



AI & ROBOTICS: Radiography, Image Analysis & Diagnosis

Diagnostic performance of artificial intelligence in periapical radiography: a systematic review	Odontology 2026; online 13 May: doi.org/10.1007/s10266-026-01401-8
Evaluating AI diagnostic accuracy in approximal dental caries detection on bitewing radiographs	Clin Oral Investig 2026; 30: 207
Automated detection of C-shaped canals in mandibular second molars from panoramic radiographs: comparing single and ensemble convolutional neural networks within a 2-stage pipeline	Clin Oral Investig 2026; 30: 190
Artificial intelligence in diagnostic oral and maxillofacial imaging, surgical applications, and teledentistry [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	Dent Clin N Amer 2026; 70(2): 431-444
Radiographic data segmentation as a tool in machine learning and deep learning artificial intelligence algorithms [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	Dent Clin N Amer 2026; 70(2): 331-349
ProSocial artificial intelligence in oral and maxillofacial imaging, pathology, and laboratory applications [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	Dent Clin N Amer 2026; 70(2): 305-313
Evaluating generative AI (Microsoft Copilot) as an adjunctive decision-support system in oral and maxillofacial radiology: a retrospective study	Oral 2026; 6(1): 10
Artificial intelligence in panoramic radiography interpretation: a glimpse into the state-of-the-art radiologic examination method [can be accessed on DOSS free by logging in on this page]	Int J Comput Dent 2025; 28(4): 309-321
Artificial intelligence in the study of oral lichen planus characteristics: a review	BDJ Open 2025; 11: 91
An annotated clinical image dataset for AI classification of malignant and potentially malignant oral lesions	BDJ (2025). https://doi.org/10.1038/s41415-025-9007-6
Evaluating YOLO for dental caries diagnosis: a systematic review and meta-analysis [Log in to the BDA home page and follow the link to the BDJ Portfolio to access]	EBD 2025; 26: 176
Development of a YOLOv8-based deep learning model for detecting and segmenting dental restorations and dental applications in panoramic radiographs of mixed dentition [Log in to the BDA home page and follow the link to the BDJ Portfolio to access]	BDJ (2025). https://doi.org/10.1038/s41415-025-9009-4
The accuracy and speed of artificial intelligent cephalometric software compared to computer and paper tracing in patients with cleft lip and palate	BDJ (2025). https://doi.org/10.1038/s41415-025-8877-y
Ethical insights into AI-driven caries detection: a scoping review	BDJ Open 2025; 11: 78



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Deep convolutional neural networks for early detection of interproximal caries using bitewing radiographs: A systematic review [Log in to the BDA home page and follow the link to the BDJ Portfolio to access]	EBD 2025; 26 (2): 117
The potential of artificial intelligence in the early detection of systemic diseases during routine dental care [Log in to the BDA home page and follow the link to the BDJ Portfolio to access]	BDJ 2025; 239 (3): 168-174
Deep learning for detecting periapical bone rarefaction in panoramic radiographs: a systematic review and critical assessment (request using https://www.smartsurvey.co.uk/s/PJHMV/)	Dentomaxillofac Radiol 2025; 54 (6): 405-19
The effectiveness of a novel artificial intelligence (AI) model in detecting oral and dental diseases	BDJ Open 2025; 11: 62
Temporomandibular joint assessment in MRI images using artificial intelligence tools: where are we now? A systematic review (request using https://www.smartsurvey.co.uk/s/PJHMV/)	DMFR 2025; 54 (1): 1-11
Artificial intelligence and emerging technologies in diagnosis of oral potentially malignant disorders	BDJ Team 2024; 11(10): 454-456
Should artificial intelligence be making a clinical diagnosis or a recommendation for the treating dentist to review? [Log in to the BDA home page and follow the link to the BDJ Portfolio to access]	BDJ In Practice 2024; 37(11): 428-429
In discussion: Using AI to detect dental disease with radiography [Log in to the BDA home page and follow the link to the BDJ Portfolio to access]	BDJ In Practice 2024; 37(11): 416-417
Deep learning system for the differential diagnosis of oral mucosal lesions through clinical photographic imaging	J Dent Sci 2024; online 28 Oct doi.org/10.1016/j.jds.2024.10.019
Artificial intelligent-driven decision-making for automating root fracture detection in periapical radiographs	BDJ Open 2024; 10: 76
Synthetic, non-person related panoramic radiographs created by generative adversarial networks in research, clinical, and teaching applications	J Dentistry 2024; 146: 105042
Fully automated deep learning model for detecting proximity of mandibular third molar root to inferior alveolar canal using panoramic radiographs [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	Oral Surg Oral Med Oral Pathol Oral Radiol 2024; 137 (6): 671-8
Tooth numbering and classification on bitewing radiographs: an artificial intelligence pilot study [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	Oral Surg Oral Med Oral Pathol Oral Radiol 2024; 137 (6): 679-89



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Accuracy of manual and artificial intelligence-based superimposition of cone-beam computed tomography with digital scan data, utilizing an implant planning software: A randomized clinical study [Accessible from the Wiley link on this page]	Clin Oral Implants Res 2024; online 10 June doi.org/10.1111/clr.14313
Surveying the landscape of diagnostic imaging in dentistry's future: Four emerging technologies with promise [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	J Am Dent Assoc 2024; 155 (5): 364-78
Automated permanent tooth detection and numbering on panoramic radiograph using a deep learning approach [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	Oral Surg Oral Med Oral Pathol Oral Radiol 2024; 137 (5): 537-44
Deep learning for automatic detection of cephalometric landmarks on lateral cephalometric radiographs using the Mask Region-based Convolutional Neural Network: a pilot study [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	Oral Surg Oral Med Oral Pathol Oral Radiol 2024; 137 (5): 554-62
Assessment of accuracy and reproducibility of cephalometric identification performed by 2 artificial intelligence-driven tracing applications and human examiners [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	Oral Surg Oral Med Oral Pathol Oral Radiol 2024; 137 (4): 431-40
Panoramic imaging errors in machine learning model development: a systematic review	DMFR 2024; 53 (3): 165-72
Artificial intelligence-based automated preprocessing and classification of impacted maxillary canines in panoramic radiographs	DMFR 2024; 53 (3): 173-7
Artificial intelligence for radiographic imaging detection of caries lesions: a systematic review	BMC Oral Health 2024; 24: Art 274
Deep learning for tooth identification and numbering on dental radiography: a systematic review and meta-analysis	DMFR 2024; 53 (1): 5-21
Artificial intelligence and dental panoramic radiographs: where are we now? [Log in to the BDA home page and follow the link to the BDJ and then EBD to access]	EBD 2024; Jan 25 [Early view]
A novel collaborative learning model for mixed dentition and fillings segmentation in panoramic radiographs	J Dent 2024; 140: 104779
Detection of tooth numbering, frenulum attachment, gingival overgrowth, and gingival inflammation signs on dental photographs using convolutional neural network algorithms: a retrospective study [can be accessed on DOSS free by logging in on this page]	Quintessence Int 2023; 54(8): 680-693
Determining the reliability of diagnosis and treatment using artificial intelligence software with panoramic radiographs	Imaging Dent Sci 2023; 53(3): 199-208



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An artificial intelligence model for instance segmentation and tooth numbering on orthopantomograms [can be accessed on DOSS free by logging in on this page]	Int J Computerized Dent 2023; 26(4): 301-309
Quantitative level determination of fixed restorations on panoramic radiographs using deep learning [can be accessed on DOSS free by logging in on this page]	Int J Computerized Dent 2023; 26(4): 285-299
Applications of artificial intelligence in the analysis of dental panoramic radiographs: an overview of systematic reviews	DMFR 2023; 52 (7): 20230284
Artificial intelligence applications for the radiographic detection of periodontal disease: a scoping review	J Calif Dent Assoc 2023; 51(1): 2206301
Accuracy of artificial intelligence-based photographic detection of gingivitis	Int Dent J 2023; 73(5): 724-730
Age determination on panoramic radiographs using the Kvaal method with the aid of artificial intelligence	DMFR 2023; 52(3): 20220363
Detection of the separated root canal instrument on panoramic radiograph: a comparison of LSTM and CNN deep learning methods	DMFR 2023; 52(3): 20220209
Federated vs local vs central deep learning of tooth segmentation on panoramic radiographs [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	J Dent 2023; 135: 104556
The impact of dental artificial intelligence for radiograph analysis [can be accessed on DOSS free by logging in on this page]	Compendium Contin Educ Dent 2023; 44(1): e1-e4
Detecting dental caries on oral photographs using artificial intelligence: A systematic review	Oral Dis 2023; online 1 st July doi.org/10.1111/odi.14659
Accuracy of artificial intelligence-based photographic detection of gingivitis	Int Dent J 2023; online 26 April doi.org/10.1016/j.identj.2023.03.007
Artificial intelligence in the diagnosis of dental diseases on panoramic radiographs: a preliminary study	BMC Oral Health 2023; 23: Art 358
Personalized dental medicine, artificial intelligence, and their relevance for dentomaxillofacial imaging	Dentomaxillofacial Radiol 2023; 52 (1): 20220335
Multi-modal deep learning for automated assembly of periapical radiographs [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	J Dent 2023; 135: 104588
Application of deep learning artificial intelligence technique to the classification of clinical orthodontic photos	BMC Oral Health 2022; 22: Art 454



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Artificial intelligence-aided detection of ectopic eruption of maxillary first molars based on panoramic radiographs [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	J Dent 2022; 125: 104239
Evaluation of a deep learning system for automatic detection of proximal surface dental caries on bitewing radiographs [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	Oral Surg Oral Med Oral Pathol Oral Radiol 2022; 134 (2): 262-70
Artificial intelligence for caries detection: value of data and information	J Dent Res 2022; 101 (11): 1350-1356
Artificial intelligence for caries and periapical periodontitis detection [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	J Dent 2022; (122): 104107
Automated detection of posterior restorations in permanent teeth using artificial intelligence intraoral photographs [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	J Dent 2022; (121): 104124
Accuracy of an artificial intelligence-driven tool for the detection of small edentulous regions on cone-beam computed tomography	J Dent 2022; 121: 103989
Evaluation of an Artificial Intelligence web-based software to detect and classify dental structures and treatments in panoramic radiographs [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	J Dent 2022; 126: 104301
Can dental fillings affect the performance of an AI-driven innovative tool for automatic tooth segmentation in cone-beam computed tomography: A validation study?	J Dent 2022; 121: 103990
Influence of dental fillings and tooth type on the performance of a novel artificial intelligence-driven tool for automatic tooth segmentation on CBCT images – A validation study [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	J Dent 2022; 119: 104069
Current applications and development of artificial intelligence for digital dental radiography	Dentomaxillofacial Radiol 2022; 51(1): 20210197
Automated chart filing on panoramic radiographs using deep learning	J Dent 2021; 115: 103864
A novel deep learning system for multi-class tooth segmentation and classification on cone beam computed tomography. A validation study [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	J Dent 2021; 115: 103865
The ADEPT study: a comparative study of dentists' ability to detect enamel-only proximal caries in bitewing radiographs with and without the use of AssistDent artificial intelligence software	BDJ 2021; 231: 481-5



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Layered deep learning for automatic mandibular segmentation in cone-beam computed tomography [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	J Dent 2021; 114: 103786
Caries detection on intraoral images using artificial intelligence	J Dent Res 2021 – pub online Aug 20th
Artificial intelligence system for automatic deciduous tooth detection and numbering in panoramic radiographs (request using https://www.smartsurvey.co.uk/s/PJHMV/)	Dentomaxillofac Radiol 2021; 50(6): 20200172
Multiclass CBCT image segmentation for orthodontics with deep learning [can be accessed on DOSS free by logging in on this page]	J Dent Res 2021; 100(9): 943-949
Deep-learning for predicting C-shaped canals in mandibular second molars on panoramic radiographs (request using https://www.smartsurvey.co.uk/s/PJHMV/)	Dentomaxillofac Radiol 2021; 50(5): 20200513
Artificial intelligence for detection of periapical lesions on intraoral radiographs: Comparison between convolutional neural networks and human observers [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	Oral Surg Oral Med Oral Pathol Oral Radiol 2021; 131 (5): 610-16
The validity of an artificial intelligence application for assessment of orthodontic treatment need from clinical images [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	Seminars Orthod 2021; 27(2): 164-171
Possibilities of artificial intelligence use in orthodontic diagnosis and treatment planning: Image recognition and three-dimensional VTO [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	Seminars Orthod 2021; 27(2): 121-129
Artificial Intelligence for radiographic image analysis [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	Seminars Orthod 2021; 27(2): 109-120
Performance of deep learning object detection technology in the detection and diagnosis of maxillary sinus lesions on panoramic radiographs (request using https://www.smartsurvey.co.uk/s/PJHMV/)	Dentomaxillofac Radiol 2021; 50(1): 20200171
The diagnostic advantage of a CBCT-derived segmented STL rendition of the teeth and jaws using an AI algorithm (request using https://www.smartsurvey.co.uk/s/PJHMV/)	J Clin Orthod 2021; 55(6): 361-369
A deep learning approach to dental restoration classification from bitewing and periapical radiographs [can be accessed on DOSS free by logging in on this page]	Quintessence Int 2021; 52(7): 568-574



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Automated feature detection in dental periapical radiographs by using deep learning [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	Oral Surg Oral Med Oral Path Oral Radiol 2021; 13(6): 711-720
Attitude of Brazilian dentists and dental students regarding the future role of artificial intelligence in oral radiology: a multicenter survey	Dentomaxillofac Radiol 2021; 50(5): 20200461
Artificial intelligence for fast and accurate 3-dimensional tooth segmentation on cone-beam computed tomography [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	J Endod 2021; 47(5): 827-835
Cost effectiveness of artificial intelligence for proximal caries detection	J Dent Res 2021; 100(4): 369-376
Detecting white spot lesions on dental photography using deep learning: A pilot study [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	J Dent 2021; (107): 103615
Artificial intelligence in oral and maxillofacial radiology: what is currently possible? (request using https://www.smartsurvey.co.uk/s/PJHMV/)	Dentomaxillofac Radiol 2021; 50(3): 20200375
Evaluation of automated cephalometric analysis based on the latest deep learning method	Angle Orthod 2021; 91(3): 329-335