



## AI & ROBOTICS: Radiography, Image Analysis & Diagnosis

<a href="#">Artificial intelligence in the study of oral lichen planus characteristics: a review</a>	BDJ Open 2025; 11: 91
<a href="#">An annotated clinical image dataset for AI classification of malignant and potentially malignant oral lesions</a>	BDJ (2025). <a href="https://doi.org/10.1038/s41415-025-9007-6">https://doi.org/10.1038/s41415-025-9007-6</a>
Evaluating YOLO for dental caries diagnosis: a systematic review and meta-analysis [Log in to the <a href="#">BDA home page</a> 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 <a href="#">BDA home page</a> and follow the link to the BDJ Portfolio to access]	BDJ (2025). <a href="https://doi.org/10.1038/s41415-025-9009-4">https://doi.org/10.1038/s41415-025-9009-4</a>
<a href="#">The accuracy and speed of artificial intelligent cephalometric software compared to computer and paper tracing in patients with cleft lip and palate</a>	BDJ (2025). <a href="https://doi.org/10.1038/s41415-025-8877-y">https://doi.org/10.1038/s41415-025-8877-y</a>
<a href="#">Ethical insights into AI-driven caries detection: a scoping review</a>	BDJ Open 2025; 11: 78
Deep convolutional neural networks for early detection of interproximal caries using bitewing radiographs: A systematic review [Log in to the <a href="#">BDA home page</a> 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 <a href="#">BDA home page</a> 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 <a href="https://www.smartsurvey.co.uk/s/PJHMOV/">https://www.smartsurvey.co.uk/s/PJHMOV/</a> )	Dentomaxillofac Radiol 2025; 54 (6): 405-19
<a href="#">The effectiveness of a novel artificial intelligence (AI) model in detecting oral and dental diseases</a>	BDJ Open 2025; 11: 62
Temporomandibular joint assessment in MRI images using artificial intelligence tools: where are we now? A systematic review (request using <a href="https://www.smartsurvey.co.uk/s/PJHMOV/">https://www.smartsurvey.co.uk/s/PJHMOV/</a> )	DMFR 2025; 54 (1): 1-11
<a href="#">Artificial intelligence and emerging technologies in diagnosis of oral potentially malignant disorders</a>	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 <a href="#">BDA home page</a> 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 <a href="#">BDA home page</a> and follow the link to the BDJ Portfolio to access]	BDJ In Practice 2024; 37(11): 416-417



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<a href="#">Deep learning system for the differential diagnosis of oral mucosal lesions through clinical photographic imaging</a>	J Dent Sci 2024; online 28 Oct doi.org/10.1016/j.jds.2024.10.019
<a href="#">Artificial intelligent-driven decision-making for automating root fracture detection in periapical radiographs</a>	BDJ Open 2024; 10: 76
<a href="#">Synthetic, non-person related panoramic radiographs created by generative adversarial networks in research, clinical, and teaching applications</a>	J Dentistry 2024; 146: 105042
<a href="#">Fully automated deep learning model for detecting proximity of mandibular third molar root to inferior alveolar canal using panoramic radiographs</a> [free to members on Science Direct. If you do not have a login email <a href="mailto:library@bda.org">library@bda.org</a> to request one]	Oral Surg Oral Med Oral Pathol Oral Radiol 2024; 137 (6): 671-8
<a href="#">Tooth numbering and classification on bitewing radiographs: an artificial intelligence pilot study</a> [free to members on Science Direct. If you do not have a login email <a href="mailto:library@bda.org">library@bda.org</a> to request one]	Oral Surg Oral Med Oral Pathol Oral Radiol 2024; 137 (6): 679-89
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 <a href="#">on this page</a> ]	Clin Oral Implants Res 2024; online 10 June doi.org/10.1111/clr.14313
<a href="#">Surveying the landscape of diagnostic imaging in dentistry's future: Four emerging technologies with promise</a> [free to members on Science Direct. If you do not have a login email <a href="mailto:library@bda.org">library@bda.org</a> to request one]	J Am Dent Assoc 2024; 155 (5): 364-78
<a href="#">Automated permanent tooth detection and numbering on panoramic radiograph using a deep learning approach</a> [free to members on Science Direct. If you do not have a login email <a href="mailto:library@bda.org">library@bda.org</a> to request one]	Oral Surg Oral Med Oral Pathol Oral Radiol 2024; 137 (5): 537-44
<a href="#">Deep learning for automatic detection of cephalometric landmarks on lateral cephalometric radiographs using the Mask Region-based Convolutional Neural Network: a pilot study</a> [free to members on Science Direct. If you do not have a login email <a href="mailto:library@bda.org">library@bda.org</a> to request one]	Oral Surg Oral Med Oral Pathol Oral Radiol 2024; 137 (5): 554-62
<a href="#">Assessment of accuracy and reproducibility of cephalometric identification performed by 2 artificial intelligence-driven tracing applications and human examiners</a> [free to members on Science Direct. If you do not have a login email <a href="mailto:library@bda.org">library@bda.org</a> to request one]	Oral Surg Oral Med Oral Pathol Oral Radiol 2024; 137 (4): 431-40
<a href="#">Panoramic imaging errors in machine learning model development: a systematic review</a>	DMFR 2024; 53 (3): 165-72
<a href="#">Artificial intelligence-based automated preprocessing and classification of impacted maxillary canines in panoramic radiographs</a>	DMFR 2024; 53 (3): 173-7
<a href="#">Artificial intelligence for radiographic imaging detection of caries lesions: a systematic review</a>	BMC Oral Health 2024; 24: Art 274
<a href="#">Deep learning for tooth identification and numbering on dental radiography: a systematic review and meta-analysis</a>	DMFR 2024; 53 (1): 5-21



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Artificial intelligence and dental panoramic radiographs: where are we now? [Log in to the <a href="#">BDA home page</a> and follow the link to the BDJ and then EBD to access]	EBD 2024; Jan 25 [Early view]
<a href="#">A novel collaborative learning model for mixed dentition and fillings segmentation in panoramic radiographs</a>	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 <a href="#">on this page</a> ]	Quintessence Int 2023; 54(8): 680-693
<a href="#">Determining the reliability of diagnosis and treatment using artificial intelligence software with panoramic radiographs</a>	Imaging Dent Sci 2023; 53(3): 199-208
An artificial intelligence model for instance segmentation and tooth numbering on orthopantomograms [can be accessed on DOSS free by logging in <a href="#">on this page</a> ]	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 <a href="#">on this page</a> ]	Int J Computerized Dent 2023; 26(4): 285-299
<a href="#">Applications of artificial intelligence in the analysis of dental panoramic radiographs: an overview of systematic reviews</a>	DMFR 2023; 52 (7): 20230284
<a href="#">Artificial intelligence applications for the radiographic detection of periodontal disease: a scoping review</a>	J Calif Dent Assoc 2023; 51(1): 2206301
<a href="#">Accuracy of artificial intelligence-based photographic detection of gingivitis</a>	Int Dent J 2023; 73(5): 724-730
<a href="#">Age determination on panoramic radiographs using the Kvaal method with the aid of artificial intelligence</a>	DMFR 2023; 52(3): 20220363
<a href="#">Detection of the separated root canal instrument on panoramic radiograph: a comparison of LSTM and CNN deep learning methods</a>	DMFR 2023; 52(3): 20220209
<a href="#">Federated vs local vs central deep learning of tooth segmentation on panoramic radiographs</a> [free to members on Science Direct. If you do not have a login email <a href="mailto:library@bda.org">library@bda.org</a> 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 <a href="#">on this page</a> ]	Compendium Contin Educ Dent 2023; 44(1): e1-e4
<a href="#">Detecting dental caries on oral photographs using artificial intelligence: A systematic review</a>	Oral Dis 2023; online 1 <sup>st</sup> July doi.org/10.1111/odi.14659
<a href="#">Accuracy of artificial intelligence-based photographic detection of gingivitis</a>	Int Dent J 2023; online 26 April doi.org/10.1016/j.identj.2023.03.007
<a href="#">Artificial intelligence in the diagnosis of dental diseases on panoramic radiographs: a preliminary study</a>	BMC Oral Health 2023; 23: Art 358



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<a href="#">Personalized dental medicine, artificial intelligence, and their relevance for dentomaxillofacial imaging</a>	Dentomaxillofacial Radiol 2023; 52 (1): 20220335
<a href="#">Multi-modal deep learning for automated assembly of periapical radiographs</a> [free to members on Science Direct. If you do not have a login email <a href="mailto:library@bda.org">library@bda.org</a> to request one]	J Dent 2023; 135: 104588
<a href="#">Application of deep learning artificial intelligence technique to the classification of clinical orthodontic photos</a>	BMC Oral Health 2022; 22: Art 454
<a href="#">Artificial intelligence-aided detection of ectopic eruption of maxillary first molars based on panoramic radiographs</a> [free to members on Science Direct. If you do not have a login email <a href="mailto:library@bda.org">library@bda.org</a> to request one]	J Dent 2022; 125: 104239
<a href="#">Evaluation of a deep learning system for automatic detection of proximal surface dental caries on bitewing radiographs</a> [free to members on Science Direct. If you do not have a login email <a href="mailto:library@bda.org">library@bda.org</a> to request one]	Oral Surg Oral Med Oral Pathol Oral Radiol 2022; 134 (2): 262-70
<a href="#">Artificial intelligence for caries detection: value of data and information</a>	J Dent Res 2022; 101 (11): 1350-1356
<a href="#">Artificial intelligence for caries and periapical periodontitis detection</a> [free to members on Science Direct. If you do not have a login email <a href="mailto:library@bda.org">library@bda.org</a> to request one]	J Dent 2022; (122): 104107
<a href="#">Automated detection of posterior restorations in permanent teeth using artificial intelligence intraoral photographs</a> [free to members on Science Direct. If you do not have a login email <a href="mailto:library@bda.org">library@bda.org</a> to request one]	J Dent 2022; (121): 104124
<a href="#">Accuracy of an artificial intelligence-driven tool for the detection of small edentulous regions on cone-beam computed tomography</a>	J Dent 2022; 121: 103989
<a href="#">Evaluation of an Artificial Intelligence web-based software to detect and classify dental structures and treatments in panoramic radiographs</a> [free to members on Science Direct. If you do not have a login email <a href="mailto:library@bda.org">library@bda.org</a> to request one]	J Dent 2022; 126: 104301
<a href="#">Can dental fillings affect the performance of an AI-driven innovative tool for automatic tooth segmentation in cone-beam computed tomography: A validation study?</a>	J Dent 2022; 121: 103990
<a href="#">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</a> [free to members on Science Direct. If you do not have a login email <a href="mailto:library@bda.org">library@bda.org</a> to request one]	J Dent 2022; 119: 104069
<a href="#">Current applications and development of artificial intelligence for digital dental radiography</a>	Dentomaxillofacial Radiol 2022; 51(1): 20210197
<a href="#">Automated chart filing on panoramic radiographs using deep learning</a>	J Dent 2021; 115: 103864



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<a href="#">A novel deep learning system for multi-class tooth segmentation and classification on cone beam computed tomography. A validation study</a> [free to members on Science Direct. If you do not have a login email <a href="mailto:library@bda.org">library@bda.org</a> to request one]	J Dent 2021; 115: 103865
<a href="#">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</a>	BDJ 2021; 231: 481-5
<a href="#">Layered deep learning for automatic mandibular segmentation in cone-beam computed tomography</a> [free to members on Science Direct. If you do not have a login email <a href="mailto:library@bda.org">library@bda.org</a> to request one]	J Dent 2021; 114: 103786
<a href="#">Caries detection on intraoral images using artificial intelligence</a>	J Dent Res 2021 – pub online Aug 20th
Artificial intelligence system for automatic deciduous tooth detection and numbering in panoramic radiographs (request using <a href="https://www.smartsurvey.co.uk/s/PJHMV/">https://www.smartsurvey.co.uk/s/PJHMV/</a> )	Dentomaxillofac Radiol 2021; 50(6): 20200172
Multiclass CBCT image segmentation for orthodontics with deep learning [can be accessed on DOSS free by logging in <a href="#">on this page</a> ]	J Dent Res 2021; 100(9): 943-949
Deep-learning for predicting C-shaped canals in mandibular second molars on panoramic radiographs (request using <a href="https://www.smartsurvey.co.uk/s/PJHMV/">https://www.smartsurvey.co.uk/s/PJHMV/</a> )	Dentomaxillofac Radiol 2021; 50(5): 20200513
<a href="#">Artificial intelligence for detection of periapical lesions on intraoral radiographs: Comparison between convolutional neural networks and human observers</a> [free to members on Science Direct. If you do not have a login email <a href="mailto:library@bda.org">library@bda.org</a> to request one]	Oral Surg Oral Med Oral Pathol Oral Radiol 2021; 131 (5): 610-16
<a href="#">The validity of an artificial intelligence application for assessment of orthodontic treatment need from clinical images</a> [free to members on Science Direct. If you do not have a login email <a href="mailto:library@bda.org">library@bda.org</a> to request one]	Seminars Orthod 2021; 27(2): 164-171
<a href="#">Possibilities of artificial intelligence use in orthodontic diagnosis and treatment planning: Image recognition and three-dimensional VTO</a> [free to members on Science Direct. If you do not have a login email <a href="mailto:library@bda.org">library@bda.org</a> to request one]	Seminars Orthod 2021; 27(2): 121-129
<a href="#">Artificial Intelligence for radiographic image analysis</a> [free to members on Science Direct. If you do not have a login email <a href="mailto:library@bda.org">library@bda.org</a> 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 <a href="https://www.smartsurvey.co.uk/s/PJHMV/">https://www.smartsurvey.co.uk/s/PJHMV/</a> )	Dentomaxillofac Radiol 2021; 50(1): 20200171



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The diagnostic advantage of a CBCT-derived segmented STL rendition of the teeth and jaws using an AI algorithm (request using <a href="https://www.smartsurvey.co.uk/s/PJHMV/">https://www.smartsurvey.co.uk/s/PJHMV/</a> )	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 <a href="#">on this page</a> ]	Quintessence Int 2021; 52(7): 568-574
<a href="#">Automated feature detection in dental periapical radiographs by using deep learning</a> [free to members on Science Direct. If you do not have a login email <a href="mailto:library@bda.org">library@bda.org</a> to request one]	Oral Surg Oral Med Oral Path Oral Radiol 2021; 13(6): 711-720
<a href="#">Attitude of Brazilian dentists and dental students regarding the future role of artificial intelligence in oral radiology: a multicenter survey</a>	Dentomaxillofac Radiol 2021; 50(5): 20200461
<a href="#">Artificial intelligence for fast and accurate 3-dimensional tooth segmentation on cone-beam computed tomography</a> [free to members on Science Direct. If you do not have a login email <a href="mailto:library@bda.org">library@bda.org</a> to request one]	J Endod 2021; 47(5): 827-835
<a href="#">Cost effectiveness of artificial intelligence for proximal caries detection</a>	J Dent Res 2021; 100(4): 369-376
<a href="#">Detecting white spot lesions on dental photography using deep learning: A pilot study</a> [free to members on Science Direct. If you do not have a login email <a href="mailto:library@bda.org">library@bda.org</a> to request one]	J Dent 2021; (107): 103615
Artificial intelligence in oral and maxillofacial radiology: what is currently possible? (request using <a href="https://www.smartsurvey.co.uk/s/PJHMV/">https://www.smartsurvey.co.uk/s/PJHMV/</a> )	Dentomaxillofac Radiol 2021; 50(3): 20200375
<a href="#">Evaluation of automated cephalometric analysis based on the latest deep learning method</a>	Angle Orthod 2021; 91(3): 329-335