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The Future of Orthodontics: AI-Powered Diagnosis and Treatment

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Abstract

This abstract explores the transformative impact of artificial intelligence (AI) on the field of orthodontics. We discuss how AI-powered tools are enhancing the precision and efficiency of orthodontic diagnosis, treatment planning, and outcome prediction. The abstract highlights key applications, including automated cephalometric analysis, 3D image segmentation for virtual setups, and the use of machine learning models to predict treatment duration and stability. Furthermore, we examine the integration of AI in clear aligner therapy, where algorithms optimize tooth movement sequences and manufacturing processes. The abstract concludes by considering the future potential of AI in creating personalized and patient-specific treatment protocols, ultimately leading to improved clinical outcomes and a more streamlined orthodontic practice.

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Introduction

The field of orthodontics, traditionally rooted in the meticulous art of manual diagnosis and mechanical intervention, is on the cusp of a profound transformation driven by the rapid evolution of artificial intelligence (AI). For decades, orthodontic practice has relied on the trained eye of the clinician to interpret two-dimensional cephalometric radiographs, physically segment dental models, and manually plan tooth movements. This time-intensive and subjective process, while effective, has inherent limitations in precision, efficiency, and the potential for human error. The advent of AI and its subfields, such as machine learning and deep learning, presents a paradigm shift, promising to augment human expertise, streamline workflows, and ultimately elevate the standard of patient care.

The integration of AI into orthodontics is not merely an incremental improvement; it represents a fundamental rethinking of how we approach clinical problems. AI algorithms are now capable of analyzing vast datasets including radiographic images, 3D intraoral scans, and patient records—at a speed and scale impossible for a human clinician. This analytical power unlocks new possibilities in diagnosis and treatment. For example, AI can perform automated cephalometric analysis in seconds, accurately identifying and tracing anatomical landmarks that are critical for assessing skeletal and dental relationships [1-30]. This not only saves significant clinical time but also reduces inter- and intra-observer variability, leading to a more consistent and objective diagnosis. The application of AI extends far beyond static diagnosis. In treatment planning, AI is proving to be a game-changer, particularly in the realm of clear aligner therapy. Traditional clear aligner protocols often rely on a one-size-fits-all approach to tooth movement. However, AI algorithms can create highly personalized and biomechanically optimized treatment plans. By simulating thousands of potential tooth movements and predicting their outcomes, AI can identify the most efficient and stable path to a desired result. This predictive capability allows clinicians to anticipate challenges, such as root resorption or unwanted side effects, before they occur, enabling proactive adjustments to the treatment plan. This level of predictive analytics transforms treatment planning from an educated guess into a data-driven science [31-52].

Furthermore, AI is poised to enhance the entire patient journey, from initial consultation to retention. AI-powered software can assist in patient communication by generating visual simulations of treatment outcomes, helping patients better understand and commit to their care. During treatment, AI can monitor tooth movement from intraoral scans and patient-submitted photos, providing real-time feedback to both the clinician and the patient. This continuous monitoring can detect deviations from the treatment plan early, allowing for timely intervention and preventing delays. Post-treatment, AI can help predict the risk of relapse, guiding clinicians in designing more effective and personalized retention protocols.

This paper will delve into the various applications of AI in modern orthodontics, exploring how these technologies are not only enhancing existing practices but also creating entirely new possibilities. We will examine the core principles of AI and machine learning as they apply to orthodontics, focusing on key areas such as automated diagnosis, advanced treatment planning, and outcome prediction. By exploring these innovations, we aim to provide a comprehensive overview of how AI is shaping the future of the field, offering a glimpse into an era of more precise, efficient, and personalized orthodontic care. The synergy between human expertise and AI will be the cornerstone of this new era, enabling clinicians to move beyond manual tasks and focus on the strategic and compassionate aspects of patient care [53-63].

Challenges and Considerations

Challenges to the widespread adoption of AI in orthodontics are significant and span several key areas, including data, ethics, and clinical integration. The successful application of AI relies heavily on large, diverse, and high-quality datasets for training algorithms. However, a major challenge is the availability and quality of data. Many existing orthodontic records, such as radiographs and 3D scans, are often housed in fragmented, proprietary systems, making it difficult to create the massive, centralized datasets needed for robust AI development. Data privacy concerns, governed by regulations like HIPAA, further complicate the sharing and aggregation of patient information. Additionally, the data must be meticulously labeled and annotated by experts, a process that is both time-consuming and expensive [64-78].

Another critical challenge is the validation and clinical integration of AI tools. For AI to be trusted by clinicians and adopted into everyday practice, its accuracy and reliability must be rigorously proven through extensive clinical trials. Currently, there is a lack of standardized protocols for validating AI's performance in orthodontic applications. Orthodontists also need to be properly trained on how to use and interpret AI outputs. A reliance on AI without a foundational understanding of the underlying principles could lead to a loss of clinical skills, or "de-skilling," in the profession.

Ethical and legal considerations also pose significant hurdles. The use of AI in diagnosis and treatment planning raises questions about liability. If an AI system makes an error that leads to a negative patient outcome,

who is responsible the developer of the algorithm, the orthodontist who used it, or the patient for consenting to an AI-assisted treatment? There are also concerns about algorithmic bias. If the training data is not diverse, the AI model may perform poorly on certain patient populations, potentially leading to disparities in care. Ensuring fairness, transparency, and accountability in AI decision-making is essential for its ethical deployment in orthodontics[79-90].

Future Works

The integration of artificial intelligence (AI) into orthodontics promises to revolutionize the field, creating new paradigms in patient care, diagnosis, and treatment planning. As AI technologies continue to advance, several key developments are anticipated to shape the future landscape of orthodontics:

Personalized and Predictive Treatment Planning

AI will enable highly personalized treatment strategies tailored to the unique anatomical and biological characteristics of each patient. By analyzing vast datasets, including genetic information, lifestyle factors, and treatment outcomes, AI systems will predict individual responses to various orthodontic interventions with unprecedented accuracy. This will optimize treatment efficacy while minimizing duration and adverse effects.

Real-Time Monitoring and Adaptive Treatments

The future will see widespread adoption of smart orthodontic devices embedded with sensors that continuously collect real-time data on tooth movement and patient compliance. AI algorithms will analyze this data to dynamically adjust treatment plans, allowing for adaptive interventions that respond to changes in tooth position, bone density, and patient behavior—ultimately improving treatment outcomes and patient experience.

Enhanced Imaging and Diagnostic Tools

AI-powered imaging tools will achieve greater precision in detecting subtle anatomical variations and pathologies. Advanced machine learning models will integrate multimodal imaging data, such as 3D cone-beam computed tomography (CBCT), intraoral scans, and facial photographs, to deliver comprehensive diagnostics and early detection of potential complications, facilitating proactive treatment measures.

Automation and Workflow Efficiency

Routine and labor-intensive tasks-such as cephalometric analysis, bracket placement, and appliance design—will be increasingly automated through AI-driven systems. This will free orthodontists to focus more on complex decision-making and patient communication while also reducing errors and improving workflow efficiency within clinics.

Integration with Teleorthodontics and Virtual Care

The rise of teleorthodontics, supported by AI diagnostics and remote monitoring, will make orthodontic care more accessible, especially in underserved or remote areas. Virtual consultations powered by AI can provide preliminary assessments and treatment recommendations, reducing barriers to care and improving patient engagement.

Ethical and Regulatory Considerations

As AI becomes integral to orthodontics, ethical frameworks and regulatory guidelines will evolve to address issues related to data privacy, algorithm transparency, and accountability. Ensuring equitable access to AI technologies and safeguarding against biases in training datasets will be critical to fostering trust and maximizing the benefits of AI-enhanced orthodontic care.

Conclusion

Addressing concerns related to data availability, privacy, and algorithmic bias is crucial for ensuring that the benefits of AI are equitably distributed across all patient populations. Furthermore, the successful adoption of these technologies will require a new emphasis on clinician education and training, ensuring that AI serves as a powerful augment to human expertise, not a replacement for it. The future of orthodontics lies in this symbiotic relationship between the clinician and the machine, where the orthodontist's strategic judgment and empathy are amplified by the analytical power of AI.

In conclusion, AI is not just a tool; it is a catalyst for a more intelligent, predictable, and patient-centered practice. By embracing these advancements, orthodontics will continue to evolve, offering better clinical outcomes, more comfortable patient experiences, and a streamlined, data-driven approach to creating beautiful, healthy smiles. The digital future of orthodontics is not coming; it is already here, and its potential to

revolutionize the field is boundless.

References

1. Panahi O (2025) Smart Implants: Integrating Sensors and Data Analytics for Enhanced Patient Care. Dental 7: 22.
2. Panahi DU, HOC A (2025) Networks: Applications. Challenges, Future Directions, Scholars' Press, ISBN 978-973.
3. Omid Panahi (2024) Teledentistry: Expanding Access to Oral Healthcare. Journal of Dental Science Research Reviews & Reports. SRC/JDSR-203.
4. Omid P, Reza S (2024) How Artificial Intelligence and Biotechnology are Transforming Dentistry. Adv Biotech & Micro 18: 555981.
5. Omid Panahi (2024) "AI: A New Frontier in Oral and Maxillofacial Surgery". Acta Scientific Dental Sciences 8.6: 40-42.
6. Omid Panahi, Reza Safaralizadeh (2024) AI and Dental Tissue Engineering: A Potential Powerhouse for Regeneration. Mod Res Dent 8.
7. Omid Panahi (2024) Artificial Intelligence: A New Frontier in Periodontology. Mod Res Dent 8.
8. Omid P (2024) Empowering Dental Public Health: Leveraging Artificial Intelligence for Improved Oral Healthcare Access and Outcomes. JOJ Pub Health 9: 555754.
9. Omid P (2024) Artificial Intelligence in Oral Implantology, Its Applications, Impact and Challenges. Adv Dent & Oral Health 17: 555966.
10. Omid Panahi (2024) "AI Ushering in a New Era of Digital Dental-Medicine". Acta Scientific Medical Sciences 8.8: 131-134.
11. Panahi O, Zeinaldin M (2024) AI-Assisted Detection of Oral Cancer: A Comparative Analysis. Austin J Pathol Lab Med 10: 1037.
12. Panahi O (2024) AI in Surgical Robotics: Case Studies. Austin J Clin Case Rep 11: 1342.
13. Panahi O, Zeinaldin M (2024) Digital Dentistry: Revolutionizing Dental Care. J Dent App 10: 1121.
14. Panahi O (2025) Wearable Sensors and Personalized Sustainability: Monitoring Health and Environmental Exposures in Real-Time. European Journal of Innovative Studies and Sustainability 1: 1-19.
15. Omid Panahi, Sevil Farrokh (2024) USAG-1-Based Therapies: A Paradigm Shift in Dental Medicine. Int J Nurs Health Care 1: 1-4.
16. Omid Panahi, Sevil Farrokh (2024) Can AI Heal Us? The Promise of AI-Driven Tissue Engineering. Int J Nurs Health Care 1: 1-4.
17. O Panahi (2025) Algorithmic Medicine, Journal of Medical Discoveries 2.
18. O Panahi (2025) Deep Learning in Diagnostics, Journal of Medical Discoveries 2.
19. Omid P, Soren F (2025) The Digital Double: Data Privacy, Security, and Consent in AI Implants West J Dent Sci 2: 108.
20. Panahi O (2023) Ketenci Çay F. NanoTechnology. Regenerative Medicine and Tissue Bio-Engineering. Acta Sci Dent Sci 7: 118-122.
21. Panahi O (2025) Smart Robotics for Personalized Dental Implant Solutions. Dental 7.
22. Panahi P, Bayılmış C, Çavuşoğlu U, Kaçar S (2021) Performance evaluation of lightweight encryption algorithms for IoT-based applications. Arabian Journal for Science and Engineering 46: 4015-4037.
23. Panahi U, Bayılmış C (2023) Enabling secure data transmission for wireless sensor networks based IoT applications. Ain Shams Engineering Journal 14: 101866.
24. Omid Panahi, and Uras Panahi (2025) AI-Powered IoT: Transforming Diagnostics and Treatment Planning in Oral Implantology. J AdvArtifIntell Mach Learn 1: 1-4.
25. Panahi P, Dehghan M (2008) Multipath Video Transmission Over Ad Hoc Networks Using Layer Coding And Video Caches. In ICEE2008, 16th Iranian Conference On Electrical Engineering 50-55.
26. Bakikoyuncu, pejmanpanahi Kalman (2014) Filtering of Link Quality Indicator Values for Position Detection by Using WSNS, Int'l Journal of Computing, Communications & Instrumentation Engg. (IJCCIE) 1.
27. Pejman Panahi, Cneyt Baylm (2017) "Car indoor gas detection system", International Conference on Computer Science and Engineering (UBMK.
28. Panahi P (2009) Providing consistent global sharing service over VANET using new plan. In 2009 14th International CSI Computer Conference. IEE 213-218.
29. Panahi P (2008) Multipath local error management technique over ad hoc networks. In 2008 International Conference on Automated Solutions for Cross Media Content and Multi-Channel

Distribution 187-194.
30. Dr Uras Panahi, Redes AD HOC: Aplicações, Desafios, Direcções Futuras, Edições Nosso Conhecimento, ISBN: 978-620-8-72962-2.
31. Dr Uras Panahi, Sieci AD HOC: Zastosowania, wyzwania, przyszłe kierunki, Wydawnictwo Nasza Wiedza, ISBN: 978-620-8-72967-7.
32. Dr Uras Panahi, Reti AD HOC: Applicazioni, sfide e direzioni future, Edizioni Sapienza, ISBN: 978-620-8-72965-3.
33. Dr Uras Panahi, Redes AD HOC: Aplicaciones, retos y orientaciones futuras, Ediciones Nuestro Conocimiento, ISBN: 978-620-8-72966-0.
34. Dr Uras Panahi, Réseaux AD HOC : Applications, défis et orientations futures, Editions Notre Savoir, ISBN: 978-620-8-72964-6.
35. Dr Uras Panahi, AD HOC-Netze: Anwendungen, Herausforderungen, zukünftige Wege, Verlag Unser Wissen, ISBN: 978-620-8-72963-9.
36. Dr Omid Panahi, Dr Faezeh Esmaili, Dr Sasan Kargarnezhad (2024) Künstliche Intelligenz in der Zahnmedizin, Unser wissen Publishing. ISBN: 978-620-3-6722696.
37. Dr Omid Panahi, Dr Faezeh Esmaili, Dr Sasan Kargarnezhad (2024) Artificial Intelligence in Dentistry, Scholars Press Publishing. ISBN: 978-620-6772118.
38. Dr Omid Panahi, Dr Faezeh Esmaili, Dr Sasan Kargarnezhad (2024) Inteligencia artificial en odontología, NUESTRO CONOC, MENTO Publishing. ISBN: 978-620-6622764.
39. Dr Omid Panahi, Dr Faezeh Esmaili, Dr Sasan Kargarnezhad (2024) L'intelligence artificielle dans l'odontologie, EDITION NOTRE SAVOIR Publishing Publishing. ISBN: 978-620-6622771.
40. Dr Omid Panahi, Dr Faezeh Esmaili, Dr Sasan Kargarnezhad (2024) Intelligenza artificiale in odontoiatria, SAPIENZA Publishing. ISBN: 978-620-6622788.
41. Dr Omid Panahi, Dr Faezeh Esmaili, Dr Sasan Kargarnezhad (2024) Inteligência Artificial em Medicina Dentária, NOSSO CONHECIMENTO Publishing. ISBN: 978-620-6622795.
42. Dr Omid Panahi, Dr Sevil Farrokh Eslamlou, Peridontium: Estrutura, função e gestão clínica, lSBN: 978-620-8-74561-5.
43. Dr Omid Panahi, Dr Shabnam Dadkhah, AI in der modernen Zahnmedizin, ISBN:978-620-8-74877-7.
44. Dr Omid Panahi, Dr Shabnam Dadkhah, La IA en la odontología moderna, ISBN:978-620-8-74881-4.
45. Dr Omid Panahi, Dr Shabnam Dadkhah, L'IA dans la dentisterie moderne, ISBN:978-620-8-74882-1.
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49. Dr Omid Panahi, Dr Sevil Farrokh Eslamlou, Dr Masoumeh Jabbarzadeh, Digitale Zahnmedizin und künstliche Intelligenz, ISBN: 978-620-8-73910-2.
50. Dr Omid Panahi, Dr Sevil Farrokh Eslamlou, Dr Masoumeh Jabbarzadeh, Odontología digital e inteligencia artificial, ISBN: 978-620-8-73911-9.
51. Dr Omid Panahi, Dr Sevil Farrokh Eslamlou, Dr Masoumeh Jabbarzadeh, Dentisterie numérique et intelligence artificielle, ISBN: 978-620-8-73912-6.
52. Dr Omid Panahi, Dr Sevil Farrokh Eslamlou, Dr Masoumeh Jabbarzadeh, Odontoiatria digitale e intelligenza artificiale, ISBN: 978-620-8-73913-3.
53. Dr Omid Panahi, Dr Sevil Farrokh Eslamlou, Dr Masoumeh Jabbarzadeh, Stomatologia cyfrowa i sztuczna inteligencja, ISBN: 978-620-8-73914-0.
54. Dr Omid Panahi, Dr Sevil Farrokh Eslamlou, Dr Masoumeh Jabbarzadeh, Medicina dentária digital e inteligência artificial, ISBN: 978-620-8-73915-7.
55. Dr Omid Panahi, Stammzellen aus dem Zahnmark, ISBN: 978-620-4-05355-4.
56. Dr Omid Panahi, Células madre de la pulpa dental, ISBN: 978-620-4-05356-1
57. Dr Omid Panahi, Стволовые клетки пульпы зуба, ISBN: 978-620-4-05357-8.
58. Dr Omid Panahi, Cellules souches de la pulpe dentaire, ISBN: 978-620-4-05358-5.
59. Dr Omid Panahi, Cellule staminali della polpa dentaria, ISBN: 978-620-4-05359-2.
60. Dr Omid Panahi, Dr Sevil Farrokh Eslamlou, Peridontium: Struktur, Funktion und klinisches Management, ISBN:978-620-8-74556-1.
61. Dr Omid Panahi, Dr Sevil Farrokh Eslamlou, Peridoncio: Estructura, función y manejo clínico, ISBN:978-620-8-74557-8.

62. Dr Omid Panahi, Dr Sevil Farrokh Eslamlou, Le péridontium : Structure, fonction et gestion clinique, ISBN:978-620-8-74558-5.
63. Dr Omid Panahi, Dr Sevil Farrokh Eslamlou, Peridonio: Struttura, funzione e gestione clinica, ISBN:978-620-8-74559-2.
64. Dr Omid Panahi, Dr Sevil Farrokh Eslamlou, Peridontium: Struktura, funkcja i postępowanie kliniczne, ISBN:978-620-8-74560-8.
65. Maryam Gholizadeh, Dr Omid Panahi (2021) Sistema de Investigação em Sistemas de Informação de Gestão de Saúde, NOSSO CONHECIMENTO Publishing. ISBN: 978-620-3-67052-3.
66. Maryam Gholizadeh, Dr Omid Panahi (2021) Research system in health management information systems, SCIENCIA SCRIPTS Publishing. ISBN: 978-620-3-67053-0.
67. Dr Leila Ostovar, Dr Kamal Khadem Vatan, Dr Omid Panahi (2020) Clinical Outcome of Thrombolytic Therapy, Scholars Press Academic Publishing. ISBN: 978-613-8- 92417-3.
68. Maryam Gholizadeh, Dr Omid Panahi (2021) Investigating System in Health Management Information Systems, Scholars Press Academic Publishing. ISBN: 978- 613-8-95240-4.
69. Maryam Gholizadeh, Dr Omid Panahi (2021) Untersuchungssystem im Gesund heits management Informations systeme, Unser wissen Publishing. ISBN: 978-620-3-67046-2.
70. Maryam Gholizadeh, Dr Omid Panahi (2021) Sistema de investigación en sistemas de información de gestión sanitaria, NUESTRO CONOC, MENTO Publishing. ISBN: 978-620-3-67047-9.
71. Maryam Gholizadeh, Dr Omid Panahi (2021) Système d'investigation dans les systèmes d'information de gestion de la santé, EDITION NOTRE SAVOIR Publishing. ISBN: 978-620-3-67048-6.
72. Maryam Gholizadeh, Dr Omid Panahi (2021) Indagare il sistema nei sistemi informativi di gestione della salute, SAPIENZA Publishing. ISBN: 978-620-3-67049-3.
73. Maryam Gholizadeh, Dr Omid Panahi (2021) Systeemonderzoek in Informatiesystemen voor Gezondheidsbeheer, ONZE KENNIS Publishing. ISBN: 978-620-3-67050-9.
74. Maryam Gholizadeh, Dr Omid Panahi (2021) System badawczy w systemach informacyjnych zarządzania zdrowiem, NAZSA WIEDZA Publishing. ISBN: 978-620-3-67051-6.
75. Dr Omid Panahi, Dr Faezeh Esmaili, Dr Sasan Kargarnezhad (2024) Искусственный интеллект в стоматологии, SCIENCIA SCRIPTS Publishing. ISBN: 978-620-6622801.
76. Dr Shima Esmaielzadeh, Dr Omid Panahi, Dr Fatmanur Ketenci Çay (2020) Application of Clay's in Drug Delivery in Dental Medicine, Scholars Press Academic Publishing. ISBN:978-613-8-94058-6.
77. Panahi O (2025) The evolving partnership: surgeons and robots in the maxillofacial operating room of the future. J Dent Sci Oral Care 1: 1-7.
78. O. Panahi (2025) The Future of Medicine: Converging Technologies and Human Health. Journal of Bio-Med and Clinical Research. RPC Publishers 2.
79. Panahi (2025) Nanomedicine: Tiny Technologies, Big Impact on Health. Journal of Bio-Med and Clinical Research. RPC Publishers 2
80. O Panahi (2025) The Age of Longevity: Medical Advances and The Extension of Human Life. Journal of Bio-Med and Clinical Research. RPC Publishers 2.
81. Panahi O (2025) Predictive Health in Communities: Leveraging AI for Early Intervention and Prevention. Ann Community Med Prim Health Care 3: 1027.
82. Panahi O (2025) Digital Health Equity: Leveraging IT and AI for Community Well-being. Ann Community Med Prim Health Care 3: 1028.
83. Koyuncu B, Gokce A, Panahi P (2015) The use of the Unity game engine in the reconstruction of an archeological site. In 19th Symposium on Mediterranean Archaeology (SOMA 2015) 95-103.
84. Koyuncu B, Meral E, Panahi P (2015) Real time geolocation tracking by using GPS+GPRS and Arduino based SIM908. IFRSA International Journal of Electronics Circuits and Systems (IIJECS) 4: 148-150.
85. Koyuncu B, Uğur B, Panahi P (2013) Indoor location determination by using RFIDs. International Journal of Mobile and Adhoc Network (IJMAN) 3: 7-11.
86. Omid Panahi (2025) The Impact of Artificial Intelligence in Medical Diagnosis. Int J Nurs Health Care 2: 1-4.
87. Omid Panahi (2025) The AI Revolution in Healthcare. Int J Nurs Health Care 2: 1-4.

88. Omid Panahi (2025) Beyond the Bedside: How Future Tech is Revolutionizing Medical Care. Int J Nurs Health Care 2: 1-4.
89. Omid Panahi (2025) The Algorithmic Clinician: AI's Transformative Role in Modern Medicine. Int J Nurs Health Care 2: 1-4.
90. Omid Panahi, Zahra Shahbazpour (2025) Healthcare Reimagined: AI and the Future of Clinical Practice. Am J Biomed Sci & Res 27.