



DENTAL CARIES: AI & ROBOTICS

Building an interpretable machine learning framework to predict and analyse early childhood caries in children aged 2 to 6 years: a single-centre observational study	Int Dent J 2026; 76(2): 109419
Diagnostic accuracy and feasibility of artificial intelligence-driven smartphone imaging for dental caries detection: A systematic review. [Review]	Japan Dent Sci Rev 2026; 62: 14-25
Longitudinal assessment of an AI-based software for interproximal caries detection in bitewing radiographs	J Dent 2026; 165: 106252
Artificial intelligence tools for dental caries detection: a scoping review	Oral 2025; 5(4): 102
Accuracy of deep learning-based AI models for early caries lesion detection: the influence of annotation quality and reference choice	Clin Oral Investig-2025; 29: 598
Evaluation of artificial intelligence-based clinical decision support systems for caries and periodontal bone loss: An external validation study [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	J Am Dent Assoc 2025; Dec 24
Development and evaluation of a multi-model stacking approach for caries risk assessment in adults using supervised machine learning	BDJ (2025). doi.org 10.1038/s41415-025-9105-5
Uncovering dental caries heterogeneity in NHANES using machine learning	J Dent Res 2025; online 9 Dec 10.1177/00220345251398027
A clinically oriented and interpretable AI framework for classifying dentin caries severity on CBCT images [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	J Prosthet Dent 2025 Nov 1
Dual convolutional neural network framework for segmenting dental caries in panoramic radiographs	J Prosthet Dent 2025 Oct 13
The impact of training dental students to use an artificial intelligence-based platform for pulp exposure prediction prior to deep caries excavation: a proof-of-concept randomised controlled trial	Int Endod J 2025; Oct 10
Accuracy of deep learning-based AI models for early caries lesion detection: the influence of annotation quality and reference choice	Clin Oral Investig 2025; 29: 598
Machine learning algorithms enhance the accuracy of radiographic diagnosis of dental caries: a comparative study	DMFR 2025; 54(8): 632-641
Development and evaluation of an artificial intelligence (AI) model for detecting dental caries from 3D intraoral scans. [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	J Prosthet Dent 2025; 134(4): 1115.e1-1115.e8
Evaluation of deep learning for caries detection with fine-grained classification and postprocessing improvements	Int Dent J 2025; 75(5): 100898
AI-driven dental caries management strategies: from clinical practice to professional education and public self care	Int Dent J 2025; 75(4): 100827



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Ethical insights into AI-driven caries detection: a scoping review	BDJ Open 2025; 11: Art 78
Dental caries detection in children using intraoral scans and deep learning	J Dent 2025; 160: 105906
Impact of oral health chatbot with and without toothbrushing training on childhood caries	Int Dent J 2025; 75(2): 1348-1359
Evaluation of caries detection on bitewing radiographs: a comparative analysis of the improved deep learning model and dentist performance.	J Esthet Restor Dent 2025; 37(7): 1849-1961
ChatGPT for parents' education about early childhood caries: A friend or foe? [Accessible from the Wiley link on this page]	Int J Paediatr Dent 2025; 35(4): 717-724
Artificial intelligence in the detection and classification of dental caries [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	J Prosthet Dent 2025; 133(5): 1326-1332
Use of artificial intelligence to detect dental caries on intraoral photos [can be accessed on DOSS free by logging in on this page]	Quintessence Int 2025; 56(1): 82-91
Diagnosis of approximal caries in children with convolutional neural networks based detection algorithms on radiographs: A pilot study	Acta Odontol Scand 2025; 84: 18-25
Artificial intelligence based techniques for caries risk prediction and assessment: A scoping review.	J Oral Biol Craniofac Res 2025; 15(6): 1497-1507
Automated classification of dental caries in bitewing radiographs using machine learning and the ICCMS framework	Int J Dent 2025: 6644310
AI-driven approaches in the management of early childhood caries: A path toward global oral health [Review]	J Oral Biol Craniofac Res 2025; 15(5): 1134-1140
Artificial intelligence in early childhood caries detection and prediction: a systematic review and meta-analysis [can be accessed on DOSS free by logging in on this page]	Pediatr Dent 2024; 46(6): 385-394
Validation of artificial intelligence application for dental caries diagnosis on intraoral bitewing and periapical radiographs	J Dent 2024; 147: 105105
Detecting dental caries on oral photographs using artificial intelligence: A systematic review	Oral Dis 2024; 30(4): 1765-1783
Performance comparison of multifarious deep networks on caries detection with tooth X-ray images [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	J Dent 2024; 144: 104970
Detection of caries around restorations on bitewings using deep learning	J Dent 2024; 143: 104886
AI-based dental caries and tooth number detection in intraoral photos: Model development and performance evaluation [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	J Dent 2024; 141: 104821



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Impact of artificial intelligence on dentists' gaze during caries detection: A randomized controlled trial [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	J Dent 2024; 140: 104793
Deep learning for tooth identification and numbering on dental radiography: a systematic review and meta-analysis	Dento-Maxillofac Radiol 2024; 53(1): 5-21
Dental student application of artificial intelligence technology in detecting proximal caries lesions [Accessible from the Wiley link on this page]	J Dent Educ 2024; Jan 10 [Ahead of print]
Use of artificial intelligence software in dental education: A study on assisted proximal caries assessment in bitewing radiographs	Eur J Dent Educ 2023; Nov 14 [Ahead of print]
Dental caries detection and classification in CBCT images using deep learning	Int Dent J 2023; Nov 06 [Early view]
Artificial intelligence in the detection and classification of dental caries [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	J Prosthet Dent 2023; Aug 26 [Early view]
Detection of the pathological exposure of pulp using an artificial intelligence tool: a multicentric study over periapical radiographs	BMC Oral Health 2023; 23: Art 553
Prediction of pulp exposure before caries excavation using artificial intelligence: Deep learning-based image data versus standard dental radiographs	J Dent 2023; 138: 104732
Applications of artificial intelligence in the analysis of dental panoramic radiographs: an overview of systematic reviews	Dento-Maxillofac Radiol 2023; 52(7): 20230284
Early childhood predictors for dental caries: A machine-learning approach [can be accessed on DOSS free by logging in on this page]	J Dent Res 2023; 102(9): 999-1006
Influence of artificial intelligence-driven diagnostic tools on treatment decision-making in early childhood caries: A systematic review of accuracy and clinical outcomes	Dent J (Basel) 2023; 11(9): 214
Dental caries risk assessment in children 5 years old and under via machine learning	Dent J (Basel) 2022; 10(9): 164
Predicting treatment nonresponse in Hispanic/Latino children receiving silver diamine fluoride for caries arrest: A pilot study using machine learning	Front Oral Health 2021; 2: 695759
Using a machine learning algorithm to predict the likelihood of presence of dental caries among children aged 2 to 7	Dent J (Basel) 2021; 9(12): 141
Deep learning convolutional neural network algorithms for the early detection and diagnosis of dental caries on periapical radiographs: A systematic review	Imaging Dent Sci 2021; 51(3): 237-242
Feasibility of deep learning for dental caries classification in bitewing radiographs based on the ICCMS™ radiographic scoring system [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 2023; 135(2): 272-281



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Artificial intelligence for caries detection: Value of data and information	J Dent Res 2022; 101(11): 1350-1356
Towards trustworthy AI in dentistry	J Dent Res 2022; 101(11): 1263-1268
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): 262-270
Deep learning for caries detection: A systematic review [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	J Dent 2022; 122: 104115
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
Cost-effectiveness of AI for caries detection: randomized trial [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	J Dent 2022; 119: 104080
Caries segmentation on tooth X-ray images with a deep network [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	J Dent 2022; 119: 104076
Caries detection on intraoral images using artificial intelligence	J Dent Res 2022; 101(2): 158-165
Diagnosis of interproximal caries lesions with deep convolutional neural network in digital bitewing radiographs	Clin Oral Investig 2022; 26(1): 623-632
An automated machine learning classifier for early childhood caries	Pediatr Dent 2021; 43(3): 191-197
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	Br Dent J 2021; 231(8): 481-485
Artificial intelligence for caries detection: Randomized trial [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	J Dent 2021; 115: 103849
Cost-effectiveness of artificial intelligence for proximal caries detection	J Dent Res 2021; 100(4): 369-376
Detecting caries lesions of different radiographic extension on bitewings using deep learning [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	J Dent 2020; 100: 103425



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Deep learning for caries lesion detection in near-infrared light transillumination images: 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 2020; 92: 103260