



**ORTHODONTICS :
ARTIFICIAL INTELLIGENCE & ROBOTICS**

AI in orthodontic treatment planning: a systematic review comparing learning approaches	BMC Oral Health 2026; 26: article 1677
Artificial intelligence in treatment prediction for skeletal Class III malocclusion: A systematic review [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	Int J Oral Maxillofac Surg 2026; 55 (10): 1227-34
Human perception of AI-generated post-treatment orthodontic facial images: factors associated with misclassification	Clinical Oral Investigations 2026; 30(8): 345
The use of teleorthodontics and artificial intelligence for orthodontic triage and screening in a publicly funded healthcare system: A crossover randomized controlled trial (request using https://www.smartsurvey.co.uk/s/PJHMY/)	Eur J Orthodont 2026; 48 (4): cja050
Chatbot content analysis of patient information on orthodontic tooth extractions [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	J Stomatol Oral Maxillofac Surg 2026; 127(3): 102675
Artificial intelligence and its applications in orthodontics and dentofacial orthopedics [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): 471-486
Oral radiologists and orthodontists' attitude regarding the use of artificial intelligence for cephalometric analysis	J Orofac Orthop 2026; 11 Feb
Development of a deep learning classification model using a codeless platform for orthodontic extraction decision-making: Impact of image type on model performance [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	J Dent 2026; 166: 106296
Examining the ability of artificial intelligence-driven occlusal contact adjustment to improve virtual occlusal record trueness for implant restorations: An in vitro study [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	J Dent 2026; 165: 106212
Clinical advances in curve of Spee assessment: Deep learning for automatic tooth landmark detection in Invisalign [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	Am J Orthod Dentofac Orthop 2026; 169 (1): 110-125.e4
The role of artificial intelligence in providing accurate and reliable information on surgically-assisted rapid palatal expansion: A cross-sectional study [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	Am J Orthod Dentofac Orthop 2026; 169 (1): 31-41.e3
A prospective longitudinal observational study on the emotional impact of AI-simulated smiles on orthodontic patient motivation	Int J Dent 2026: 8425551
Comparative evaluation of ChatGPT and Gemini in detecting external apical root resorption on panoramic radiographs of orthodontic patients: Artificial intelligence performance in detecting root resorption	J Orofac Orthop 2025; Dec 15



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<u>Comparison between direct, virtual aided by clinician and artificial intelligence bonding techniques in orthodontics</u>	Orthod Craniofac Res 2025; 13 Oct
AI-generated orthodontic patient education videos: Content and quality assessment (request using https://www.smartsurvey.co.uk/s/PJHMV/)	J Orthod 2025; 14653125251391435
<u>Development and evaluation of an attention-gated U-net model for binary segmentation of teeth versus background in panoramic radiographs for orthodontic applications</u>	Eur J Orthod 2025; 48 (1): cjaf114
<u>Evidence-based potential of generative artificial intelligence large language models in orthodontics: a comparative study of ChatGPT, Google Bard, and Microsoft Bing</u>	Eur J Orthod 2025; 48 (1): cjae017
<u>Usefulness of an artificial intelligence-assisted indirect bonding method for optimizing orthodontic bracket positioning</u>	Angle Orthod 2025; 96 (1): 93-99
<u>Comparative analysis of artificial intelligence chatbots in orthodontic emergency scenarios: ChatGPT-3.5, ChatGPT-4.0, Copilot, and Gemini</u>	Angle Orthod 2025; 96 (1): 100-105
<u>AI-enhanced orthodontic treatment planning - a scoping review on evidence-based clinical application with commercial software overview</u>	J Dent 2025; 163: 106112
<u>Patient trust in artificial intelligence for orthodontic advice: A systematic review</u> [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	J Amer Dent Assoc 2025; 156(11): 931-944
<u>A novel machine-learning-based model for prediction of open gingival embrasures between mandibular central incisors after clear aligners treatment: a retrospective cohort study</u>	Prog Orthod 2025; 26: 39
<u>Can AI chatbots accurately provide information on orthodontic risks?</u>	Angle Orthod 2025; 95 (5): 483-489
<u>Validation of an AI-aided 3D method for enhanced volumetric quantification of external root resorption in orthodontics</u>	Angle Orthod 2025; 95 (5): 474-482
<u>What amount of data is required to develop artificial intelligence that can accurately predict soft tissue changes after orthognathic surgery?</u>	Angle Orthod 2025; 95 (5): 467-473
<u>Information from digital and human sources: A comparison of chatbot and clinician responses to orthodontic questions</u> [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	Am J Orthod Dentofac Orthop 2025; 168 (3): 348-357
<u>Fully automated evaluation of condylar remodelling after orthognathic surgery in skeletal class II patients using deep learning and landmarks</u> [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	J Dent 2025; 159: 105819
<u>Unveiling the role of artificial intelligence applied to clear aligner therapy: A scoping review</u>	J Dent 2025; 154: 105564



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Assessment of the quality of different commercial providers using artificial intelligence for automated cephalometric analysis compared to human orthodontic experts	J Orofac Orthop 2025; 86(3): 145-160
Applications of artificial intelligence in orthodontics: a bibliometric and visual analysis	Clin Oral Investig 2025; 29(1): 65
Automatic 3-dimensional quantification of orthodontically induced root resorption in cone-beam computed tomography images based on deep learning [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	Am J Orthod Dentofac Orthop 2025; 167 (2): 188-201
Artificial intelligence for orthodontic diagnosis and treatment planning: A scoping review	J Dent 2025; 152: 105442
Training, use, and modifications related to artificial intelligence in postgraduate orthodontic programs in North America [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	Am J Orthod Dentofac Orthop 2025; 167(1): 89-94.e2
Applications of artificial intelligence in diagnosis and treatment planning of orthodontics: a narrative review [Review]	Saudi Dent J 2025; 37(7-9): 70
Traditional and artificial intelligent methods in predicting maxillofacial soft tissue morphology and orthognathic surgery: a narrative review	Int J Dent 2025: 6268492
Effectiveness of automated segmentation of maxillofacial structures in cone-beam computed tomography images using artificial intelligence: A systematic review	Int Orthodont 2025; 24 : 101081
Accuracy of artificial intelligence in orthodontic extraction treatment planning: a systematic review and meta analysis	BMC Oral Health 2025; 25(1): 1576
Artificial intelligence in orthodontics: concerns, conjectures, and ethical dilemmas	Int Dent J 2025; 75(1): 20-22
Designing an artificial intelligence system for dental occlusion classification using intraoral photographs: A comparative analysis between artificial intelligence-based and clinical diagnoses [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	Am J Orthod Dentofac Orthoped 2024; 166(2): 125-137
Automatic cephalometric landmark identification with artificial intelligence: An umbrella review of systematic reviews [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	J Dentistry 2024; 146: 105056
Examination of the reliability and readability of Chatbot Generative Pretrained Transformer's (ChatGPT) responses to questions about orthodontics and the evolution of these responses in an updated version [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	Am J Orthod Dentofac Orthoped 2024; 165 (5): 546-55



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Clinical evaluation of Artificial Intelligence Driven Remote Monitoring technology for assessment of patient oral hygiene during orthodontic treatment [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	Am J Orthod Dentofac Orthoped 2024; 165 (5): 586-92
Artificial intelligence for treatment planning and soft tissue outcome prediction of orthognathic treatment: A systematic review [can be accessed on DOSS free by logging in on this page]	J Orthodont 2024; 51 (2): 107-19
Artificial intelligence in orthodontics: critical review	J Dent Res 2024; online April 29 doi.org/10.1177/00220345241235606
Cephalometric analysis performance discrepancy between orthodontists and an artificial intelligence model using lateral cephalometric radiographs [can be accessed on DOSS free by logging in on this page]	J Esthet Restor Dent 2024; 36(4): 555-565
An artificial neural network approach for rational decision-making in borderline orthodontic cases: A preliminary analytical observational in silico study [can be accessed on DOSS free by logging in on this page]	J Orthod 2023; 50(4): 439-448
Blockchain technology and federated machine learning for collaborative initiatives in orthodontics and craniofacial health	Orthod Craniofac Res 2023; 26(Suppl.1): 118-123
Connecting the dots towards precision orthodontics	Orthod Craniofac Res 2023; 26(Suppl.1): 8-19
Novel machine learning algorithms for prediction of treatment decisions in adult patients with Class III malocclusion [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	J Oral Maxillofac Surg 2023; 81(11): 1391-1402
Artificial intelligence applications in orthodontics	J Calif Dent Assoc 2023; 51(1): 2195585
Artificial intelligence in orthognathic surgery – a narrative review of surgical digital tools and 3d orthognathic surgical planning	J Calif Dent Assoc 2023; 51(1): 2202444
What is the current state of artificial intelligence applications in dentistry and orthodontics? [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	J Stomatol Oral Maxillofac Surg 2023; 124(5): 101524
In-vivo evaluation of Artificial Intelligence Driven Remote Monitoring technology for tracking tooth movement and reconstruction of 3-dimensional digital models during orthodontic treatment [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	Am J Orthod Dentofac Orthop 2023; 164(5): 690-699
The knowledge, experience, and attitude on artificial intelligence-assisted cephalometric analysis: Survey of orthodontists and orthodontic students [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	Am J Orthod Dentofac Orthoped 2023; 164 (4): e97-e105



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Assessment of artificial intelligence–based remote monitoring of clear aligner therapy: A prospective study [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	Am J Orthod Dentofac Orthop 2023; 164 (2): 194-200
Is automatic cephalometric software using artificial intelligence better than orthodontist experts in landmark identification?	BMC Oral Health 2023; 23: Art 467
AI driven orthodontic devices: Independent tooth movers (ITM) [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	Seminars Orthod 2023; 29 (1): 85-89
Virtual-First: A virtual workflow for new patient consultation, engagement and education in orthodontics [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	Seminars Orthod 2023; 29 (1): 109-115
Evaluating the accuracy of automated orthodontic digital setup models	Seminars Orthod 2023; 29 (1): 60-67
Artificial intelligence system for automated landmark localization and analysis of cephalometry (request using https://www.smartsurvey.co.uk/s/PJHMV/)	Dentomaxillofacial Radiol 2023; 52 (1): 20220081
The validation of orthodontic artificial intelligence systems that perform orthodontic diagnoses and treatment planning	Eur J Orthodont 2022; 44 (4): 436-44
Machine learning in orthodontics: Automated facial analysis of vertical dimension for increased precision and efficiency [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	Am J Orthod Dentofac Orthop 2022; 161(3): 445-450
Estimating the size of unerupted teeth: Moyers vs deep learning [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	Am J Orthod Dentofac Orthop 2022; 161(3): 451-456
A machine learning approach to determine the prognosis of patients with class III malocclusion [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	Am J Orthod Dentofac Orthop 2022; 161(1): e1-e11
Evaluation of fully automated cephalometric measurements obtained from web-based artificial intelligence driven platform	BMC Oral Health 2022; 22: Art 132
Cephalometric analysis in orthodontics using artificial intelligence – a comprehensive review	BioMed Res Int 2022: 1880113
Automatic localization of cephalometric landmarks based on convolutional neural network [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	Am J Orthod Dentofac Orthop 2022; 161(3): e250-e259
Machine learning and orthodontics, current trends and the future opportunities: A scoping review [free to members on Science Direct. If you do not have a login email library@bda.org to request one]	Am J Orthod Dentofac Orthop 2021; 160(2): 170-192.e4
Machine learning in orthodontics: Challenges and perspectives	Adv Clin Exp Med 2021; 30(10): 1065-1074



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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
Robotic applications in orthodontics: Changing the face of contemporary clinical care	BioMed Res Int 2021: 9954615
Artificial intelligence in orthodontics: Where are we now? A scoping review	Orthod Craniofac Res 2021; 24(S2): 6-15
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
An artificial intelligence based referral application to optimize orthodontic referrals in a public oral healthcare system [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): 157-163
Artificial Intelligence Driven Remote Monitoring of orthodontic patients: Clinical applicability and rationale [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): 138-156
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
Applications of artificial intelligence and machine learning in orthodontics: a scoping review	Prog Orthod 2021; (22): 18
Deep learning and computer vision: Two promising pillars, powering the future in orthodontics [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): 62-68
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
Artificial Intelligence (AI) driven orthodontic care: A quest toward utopia? [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): 57-61
Evaluation of automated cephalometric analysis based on the latest deep learning method	Angle Orthod 2021; 91(3): 329-335
A knowledge-based algorithm for automatic monitoring of orthodontic treatment: The Dental Monitoring System. Two cases	Sensors (Basel) 2021; 21(5): 1856
A deep learning-based approach for the detection of early signs of gingivitis in orthodontic patients using faster region-based convolutional neural networks	Int J Environ Res Public Health 2020; 17(22): 8447



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[Machine learning in orthodontics: Introducing a 3D auto-segmentation and auto-landmark finder of CBCT images to assess maxillary constriction in unilateral impacted canine patients](#)

Angle Orthod 2020; 90(1): 77-84