Kaggle Pneumonia	Imbalance	AUC-ROC	Accuracy/Sensitivity/Specificity/F1 score	No	---
Yes	MICCAI Proceedings	2020	Abnormality Detection in Chest X-Ray Images Using Uncertainty Prediction Autoencoders	Yifan Mao, Fei-Fei Xue, Ruixuan Wang, Jianguo Zhang, Wei-Shi Zheng, Hongmei Liu	Heart and Lung Imaging	10.1007/978-3-030-59725-2_51	Pneumonia	Binary	Kaggle pneumonia and pediatric	Imbalance	AUC-ROC	F1-score/Equal error rate	Yes	Uncertainty score
Yes	MICCAI Proceedings	2020	Characterizing Label Errors: Confident Learning for Noisy-Labeled Image Segmentation	Mingqing Zhang, Jiantao Gao, Zhen Lyu, Weibing Zhao, Qin Wang, Weizhen Ding, Sheng Wang, Zhen Li, Shuguang Cui	Machine Learning Methodologies	10.1007/978-3-030-59710-8_70	Noisy mask labels	Binary	JSRT	Imbalance	F1-score	Sensitivity/Precision	No	---
Yes	MICCAI Proceedings	2020	Chest X-Ray Report Generation Through Fine-Grained Label Learning	Tanveer Syeda-Mahmood, Ken C. L. Wong, Yaniv Gur, Joy T. Wu, Ashutosh Jadhav, Satyananda Kashyap, Alexandros Karargyris, Anup Pillai, Arjun Sharma, Ali Bin Syed, Orest Boyko, Mehdi Moradi	Machine Learning Applications	10.1007/978-3-030-59713-9_54	Several findings	Multilabel	MIMIC-CXR and ChestX-Ray14	Imbalance	AUC-ROC	F1score/Precision	No	---
Yes	MICCAI Proceedings	2020	Comparing to Learn: Surpassing ImageNet Pretraining on Radiographs by Comparing Image Representations	Hong-Yu Zhou, Shuang Yu, Cheng Bian, Yifan Hu, Kai Ma, Yefeng Zheng	Machine Learning Methodologies	10.1007/978-3-030-59710-8_39	Several findings	Multilabel	Multiple public datasets	Imbalance	AUC-ROC	---	No	---

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Yes	MICCAI Proceedings	2020	DECAPS: Detail-Oriented Capsule Networks	Aryan Mobiny, Pengyu Yuan, Pietro Antonio Cicalese and Hien Van Nguyen	Machine Learning Methodologies	10.1007/978-3-030-59710-8_15	Several findings (CheXpert main 5 classes)	Multilabel	CheXpert and RSNA Pneumonia	Imbalance	AUC-ROC	---	No	---
Yes	MICCAI Proceedings	2020	Joint Modeling of Chest Radiographs and Radiology Reports for Pulmonary Edema Assessment	Geeticka Chauhan, Ruizhi Liao, William Wells, Jacob Andreas, Xin Wang, Seth Berkowitz, Steven Horig, Peter Szolovits, Polina Golland	Machine Learning Applications	10.1007/978-3-030-59713-9_51	Pulmonary edema	Binary	MIMIC-CXR	Imbalance	AUC-ROC	F1-score	No	no
Yes	MICCAI Proceedings	2020	Learning Semantics-Enriched Representation via Self-discovery, Self-classification, and Self-restoration	Fatemeh Haghighi1, Mohammad Reza Hosseinzadeh Taher1, Zongwei Zhou1,Michael B. Gotway2, and Jianming Liang1	Machine Learning Methodologies	10.1007/978-3-030-59710-8_14	Several findings (assumed ChestX-Ray14 classes)	Multilabel	ChestXray-14	Imbalance	AUC-ROC	---	No	---
Yes	MICCAI Proceedings	2020	SALAD: Self-supervised Aggregation Learning for Anomaly Detection on X-Rays	Behzad Bozorgtaba, Dwarikanath Mahapatra, Guillaume Vray, Jean-Philippe Thiran	Machine Learning Methodologies	10.1007/978-3-030-59710-8_46	Abnormal vs normal	Binary	ChestXray-14	Imbalance	AUC-ROC, AUC-PR	---	No	---
Yes	MICCAI Proceedings	2020	Semi-supervised Medical Image Classification with Global Latent Mixing	Prashnna Kumar Gyawali, Sandesh Ghimire, Pradeep Bajracharya, Zhiyuan Li, Linwei Wang	Machine Learning Methodologies	10.1007/978-3-030-59710-8_59	Several findings	Multilabel	CheXpert	Imbalance	AUC-ROC	---	Yes	Reliability plots
No, not classification	MICCAI Proceedings	2019	Adversarial Pulmonary Pathology Translation for Pairwise Chest X-Ray Data Augmentation	Yunyan Xing, Zongyuan Ge, Rui Zeng, Dwarikanath Mahapatra, Jarrel Seah, Meng Law, Tom Drummond	X-Ray Imaging	10.1007/978-3-030-32226-7_84								
No, not classification	MICCAI Proceedings	2019	Adversarial Regression Training for Visualizing the Progression of Chronic Obstructive Pulmonary Disease with Chest X-Rays	Ricardo Bogolin Lanfredi, Joyce D. Schroeder, Clement Vachet, Tolga Tasdizen	X-Ray Imaging	10.1007/978-3-030-32226-7_76								
No, not classification	MICCAI Proceedings	2019	Anatomical Priors for Image Segmentation via Post-processing with Denoising Autoencoders	Agostina J. Larrazabal, Cesar Martinez, Enzo Ferrante	X-Ray Imaging	10.1007/978-3-030-32226-7_65								
No, not classification	MICCAI Proceedings	2019	Image Data Validation for Medical Systems	Pablo Márquez-Neila, Raphael Sznitman	Computer-Aided Diagnosis	10.1007/978-3-030-32251-9_36								
No, not classification	MICCAI Proceedings	2019	Improved Inference via Deep Input Transfer	Saeid Asgari Taghanaki, Kumar Abhishek, Ghassan Hamarneh	X-Ray Imaging	10.1007/978-3-030-32226-7_91								
No, not classification	MICCAI Proceedings	2019	Improving Robustness of Medical Image Diagnosis with Denoising Convolutional Neural Networks	Fei-Fei Xue, Jin Peng, Ruixuan Wang, Qiong Zhang, Wei-Shi Zheng	X-Ray Imaging	10.1007/978-3-030-32226-7_94								
No, not classification	MICCAI Proceedings	2019	Overcoming Data Limitation in Medical Visual Question Answering	Binh D. Nguyen, Thanh-Toan Do, Binh X. Nguyen, Tuong Do, Erman Tjiputra, Quang D. Tran	Computer-Aided Diagnosis	10.1007/978-3-030-32251-9_57								
No, not classification	MICCAI Proceedings	2019	Semi-supervised Medical Image Segmentation via Learning Consistency Under Transformations	Gerda Bortsova, Florian Dubost, Laurens Hogeweg, Ioannis Katramados, Marleen de Bruijne	X-Ray Imaging	10.1007/978-3-030-32226-7_90								
No, not classification	MICCAI Proceedings	2019	Simultaneous Lung Field Detection and Segmentation for Pediatric Chest Radiographs	Wei Zhang, Guanbin Li, Fuyu Wang, Longjiang E, Yizhou Yu, Liang Lin, Huiying Liang	X-Ray Imaging	10.1007/978-3-030-32226-7_66								
No, not classification	MICCAI Proceedings	2019	Weakly Supervised Segmentation Framework with Uncertainty: A Study on Pneumothorax Segmentation in Chest X-ray	Xi Ouyang, Zhong Xue, Yiqiang Zhan, Xiang Sean Zhou, Qingfeng Wang, Ying Zhou, Qian Wang, Jie-Zhi Cheng	X-Ray Imaging	10.1007/978-3-030-32226-7_68								
No, not classification	MICCAI Proceedings	2020	Cascaded Robust Learning at Imperfect Labels for Chest X-ray Segmentation	Cheng Xue, rQiao Deng, Xiaomeng Li, Qi Dou,Pheng-Ann Heng	Heart and Lung Imaging	10.1007/978-3-030-59725-2_56								
No, not classification	MICCAI Proceedings	2020	Generating Dual-Energy Subtraction Soft-Tissue Images from Chest Radiographs via Bone Edge-Guided GAN	Yunbi Liu, Mingxia Liu, Yuhua Xi, Gengqiang Qin, Dinggang Shen, Wei Yang	Machine Learning Applications	10.1007/978-3-030-59713-9_65								

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No, not classification	MICCAI Proceedings	2020	Interpretability-Guided Content-Based Medical Image Retrieval	Wilson Silva, Alexander Poellinger, Jaime S. Cardoso, Mauricio Reyes	Machine Learning Methodologies	10.1007/978-3-030-59710-8_30								
No, not classification	MICCAI Proceedings	2020	Interpretation of Disease Evidence for Medical Images Using Adversarial Deformation Fields	Ricardo Bigolin Lanfredi, Joyce D. Schroeder, Clement Vachet, Tolga Tasdizen	Machine Learning Applications	10.1007/978-3-030-59713-9_71								
No, not classification	MICCAI Proceedings	2020	Learning to Segment Anatomical Structures Accurately from One Exemplar	Yuhang Lu, Weijian Li, Kang Zheng, Yirui Wang, Adam P. Harrison, Chihung Lin, Song Wang, Jing Xiao, Le Lu	Machine Learning Methodologies	10.1007/978-3-030-59710-8_66								
Yes	Pubmed search	2020	A promising approach for screening pulmonary hypertension based on frontal chest radiographs using deep learning: A retrospective study	Zou XL, Ren Y, Feng DY, He XQ, Guo YF, Yang HL, Li X, Fang J, Li Q, Ye JJ, Han LQ, Zhang TT.	PLoS One	10.1371/journal.pone.0236378	Pulmonary arterial pressure	Binary	Institutional	Balance	AUC-ROC	MAE/F1score/Sensitivity/Specificity/Precision/NPV	No	---
Yes	Pubmed search	2020	Chest x-ray analysis with deep learning-based software as a triage test for pulmonary tuberculosis: a prospective study of diagnostic accuracy for culture-confirmed disease	Khan FA, Majidulla A, Tavaziva G, Nazish A, Abidi SK, Benedetti A, Menzies D, Johnston JC, Khan AJ, Saeed S.	Lancet Digit Health	10.1016/S2589-7500(20)30221-1	TB	Binary	Institutional	Balance	Sensitivity/Specificity	---	No	---
Yes	Pubmed search	2020	CheXaid: deep learning assistance for physician diagnosis of tuberculosis using chest x-rays in patients with HIV	Rajpurkar P, O'Connell C, Schechter A, Asnani N, Li J, Kiani A, Ball RL, Mendelson M, Maartens G, van Hoving DJ, Griesel R, Ng AY, Boyles TH, Lungren MP.	NPJ Digit Med	10.1038/s41746-020-00322-2	TB	Binary	Institutional	Balance	Accuracy	Sensitivity/Specificity/AUC-ROC	No	---
Yes	Pubmed search	2020	Deep learning for automated classification of tuberculosis-related chest X-Ray: dataset distribution shift limits diagnostic performance generalizability	Sathitratanacheewin S, Sunanta P, Pongpirul K.	Heliyon	10.1016/j.heliyon.2020.e04614	TB	Binary	Institutional+ChestXRay8	Balance	AUC-ROC	Sensitivity/Specificity	No	---
Yes	Pubmed search	2020	Deep learning to predict elevated pulmonary artery pressure in patients with suspected pulmonary hypertension using standard chest X ray	Kusunose K, Hirata Y, Tsuji T, Kotoku J, Sata M.	Sci Rep	10.1038/s41598-020-76359-w	Pulmonary arterial pressure	Binary	Institutional+Kaggle	Balance	AUC-ROC	Prognosis	No	---
Yes	Pubmed search	2020	Deep learning-based detection system for multiclass lesions on chest radiographs: comparison with observer readings	Park S, Lee SM, Lee KH, Jung KH, Bae W, Choe J, Seo JB.	Eur Radiol	10.1007/s00330-019-06532-x	Abnormal	Binary	Institutional	Balance	AUC-ROC	Sensitivity/Specificity/JAFROC-FOM	No	---
Yes	Pubmed search	2020	Diagnosing Heart Failure from Chest X-Ray Images Using Deep Learning	Matsumoto T, Kodera S, Shinohara H, Ieki H, Yamaguchi T, Higashikuni Y, Kiyosue A, Ito K, Ando J, Takimoto E, Akazawa H, Morita H, Komuro I.	Int Heart J	10.1536/ihj.19-714	Heart failure	Binary	ChestX-Ray14	Balance	Accuracy	Sensitivity/Specificity	No	---
Yes	Pubmed search	2020	Extravalidation and reproducibility results of a commercial deep learning-based automatic detection algorithm for pulmonary nodules on chest radiographs at tertiary hospital	Koo YH, Shin KE, Park JS, Lee JW, Byun S, Lee H.	J Med Imaging Radiat Oncol	10.1111/1754-9485.13105	Nodules	Binary	Institutional	Balance	AUC-ROC	JAFROC-FOM/Sensitivity/Specificity	No	---
Yes	Pubmed search	2020	Identifying pulmonary nodules or masses on chest radiography using deep learning: external validation and strategies to improve clinical practice	Liang CH, Liu YC, Wu MT, Garcia-Castro F, Alberich-Bayarri A, Wu FZ.	Clin Radiol	10.1016/j.crad.2019.08.005	Nodules	Binary	Institutional	Balance	AUC-ROC	Sensitivity/Specificity/Precision/NPV/Accuracy/LR	No	---
Yes	Pubmed search	2020	Modality-specific deep learning model ensembles toward improving TB detection in chest radiographs	Rajaraman S, Antani SK.	IEEE Access	10.1109/access.2020.2971257	TB	Binary	Shenzhen	Balance	Accuracy	AUC-ROC/Sensitivity/Specificity/F1score/MCC	No	---
Yes	Pubmed search	2020	Optimal matrix size of chest radiographs for computer-aided detection on lung nodule or mass with deep learning	Kim YG, Lee SM, Lee KH, Jang R, Seo JB, Kim N.	Eur Radiol	10.1007/s00330-020-06892-9	Nodules	Binary	Institutional	Balance	AUC-ROC	Sensitivity	No	---
Yes	Pubmed search	2020	Potential of deep learning in assessing pneumoconiosis depicted on digital chest radiography	Wang X, Yu J, Zhu Q, Li S, Zhao Z, Yang B, Pu J.	Occup Environ Med	10.1136/oemed-2019-106386	pneumoconiosis	Binary	Institutional	Balance	AUC-ROC	Sensitivity/Specificity/Precision/NPV/Kappa	No	---
Yes	Pubmed search	2019	Application of deep learning-based computer-aided detection system: detecting pneumothorax on chest radiograph after biopsy	Park S, Lee SM, Kim N, Choe J, Cho Y, Do KH, Seo JB.	Eur Radiol	10.1007/s00330-019-06130-x	Pneumothorax	Binary	Institutional	Imbalance	AUC-ROC	Sensitivity/Specificity/Accuracy/PV/NPV	No	---
Yes	Pubmed search	2019	Assessment of an ensemble of machine learning models toward abnormality detection in chest radiographs	Rajaraman S, Sornapudi S, Kohli M, Antani S.	Annu Int Conf IEEE Eng Med Biol Soc	10.1109/EMBC.2019.8856715	Abnormal	Binary	Kaggle	Imbalance	Accuracy	AUC-ROC/F1-score/MCC	No	---

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Yes	Pubmed search	2019	Comparison of Deep Learning Approaches for Multi-Label Chest X-Ray Classification	Baltruschat IM, Nickisch H, Grass M, Knopp T, Saalbach A.	Sci Rep	10.1038/s41598-019-42294-8	14 abnormalities	Multilabel	ChestX-Ray14	Imbalance	AUC-ROC	Sensitivity/Specificity	No	---
Yes	Pubmed search	2019	Deep Learning Algorithms with Demographic Information Help to Detect Tuberculosis in Chest Radiographs in Annual Workers' Health Examination Data	Heo SJ, Kim Y, Yun S, Lim SS, Kim J, Nam CM, Park EC, Jung I, Yoon JH.	Int J Environ Res Public Health	10.3390/ijerph16020250	TB	Binary	Institutional	Imbalance	AUC-ROC	Sensitivity/Specificity	No	---
Yes	Pubmed search	2019	Deep Learning for Chest Radiograph Diagnosis in the Emergency Department	Hwang EJ, Nam JG, Lim WH, Park SJ, Jeong YS, Kang JH, Hong EK, Kim TM, Goo JM, Park S, Kim KH, Park CM.	Radiology	10.1148/radiol.2019191225	Abnormal	Binary	Institutional	Imbalance	AUC-ROC	Sensitivity/Specificity/PPV/NPV	No	---
Yes	Pubmed search	2019	Deep Learning Method for Automated Classification of Anteroposterior and Posteroanterior Chest Radiographs	Kim TK, Yi PH, Wei J, Shin JW, Hager G, Hui FK, Sair HI, Lin CT.	J Digit Imaging	10.1007/s10278-019-00208-0	AP/PA	Binary	ChestX-Ray14	Imbalance	AUC-ROC	Accuracy/Sensitivity/Specificity/Precision/NPV	No	---
Yes	Pubmed search	2019	Deep Learning to Assess Long-term Mortality From Chest Radiographs	Lu MT, Ivanov A, Mayrhofer T, Hosny A, Aerts HJWL, Hoffmann U.	JAMA Netw Open	10.1001/jamanetworkopen.2019.7416	Mortality	Binary	Institutional	Imbalance	AUC-ROC	Sensitivity/Specificity	Yes	Calibration slope
Yes	Pubmed search	2019	Development and Validation of a Deep Learning-Based Automated Detection Algorithm for Major Thoracic Diseases on Chest Radiographs	Hwang EJ, Park S, Jin KN, Kim JI, Choi SY, Lee JH, Goo JM, Aum J, Yim JJ, Cohen JG, Ferretti GR, Park CM; DLAD Development and Evaluation Group.	JAMA Netw Open	10.1001/jamanetworkopen.2019.1095	Major thoracic disease	Binary	Institutional	Imbalance	AUC-ROC	Sensitivity/Specificity/F1score/AUC-JAFROC	No	---
Yes	Pubmed search	2019	Development and Validation of a Deep Learning-based Automatic Detection Algorithm for Active Pulmonary Tuberculosis on Chest Radiographs	Hwang EJ, Park S, Jin KN, Kim JI, Choi SY, Lee JH, Goo JM, Aum J, Yim JJ, Park CM; Deep Learning-Based Automatic Detection Algorithm Development and Evaluation Group.	Clin Infect Dis	10.1093/cid/ciy967	TB	Binary	Institutional+Montgomery+Shenzhen	Imbalance	AUC-ROC	Sensitivity/Specificity	No	---
Yes	Pubmed search	2019	Development and Validation of Deep Learning-based Automatic Detection Algorithm for Malignant Pulmonary Nodules on Chest Radiographs	Nam JG, Park S, Hwang EJ, Lee JH, Jin KN, Lim KY, Vu TH, Sohn JH, Hwang S, Goo JM, Park CM.	Radiology	10.1148/radiol.2018180237	Nodules	Binary	Institutional	Imbalance	AUC-ROC	Sensitivity/Specificity/F1score/JAFROC-FOM	No	---
Yes	Pubmed search	2019	Human-machine partnership with artificial intelligence for chest radiograph diagnosis	Patel BN, Rosenberg L, Willcox G, Baltaxe D, Lyons M, Irvin J, Rajpurkar P, Amrhein T, Gupta R, Halabi S, Langlotz C, Lo E, Mammarappalli J, Mariano AJ, Riley G, Seekins J, Shen L, Zucker E, Lungren M.	NPJ Digit Med	10.1038/s41746-019-0189-7	Pneumonia	Binary	Institutional	Imbalance	AUC-ROC	Sensitivity/Specificity/F1-score	Yes	Brier; MAE
Yes	Pubmed search	2019	Performance of Deep Learning Model in Detecting Operable Lung Cancer With Chest Radiographs	Cha MJ, Chung MJ, Lee JH, Lee KS.	J Thorac Imaging	10.1097/RTI.0000000000000388	Nodules	Binary	Institutional	Imbalance	AUC-ROC	Sensitivity/Specificity	No	---
Yes	Pubmed search	2019	Using artificial intelligence to read chest radiographs for tuberculosis detection: A multi-site evaluation of the diagnostic accuracy of three deep learning systems	Qin ZZ, Sander MS, Rai B, Titahong CN, Sudruntrot S, Laah SN, Adhikari LM, Carter EJ, Puri L, Codlin AJ, Creswell J.	Sci Rep	10.1038/s41598-019-51503-3	TB	Binary	Institutional	Imbalance	AUC-ROC	Sensitivity/Specificity/Accuracy	No	---
Yes	Pubmed search	2019	Using deep-learning techniques for pulmonary-thoracic segmentations and improvement of pneumonia diagnosis in pediatric chest radiographs	E L, Zhao B, Guo Y, Zheng C, Zhang M, Lin J, Luo Y, Cai Y, Song X, Liang H.	Pediatr Pulmonol	10.1002/ppul.24431	Pneumonia type	Binary	Guangzhou WCMC + JSRT	Imbalance	AUC-ROC		No	---
Yes	Pubmed search	2020	An Efficient Method to Predict Pneumonia from Chest X-Rays Using Deep Learning Approach	Shah U, Abd-Alrazeq A, Alam T, Househ M, Shah Z.	Stud Health Technol Inform	10.3233/SHTI200594	Pneumonia	Binary	Kaggle	Imbalance	Accuracy	F1-score/Sensitivity/Specificity/PPV/NPV	No	---
Yes	Pubmed search	2020	Artificial Intelligence Algorithm Detecting Lung Infection in Supine Chest Radiographs of Critically Ill Patients With a Diagnostic Accuracy Similar to Board-Certified Radiologists	Rueckel J, Kunz WG, Hoppe BF, Patzig M, Notohamiprodjo M, Meinel FG, Cyran CC, Ingrisch M, Ricke J, Sabel BO.	Crit Care Med	10.1097/CCM.00000000000004397	Pneumonia and pleural effusion	Multilabel	Institutional	Imbalance	AUC-ROC	Sensitivity/Specificity/PPV/NPV/Accuracy	No	---
Yes	Pubmed search	2020	Augmenting Interpretation of Chest Radiographs With Deep Learning Probability Maps	Hurt B, Yen A, Kligerman S, Hsiao A.	J Thorac Imaging	10.1097/RTI.0000000000000505	Pneumonia	Binary	Kaggle	Imbalance	AUC-ROC	Sensitivity/Specificity	No	---
Yes	Pubmed search	2020	Automated identification of chest radiographs with referable abnormality with deep learning: need for recalibration	Hwang EJ, Kim H, Lee JH, Goo JM, Park CM.	Eur Radiol	10.1007/s00330-020-07062-7	Abnormalities	Binary	Institutional	Imbalance	Brier	AUC-ROC/Sensitivity/Specificity/PPV/NPV/Accuracy	Yes	Brier; Spiegelhalter's Z statistics
Yes	Pubmed search	2020	Chest Radiograph Interpretation with Deep Learning Models: Assessment with Radiologist-adjudicated Reference Standards and Population-adjusted Evaluation	Majkowska A, Mittal S, Steiner DF, Reicher JJ, McKinney SM, Duggan GE, Eswaran K, Cameron Chen PH, Liu Y, Kaidindi SR, Ding A, Corrado GS, Tse D, Shetty S.	Radiology	10.1148/radiol.2019191293	Nodules; opacity; pneumothorax; fracture	Multilabel	Institutional+ChestX-Ray14	Imbalance	AUC-ROC	Sensitivity/Specificity/PPV/NPV	No	---

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Yes	Pubmed search	2020	Clinical Validation of a Deep Learning Algorithm for Detection of Pneumonia on Chest Radiographs in Emergency Department Patients with Acute Febrile Respiratory Illness	Kim JH, Kim JY, Kim GH, Kang D, Kim IJ, Seo J, Andrews JR, Park CM.	J Clin Med	10.3390/jcm9061981	Pneumonia	Binary	Institutional	Imbalance	AUC-ROC	Sensitivity/Specificity/PPV/NPV	No	---
Yes	Pubmed search	2020	Comparison of Chest Radiograph Interpretations by Artificial Intelligence Algorithm vs Radiology Residents	Wu JT, Wong KCL, Gur Y, Ansari N, Karargyris A, Sharma A, Morris M, Saboury B, Ahmad H, Boyko O, Syed A, Jadhav A, Wang H, Pillai A, Kashyap S, Moradi M, Syeda-Mahmood T.	JAMA Netw Open	10.1001/jamanetworkopen.2020.22779	72 findings	Multilabel	MIMIC+ChestX-Ray14	Imbalance	AUC-ROC	Sensitivity/Specificity/PPV/Kappa	No	---
Yes	Pubmed search	2020	Deep Learning Using Chest Radiographs to Identify High-Risk Smokers for Lung Cancer Screening Computed Tomography: Development and Validation of a Prediction Model	Lu MT, Raghu VK, Mayrhofer T, Aerts HJWL, Hoffmann U.	Ann Intern Med	10.7326/M20-1868	Nodules	Binary	Institutional	Imbalance	AUC-ROC	Sensitivity/Specificity/Prognosis	Yes	---
Yes	Pubmed search	2020	Deep learning, reusable and problem-based architectures for detection of consolidation on chest X-ray images	Behzadi-Khormouji H, Rostami H, Salehi S, Derakhshande-Rishehri T, Masoumi M, Salemi S, Keshavarz A, Gholamrezaezhad A, Assadi M, Batouli A.	Comput Methods Programs Biomed	10.1016/j.cmpb.2019.105162	Consolidation	Binary	Guangzhou WCMC	Imbalance	AUC-ROC	Sensitivity/Specificity/Accuracy	No	---
Yes	Pubmed search	2020	Deep Learning-based Automatic Detection Algorithm for Reducing Overlooked Lung Cancers on Chest Radiographs	Jang S, Song H, Shin YJ, Kim J, Kim J, Lee KW, Lee SS, Lee W, Lee S, Lee KH.	Radiology	10.1148/radiol.2020200165	Nodules	Binary	Institutional	Imbalance	AUC-ROC	Sensitivity/Specificity	No	---
Yes	Pubmed search	2020	Deep-Pneumonia Framework Using Deep Learning Models Based on Chest X-Ray Images	Elshennawy NM, Ibrahim DM.	Diagnostics (Basel)	10.3390/diagnostics10090649	Pneumonia	Binary	kaggle	Imbalance	AUC-ROC	Sensitivity/F1-score/NPV/Accuracy	No	---
Yes	Pubmed search	2020	Development and validation of a deep learning algorithm detecting 10 common abnormalities on chest radiographs	Nam JG, Kim M, Park J, Hwang EJ, Lee JH, Hong JH, Goo JM, Park CM.	Eur Respir J	10.1183/13993003.03061-2020	10 anomalies	Multilabel		Imbalance	AUC-ROC	Sensitivity/Specificity/Time to report/Accuracy	No	---
Yes	Pubmed search	2020	Image-based Deep Learning in Diagnosing the Etiology of Pneumonia on Pediatric Chest X-rays	Longjiang E, Baisong Zhao, Liu H, Zheng C, Song X, Cai Y, Liang H.	Pediatr Pulmonol	10.1002/ppul.25229	Pneumonia type	Binary	Institutional	Imbalance	AUC-ROC	Kappa/Sensitivity/Specificity/LR	No	---
Yes	Pubmed search	2020	Impact of Confounding Thoracic Tubes and Pleural Dehiscence Extent on Artificial Intelligence Pneumothorax Detection in Chest Radiographs	Rueckel J, Trappmann L, Schachtner B, Wesp P, Hoppe BF, Fink N, Ricke J, Dinkel J, Ingrisch M, Sabel BO.	Invest Radiol	10.1097/RLI.0000000000000707	Pneumothorax with and without thoracic tube	Binary	Institutional	Imbalance	AUC-ROC	---	No	---
Yes	Pubmed search	2020	Impact of hybrid supervision approaches on the performance of artificial intelligence for the classification of chest radiographs	Ellis R, Ellestad E, Elicker B, Hope MD, Tosun D.	Comput Biol Med	10.1016/j.combiomed.2020.103699	Abnormal	Binary	Institutional	Imbalance	AUC-ROC	Sensitivity/Specificity/PPV/NPV/F1-score/Accuracy	Yes	---
Yes	Pubmed search	2020	Performance of a Deep Learning Algorithm Compared with Radiologic Interpretation for Lung Cancer Detection on Chest Radiographs in a Health Screening Population	Lee JH, Sun HY, Park S, Kim H, Hwang EJ, Goo JM, Park CM.	Radiology	10.1148/radiol.2020201240	Nodules	Binary	Institutional	Imbalance	AUC-ROC	Sensitivity/Specificity/PPV/NPV/Accuracy	No	---
Yes	Pubmed search	2020	Prediction of Pulmonary to Systemic Flow Ratio in Patients With Congenital Heart Disease Using Deep Learning-Based Analysis of Chest Radiographs	Toba S, Mitani Y, Yodoya N, Ohashi H, Sawada H, Hayakawa H, Hirayama M, Futsuki A, Yamamoto N, Ito H, Konuma T, Shimpo H, Takao M.	JAMA Cardiol	10.1001/jamacardio.2019.5620	High pulmonary to systemic flow ratio	Binary	Institutional	Imbalance	AUC-ROC	Sensitivity/Specificity/PPV/NPV/Accuracy	Yes	Regression metrics for systemic flow ratio prediction
Yes	Pubmed search	2020	Smart chest X-ray worklist prioritization using artificial intelligence: a clinical workflow simulation	Baltruschat I, Steinmeister L, Nickisch H, Saalbach A, Grass M, Adam G, Knopp T, Ittrich H.	Eur Radiol	10.1007/s00330-020-07480-7	8 anomalies	Multilabel	ChestX-Ray8	Imbalance	AUC-ROC	Sensitivity/Specificity/Time to report	No	---
Yes	Pubmed search	2020	Validation of a Deep Learning Algorithm for the Detection of Malignant Pulmonary Nodules in Chest Radiographs	Yoo H, Kim KH, Singh R, Digumarthy SR, Kalra MK.	JAMA Netw Open	10.1001/jamanetworkopen.2020.17135	Nodules	Binary	Institutional	Imbalance	AUC-ROC	Sensitivity/Specificity/PPV/NPV/Kappa	No	---
Yes	Pubmed search	2021	Deep learning-based automated detection algorithm for active pulmonary tuberculosis on chest radiographs: diagnostic performance in systematic screening of asymptomatic individuals	Lee JH, Park S, Hwang EJ, Goo JM, Lee WY, Lee S, Kim H, Andrews JR, Park CM.	Eur Radiol	10.1007/s00330-020-07219-4	TB	Binary	Institutional	Imbalance	AUC-ROC	Sensitivity/Specificity/PPV/NPV	No	---
No, review	Pubmed search	2019	A systematic review of the diagnostic accuracy of artificial intelligence-based computer programs to analyze chest x-rays for pulmonary tuberculosis	Harris M, Qi A, Jeagal L, Torabi N, Menzies D, Korobitsyn A, Pai M, Nathavitharana RR, Ahmad Khan F.	PLoS One	10.1371/journal.pone.0221339								
No, not xray	Pubmed search	2020	Pneumonia Detection in Chest X-Ray Dose-Equivalent CT: Impact of Dose Reduction on Detectability by Artificial Intelligence	Schwzyer M, Martini K, Skawran S, Messerli M, Frauenfelder T.	Acad Radiol	10.1016/j.acra.2020.05.031								

Included	Source	Publication Year	Title	Authors	Journal/ MICCAI volume	DOI	Diagnosis focus	Classification task	Test set	Class ratio in test set	Main classification performance metric	Other classification performance metrics REPORTED	Calibration reported or discussed	Calibration metric
No, not classification	Pubmed search	2020	[Research and application of orthotopic DR chest radiograph quality control system based on artificial intelligence]	Wang J, Li Z, Pu L, Zhang K, Liu X, Zhou B.	Sheng Wu Yi Xue Gong Cheng Xue Za Zhi	10.7507/1001-5515.201904017								
No, not classification	Pubmed search	2020	Crowdsourcing pneumothorax annotations using machine learning annotations on the NIH chest X-ray dataset	Filice RW, Stein A, Wu CC, Arteaga VA, Borstelmann S, Gaddikeri R, Galperin-Aizenberg M, Gill RR, Godoy MC, Hobbs SB, Jeudy J, Lakhani PC, Laroia A, Nayak SM, Parekh MR, Prasanna P, Shah P, Vummidi D, Yaddanapudi K, Shih G.	J Digit Imaging	10.1007/s10278-019-00299-9								
No, not classification	Pubmed search	2020	Detection of peripherally inserted central catheter (PICC) in chest X-ray images: A multi-task deep learning model	Yu D, Zhang K, Huang L, Zhao B, Zhang X, Guo X, Li M, Gu Z, Fu G, Hu M, Ping Y, Sheng Y, Liu Z, Hu X, Zhao R.	Comput Methods Programs Biomed	10.1016/j.cmpb.2020.105674								
No, not classification	Pubmed search	2020	Test-retest reproducibility of a deep learning-based automatic detection algorithm for the chest radiograph	Kim H, Park CM, Goo JM.	Eur Radiol	10.1007/s00330-019-06589-8								
No, not classification	Pubmed search	2020	Understanding spatial language in radiology: Representation framework, annotation, and spatial relation extraction from chest X-ray reports using deep learning	Datta S, Si Y, Rodriguez L, Shooshan SE, Demner-Fushman D, Roberts K.	J Biomed Inform	10.1016/j.jbi.2020.103473								
No, erratum	Pubmed search	2019	Erratum: Author Correction: Human-machine partnership with artificial intelligence for chest radiograph diagnosis	Patel BN, Rosenberg L, Willcox G, Baltaxe D, Lyons M, Irvin J, Rajpurkar P, Amrhein T, Gupta R, Halabi S, Langlotz C, Lo E, Mammaraopallil J, Mariano AJ, Riley G, Seekins J, Shen L, Zucker E, Lungren MP.	NPJ Digit Med	10.1038/s41746-019-0198-6								
No, erratum	Pubmed search	2020	Erratum: Diagnosing Heart Failure from Chest X-Ray Images Using Deep Learning	Matsumoto T, Kodera S, Shinohara H, Ieki H, Yamaguchi T, Higashikuni Y, Kiyosue A, Ito K, Ando J, Takimoto E, Akazawa H, Morita H, Komuro I.	Int Heart J	10.1536/ihj.61-5_Errata								
No, correction	Pubmed search	2019	Author Correction: Human-machine partnership with artificial intelligence for chest radiograph diagnosis	Patel BN, Rosenberg L, Willcox G, Baltaxe D, Lyons M, Irvin J, Rajpurkar P, Amrhein T, Gupta R, Halabi S, Langlotz C, Lo E, Mammaraopallil J, Mariano AJ, Riley G, Seekins J, Shen L, Zucker E, Lungren MP.	NPJ Digit Med	10.1038/s41746-019-0198-6								
No, correction	Pubmed search	2019	Development and Validation of a Deep Learning System for Detection of Active Pulmonary Tuberculosis on Chest Radiographs: Clinical and Technical Considerations	Ting DSW, Tan TE, Lim CCT.	Clin Infect Dis	10.1093/cid/ciy969								
No, comment	Pubmed search	2019	Deep Learning for Chest Radiography in the Emergency Department	Munera F, Infante JC.	Radiology	10.1148/radiol.2019192079								
No, comment	Pubmed search	2019	Deep Learning for Triage of Chest Radiographs: Should Every Institution Train Its Own System?	van Ginneken B.	Radiology	10.1148/radiol.2018182318								
No, comment	Pubmed search	2019	Re: machine learning "red dot": open-source, cloud, deep convolutional neural networks in chest radiograph binary normality classification	Halligan S, Plumb AAO.	Clin Radiol	10.1016/j.crad.2018.11.010								
No, comment	Pubmed search	2019	Re: machine learning "red dot": open-source, cloud, deep convolutional neural networks in chest radiograph binary normality classification. A reply	Yates EJ, Yates LC, Harvey H.	Clin Radiol	10.1016/j.crad.2018.11.008								
No, comment	Pubmed search	2019	Re: machine learning "red dot": open-source, cloud, deep convolutional neural networks in chest radiograph binary normality classification. Editor's reply	Weston M.	Clin Radiol	10.1016/j.crad.2018.12.001								
No, comment	Pubmed search	2020	Beyond the AJR: "Deep Learning Using Chest Radiographs to Identify High-Risk Smokers for Lung Cancer Screening Computed Tomography: Development and Validation of a Prediction Model"	Patel BN, Langlotz CP.	AJR Am J Roentgenol	10.2214/AJR.20.25334								
No, comment	Pubmed search	2020	Deep Learning Demonstrates Potential for Lung Cancer Detection in Chest Radiography	Armato SG 3rd.	Radiology	10.1148/radiol.2020203538								