Journal ofInnovations in Medical Research and Clinical case Reports (JIMRCR)

OLITES PUBLISHERS
A Global Approach For Research

Open Access

Review Article

The Frontier of Healing: Artificial Intelligence in Future Medical Technologies

***[1]Nickolas Panahi, [2]Veronika karpina and [3]Soren Falkner**

[1]King's College London School of Biomedical Engineering & Imaging Science Becket House, *1 Lambeth Palace Road, London SE1 7EU*, United Kingdom

[2,3]Vienna University of Technology, Faculty of Computer Engineering, Vienna, Austria

***Corresponding Author:** Nickolas Panahi, King's College London School of Biomedical Engineering & Imaging Science Becket House, 1 Lambeth Palace Road, London SE1 7EU, United Kingdom

Citation: Nickolas Panahi, The AI-Augmented Era: A Paradigm Shift in Modern Medical Life V1(1), 2025

Received date: June 30, 2025**: Accepted date**: July 07, 2025**: Published date:** July 12,2025

Keywords: Artificial Intelligence, Healthcare, Case Reports, Clinical Evaluation, Evidence-Based Medicine, Methodology, Critical Appraisal.

Abstract

As we approach 2026, Artificial Intelligence (AI) stands poised to undergo a qualitative leap from a supporting technology to the central nervous system of future healthcare, heralding a new era of medical life. This 10-page paper provides a comprehensive analysis of the most transformative AI-driven technological trends shaping the next decade of medicine. It argues that the convergence of advanced machine learning with novel hardware and data ecosystems is transitioning AI from administrative automation to core clinical functions. These functions include predictive and precision diagnostics, autonomous therapeutic agents, intelligent robotics, and the creation of personalized digital patient models. This paper details these applications, supported by real-world innovations

showcased at premier venues like CES 2026 and industry forecasts. Crucially, it examines the "Health Tech 2.0" paradigm, where AI is delivering sustainable economic value and superior clinical outcomes, moving beyond the hype of previous cycles. However, this future is contingent upon successfully navigating formidable challenges: a complex and fragmented regulatory landscape, the risks of pervasive "shadow AI," the imperative for robust governance, and the fundamental need to design these technologies as partners that augment, rather than replace, human clinical judgment. The ultimate measure of success will be the creation of a resilient, equitable, and profoundly human-centric healthcare system powered by intelligent machines.

Introduction

The narrative surrounding artificial intelligence in healthcare is rapidly evolving. Once viewed as a constellation of promising but siloed tools, AI is now recognized as an integrative force fundamentally restructuring the pillars of medical research, clinical practice, and patient engagement. The year 2026 represents a pivotal inflection point, not merely for the sophistication of algorithms, but for their maturation into reliable, scalable, and economically validated components of global health infrastructure. This transition is marked by a critical shift from the "Health Tech 1.0" era characterized by pandemic-driven adoption and often-unprofitable growth to a "Health Tech 2.0" generation (1-28). This new cohort of companies demonstrates strong unit economics, clear paths to profitability, and, most importantly, AI-powered platforms that drive both revenue growth and margin expansion while measurably improving clinical outcomes (29-48).

This paper maps the frontier of this integration. We move beyond speculative futures to analyze technologies that are either currently in deployment or have demonstrably reached advanced stages of development and regulatory review (49-59). Our analysis is structured across three interconnected domains where AI's impact is most profound: the

enhancement of human diagnosis and decision-making, the rise of autonomous and robotic intervention, and the personalization of care through continuous data synthesis. We examine tangible examples, from AI

colonoscopy assistants that reduce missed polyps by 50% to handheld blood analyzers detecting brain injury at the picogram

level (60-79) Concurrently, we critically assess the non-technical vectors that will determine the speed and equity of this transformation: the evolving regulatory patchwork
the economic models underpinning adoption, and the essential governance required to harness AI's power safely. The central thesis is that AI in future medical technologies represents less a discrete invention and more a new operational paradigm one that demands co-evolution of technology, policy, and clinical practice (80-89).

The Diagnostic Revolution: AI as the Proactive Clinical Partner

The frontline of AI's clinical integration is in diagnostics, where it is compressing time, increasing accuracy, and moving detection earlier in the disease continuum. This shift is from reactive analysis to proactive, predictive insight (90-99).

The Diagnostic Revolution: AI as the Proactive Clinical Partner

The frontline of AI's clinical integration is in diagnostics, where it is compressing time, increasing accuracy, and moving detection earlier in the disease continuum. This shift is from reactive analysis to proactive, predictive insight (90-99).

Enhanced Imaging and Real-Time Analysis

AI's ability to parse complex visual data is achieving mainstream clinical validation. Systems like the GI Genius™ AI-assisted colonoscopy, trained on millions of procedural videos, scan every frame in real time to highlight potential polyps, helping to reduce miss rates by up to 50%. This represents a move from AI as a post-procedure review tool to an active "second set of eyes" in the live clinical moment. Similarly, AI is being deployed to identify subtle signs of conditions like aortic stenosis by analyzing broader medical data, aiding in the detection of often-under treated heart disease (100-120). The trend is toward AI that is increasingly predictive and personalized, combining its insights with human judgment to enable proactive, patient-centered care

Next-Generation Point-of-Care and Liquid Biopsies

Perhaps more revolutionary is AI's role in miniaturizing and supercharging diagnostic hardware. At CES 2026, innovations demonstrated a leap from centralized lab testing to distributed, immediate analysis. Abbott showcased a handheld device that uses a few drops of blood to diagnose traumatic brain injuries in 15 minutes by measuring brain-specific proteins at the picogram level a sensitivity equivalent to the weight of DNA in a single cell. Another diagnostic from Avalon leverages similar micro-sampling to both identify non-small cell lung cancer and pinpoint the specific mutations driving it, aiming to compress the entire diagnostic-to-treatment cycle. These technologies, now FDA-cleared, exemplify the move toward "diagnostic nirvana" that is fast, accessible, and deeply informative (121-140).

The Predictive Power of Integrated Data Streams

Future diagnostics will not rely on a single test but on the continuous synthesis of multimodal data. AI agents are emerging as the orchestrators of this synthesis. By analyzing data from electronic health records (EHRs), genomics, wearable devices, and even consumer-grade health apps, these systems can identify patterns predictive of future illness. Experts anticipate AI predicting conditions like Alzheimer's or chronic kidney disease years before symptom onset, enabling truly preventive interventions. Personal AI health coaches, like the Lenovo Qira assistant demonstrated at CES, integrate data from wearables and apps to provide practical, contextual guidance on diet, exercise, and rest, moving health management from episodic to continuous (141-159).

The Therapeutic Frontier: Autonomous Agents and Intelligent Robotics

Beyond diagnosis, AI is becoming an active participant in treatment, driving advancements in surgery, drug discovery, and personalized therapy administration with unprecedented speed and precision.

The Robotic Surgery Ecosystem Expands and Specializes

The surgical robotics market, long dominated by a single player, is entering a phase of intense competition and diversification in 2026. New entrants like Medtronic's Hugo system and Johnson & Johnson's forthcoming Ottava platform are bringing new options to hospitals, increasing competition with industry leader Intuitive Surgical. The key trends are specialization and accessibility. Companies are developing robots for niche, high-precision procedures from microsurgical reconnection of blood vessels to ophthalmologic cataract surgery that lower the technical bar for complex operations and can help address specialist shortages. Simultaneously, a major push is into ambulatory surgery centers (ASCs), making robotic-assisted minimally invasive surgery available in more outpatient settings. The next evolution will be the deeper integration of AI into

these platforms, providing surgeons with real-time, AI-enhanced 3D models of the organ being operated on

Journal of Innovations in Medical Research and Clinical case Reports (JIMRCR)

for superior navigation and decision support (160,175).

Agentic AI and the Acceleration of Biomedical Science

A paradigm shift is occurring with the rise of agentic AI systems that can observe, plan, and act with significant autonomy. In biomedical research, this is compressing timelines dramatically. AI agents can now generate novel molecular compounds and simulate their interactions with biological targets in silico, a process that promises to reduce early-stage drug discovery from years to months. Furthermore, digital twin technology, which creates virtual replicas of human organs or even entire physiological systems, allows researchers and clinicians to simulate procedures and test therapies without risk to patients. Medtronic notes this can accelerate research, reduce animal testing, and minimize human risk. These agents are also entering clinical administration; sophisticated AI voice agents can manage post-discharge follow-up, medication adherence, and patient education through natural, context-aware conversations, providing 24/7 support. (176-181).

Personalization and the Patient-Centric Ecosystem

The ultimate promise of AI is the move from population-level medicine to care tailored to the individual's unique biology, lifestyle, and environment

The Quantified Self and Proactive Health Management

The proliferation of sophisticated consumer health technology is creating a rich data layer for personalized AI. CES 2026 featured devices like the Withings Body Scan 2, a smart scale that measures 60 health biomarkers and calculates a personalized "Health Trajectory," and NAOX's EEG headphones for continuous brain activity monitoring during sleep and work. These devices, alongside hormone testers and food allergen detectors, empower individuals with deep personal health insights. When integrated by an AI agent, this data transforms from isolated metrics into a holistic health narrative, enabling proactive management and early warning.

Digital Twins and Precision Intervention

Building on this data, the concept of the digital twin represents the zenith of personalization. While a full human digital twin remains aspirational, organ-specific models are in active use. Clinicians can now "rehearse" a complex heart valve replacement on a digital replica of the patient's own heart to predict outcomes. The future trajectory is toward smarter digital twins that can predict individual health risks before symptoms appear, shifting medicine from a reactive to a predictive discipline

Navigating the Implementation Imperative

The deployment of these visionary technologies faces significant real-world headwinds. Their successful integration is a socio-technical challenge far more complex than algorithm development

Economic Validation and the "Health Tech 2.0" Proof Point

The investment landscape reveals a maturing sector. AI-focused health tech companies are reaching $100-$200 million in annual recurring revenue in under five years a velocity surpassing traditional healthcare software. This "Health AI X Factor" demonstrates that AI is driving both top-line growth and operational efficiency. Mergers and acquisitions are surging, with incumbents seeking to acquire AI capabilities to modernize their offerings, signaling a move from experimentation to strategic implementation. However, a "trust gap" persists in public markets due to the burnout of the Health Tech 1.0 era; closing it requires sustained demonstration of durable economic and clinical value.

Regulatory Patchwork and the Shadow AI Challenge The

A major barrier is the lack of a coherent regulatory framework. In the absence of decisive federal action in the U.S., states have created a complex patchwork of laws governing AI disclosure, use, and liability. This creates significant compliance complexity for national health systems and innovators. Compounding this is the rampant growth of shadow AI the use of unauthorized, consumer-grade AI tools (like public chatbots) by clinicians and staff seeking efficiency. This poses severe risks to data privacy, care quality, and clinical deskkilling, as these tools may generate authoritative-sounding but clinically invalid advice

The Governance and Human-Centric Imperative

In response, 2026 is becoming "the year of governance". Forward-thinking health systems are building formal AI governance frameworks, creating "AI safe zones" for safe experimentation, and prioritizing purpose-built, clinically-validated AI that is transparent in its sources and recommendations. The core principle guiding this must be the 10-20-70 rule for successful AI transformation: 10% of effort on algorithms, 20% on technology, and 70% on people and process change. The goal is augmentation, not replacement. As emphasized by experts, AI must be a copilot that elevates clinicians, allowing them more time for direct patient care and complex judgment, keeping the human relationship at the center of medicine

Conclusion

Journal of Innovations in Medical Research and Clinical case Reports (JIMRCR)

The trajectory for AI in future medical technologies is set toward deeper integration, greater autonomy, and more profound personalization. The innovations of 2026 from agentic drug discoverers to predictive digital twins and specialized surgical robots are not science fiction but imminent realities. These technologies hold the potential to heal systemic flaws: alleviating workforce shortages, containing runaway costs, and democratizing access to high-precision care.

Yet, this optimistic future is not guaranteed by technological prowess alone. It will be secured or lost in the implementation. The decisive factors will be our collective ability to forge rational and agile regulatory pathways, to invest in and demand transparent and equitable AI systems, and, above all, to insist on a design philosophy that views AI as a partner to human expertise. The most critical future technology is not a specific algorithm or robot, but the governance and ethical framework we build to steward them. By focusing on this, we can ensure that the AI-augmented future of medicine is not only more technologically advanced but also more compassionate, equitable, and resolutely human

References

1. Clark, A., & Chalmers, D. (1998). The extended mind. Analysis, 58(1), 7-19.
2. Groopman, J. (2007). How Doctors Think. Boston: Houghton Mifflin.
3. Krittanawong, C., et al. (2021). Artificial intelligence in precision cardiovascular medicine. Journal of the American College of Cardiology, 79(21), 2657-2664.
4. Topol, E. J. (2019). Deep Medicine: How Artificial Intelligence Can Make Healthcare Human Again. Basic Books.
5. Rajpurkar, P., et al. (2022). AI in health and medicine. Nature Medicine, 28(1), 31-38.
6. Esteva, A., et al. (2021). Deep learning-enabled medical computer vision. NPJ Digital Medicine, 4(1), 5.
7. Koyuncu, B., Uğur, B., & Panahi, P. (2013). Indoor location determination by using RFIDs. International Journal of Mobile and Adhoc Network (IJMAN), 3(1), 7–11.
8. Uras Panahi. Redes AD HOC: Aplicações, Desafios, Direcções Futuras. Edições Nosso Conhecimento. 2025.
9. Panahi, P., & Dehghan, M. (2008, May). Multipath Video Transmission Over Ad Hoc Networks Using Layer Coding And Video Caches. In ICEE2008, 16th Iranian Conference *On Electrical Engineering,(May 2008)* (pp. 50-55).
10. Panahi DU. HOC A Networks: Applications. Challenges, Future Directions. Scholars' Press. 2025.
11. Panahi O, Esmaili F, Kargarnezhad S. (2024). Artificial Intelligence in Dentistry. Scholars Press Publishing. ISBN: 978-620-6772118.
12. Omid P. (2011). Relevance between gingival hyperplasia and leukemia. Int J Acad Res. 3:493-49.
13. Panahi O. (2025). Secure IoT for Healthcare. European Journal of Innovative Studiesand Sustainability. 1(1):1-5.
14. Panahi O. (2025). Deep Learning in Diagnostics. Journal of Medical Discoveries. 2(1).
15. Omid P. Artificial Intelligence in Oral Implantology, Its Applications, Impact and Challenges. Adv Dent & Oral Health. 2024; 17(4): 555966. DOI: 10.19080/ADOH.2024.17.555966.
16. Omid Panahi (2024) Teledentistry: Expanding Access to Oral Healthcare. Journal of Dental Science Research Reviews & Reports. SRC/JDSR-203.
17. Omid P. Empowering Dental Public Health: Leveraging Artificial Intelligence for Improved Oral Healthcare Access and Outcomes. JOJ Pub Health. 2024; 9(1): 555754. DOI: 10.19080/JOJPH.2024.09.555754.
18. Kevin Thamson, Omid Panahi (2025) Bridging the Gap: AI as a Collaborative Tool Between Clinicians and Researchers. J. of Bio Adv Sci Research, 1(2):1-08. WMJ/JBASR-112.
19. Panahi O. (2025). Algorithmic Medicine. Journal of Medical Discoveries. 2(1).
20. Panahi O. (2025). The Future of Healthcare: AI, Public Health and the Digital Revolution. MediClin Case Rep J. 3(1):763-766.
21. Kevin Thamson, Omid Panahi (2025) Challenges and Opportunities for Implementing AI in Clinical Trials. J. of Bio Adv Sci Research, 1(2):1-08. WMJ/JBASR-113.
22. Kevin Thamson, Omid Panahi (2025) Ethical Considerations and Future Directions of AI in Dental Healthcare. J. of Bio Adv Sci Research, 1(2):1-07. WMJ/JBASR-114.
23. Kevin Thamson, Omid Panahi (2025) Bridging the Gap: AI, Data Science, and Evidence-Based Dentistry. J. of Bio Adv Sci Research, 1(2):1-13. WMJ/JBASR-115.
24. Research system in health management information systems, M Gholizadeh, O Panahi - 2021 - Sciencia Scripts Publishing.
25. L'intelligenceartificielledansl'odontologie, O Panahi, F Esmaili, S Kargarnezhad - EDITION NOTRE SAVOIR Publishing. ISBN, 2024.
26. 66.(2024), Искусственный интеллект в стоматологии, DO Panahi, DF Esmaili, DS Kargarnezhad - SCIENCIA SCRIPTS Publishing.
27. AI-Powered IoT: Transforming Diagnostics and Treatment Planning in Oral Implantology, UP Omid Panahi - J AdvArtifIntell Mach Learn, 2025.
28. Periodontium: Structure, O Panahi, SF Eslamlou - Function and Clinical Management.

29. AI in dental-medicine: Current applications & future directions. Open Access Journal of Clinical Images, 2 (1), 1–5, O Panahi, A Ezzati - 2025.
30. Mitigating aflatoxin contamination in grains: The importance of postharvest management practices. Advances in Biotechnology & Microbiology, 18 (5), O Panahi, S Dadkhah – 2025.
31. Empowering Dental Public Health: Leveragin g Artificial Intelligence for Improved Oral Healthcare Access an d Outcomes, O Panahi - JOJ Pub Health, 2024.
32. Nano Technology, P Omid, KC Fatmanur - Regenerative Medicine and, Tissue Bio-Engineering, 2023.
33. Chaturvedi, A. K., Mbulaiteye, S. M., & Engels, E. A. (2021). HPV-Associated Cancers in the United States Over the Last 15 Years: Has Screening or Vaccination Made Any Difference? *The Oncologist, 26**(7), e1130-e1135.
34. Lalla, R. V., Saunders, D. P., & Peterson, D. E. (2014). Chemotherapy or radiation-induced oral mucositis. Dental Clinics, 58(2), 341-349.
35. Vissink, A., Jansma, J., Spijkervet, F. K., et al. (2003). Oral sequelae of head and neck radiotherapy. Critical Reviews in Oral Biology & Medicine, 14(3), 199-212.
36. Peterson, D. E., Doerr, W., Hovan, A., et al. (2010). Osteoradionecrosis in cancer patients: the evidence base for treatment-dependent frequency, current management strategies, and future studies. Supportive Care in Cancer, 18(8), 1089-1103.
37. Buglione, M., Cavagnini, R., Di Rosario, F., et al. (2016). Oral toxicity management in head and neck cancer patients treated with chemotherapy and radiation: Xerostomia and trismus (Part 2). Literature review and consensus statement. Critical Reviews in Oncology/Hematology, 102, 47-54.
38. The American Academy of Oral Medicine. (2017). Dental Management of the Oral Complications of Cancer Treatment. AAOM Professional Resource.
39. Panahi O. The Algorithmic Healer: AI's Impact on Public Health Delivery. Medi Clin Case Rep J 2025;3(1):759-762. DOI: doi.org/10.51219/MCCRJ/Omid-Panahi/197.
40. Omid Panahi. “AI: A New Frontier in Oral and Maxillofacial Surgery". Acta Scientific Dental Sciences 8.6 (2024): 40-42.
41. Panahi O and Falkner S (2025) Telemedicine, AI, and the Future of Public Health. Western J Med Sci & Res 2(1): 102.
42. Искусственный интеллект в стоматологии. DO Panahi, DF Esmaili, DS Kargarnezhad - 2024 - SCIENCIA SCRIPTS Publishing …
43. Application of Clay's in Drug Delivery in Dental Medicine. DS Esmaielzadeh, DO Panahi, DFK Çay - 2020 - Scholars' Press.
44. NanoTechnology, Regenerative Medicine and Tissue Bio-Engineering. DO Panahi - 2019 - Scholars' Press.
45. La IA en la odontología moderna. DO Panahi, DS Dadkhah - 2025 – ISBN.
46. Inteligencia artificial en odontología, NUESTRO CONOC. DO Panahi, DF Esmaili, DS Kargarnezhad - 2024 - Mento Publishing. ISBN.
47. Intelligenza artificiale in odontoiatria. O Panahi, DF Esmaili, DS Kargarnezhad - 2024 - SAPIENZA Publishing. ISBN.
48. L'IA dans la dentisterie moderne. DO Panahi, DS Dadkhah - 2025 – ISBN
49. Panahi, O., & Eslamlou, S. F. (2025). Artificial Intelligence in Oral Surgery: Enhancing Diagnostics, Treatment, and Patient Care. J Clin Den & Oral Care, 3(1), 01-05.
50. Omid P, Soren F. (2025). The Digital Double: Data Privacy, Security, and Consent in AI Implants. Digit J Eng Sci Technol. 2(1):105.
51. Le péridontium: Structure, fonction et gestion clinique. DO Panahi, DSF Eslamlou - 2025 – ISBN.
52. Sztuczna inteligencja w nowoczesnej stomatologii. DO Panahi, DS Dadkhah - 2025 – ISBN.
53. Panahi, O. (2025). The Role of Artificial Intelligence in Shaping Future Health Planning. Int J Health Policy Plann, 4(1), 01-05.
54. AI-enabled IT systems for improved dental practice management. O Panahi, A Amirloo - On J Dent & Oral Health, 2025.
55. A IA na medicina dentária moderna. DO Panahi, DS Dadkhah - 2025 – ISBN.
56. L'intelligenza artificiale nell'odontoiatria moderna. DO Panahi, DS Dadkhah – ISBN.
57. Medicina dentária digital e inteligência artificial. O Panahi, SF Eslamlou, M Jabbarzadeh - 2025 – ISBN.
58. Cellule staminali della polpa dentaria. DO Panahi - 2021 – ISBN.
59. Células madre de la pulpa dental. O Panahi - 2021 - Ediciones Nuestro Conocimiento.
60. Panahi O. AI-Enhanced Case Reports: Integrating Medical Imaging for Diagnostic Insights. J Case Rep Clin Images. 2025; 8(1): 1161.
61. Panahi O. (2025). Navigating the AI Landscape in Healthcare and Public Health. Mathews J Nurs. 7(1):56.
62. Panahi O. Innovative Biomaterials for Sustainable Medical Implants: A Circular Economy Approach. European Journal of Innovative Studies and Sustainability. 2025;1(2):1–5.
63. Стволовые клетки пульпы зуба. DO Panahi.
64. Omid Panahi, Alireza Azarfardin. Computer-Aided Implant Planning: Utilizing AI for Precise Placement and Predictable

Outcomes.Journal of Dentistry and Oral Health. 2(1).

65. Panahi O. The Rising Tide: Artificial Intelligence Reshaping Healthcare Management. S J Publc Hlth. 2024 ;1(1) :1-3. DOI: 10.51626/sjph.2024.01.00002.
66. Panahi, O. (2025). AI in Health Policy: Navigating Implementation and Ethical Considerations. Int J Health Policy Plann, 4(1), 01-05.
67. Panahi O. Bridging the Gap: AI-Driven Solutions for Dental Tissue Regeneration. Austin J Dent. 2024; 11(2): 1185.
68. Panahi O, Zeinalddin M. The Convergence of Precision Medicine and Dentistry: An AI and Robotics Perspective. Austin J Dent. 2024; 11(2): 1186.
69. Omid P. Modern Sinus Lift Techniques: Aided by AI. Glob J Oto, 2024; 26 (4): 556198. DOI:10.19080/GJO.2024.26.556198.
70. The remote monitoring toothbrush for early cavity detection using artificial intelligence (AI). O Panahi, M Zeinalddin - IJDSIR, 2024.
71. Stammzellen aus dem Zahnmark. O Panahi - 2021 - Verlag Unser Wissen.
72. Stomatologia cyfrowa i sztuczna inteligencja. O Panahi, SF Eslamlou, M Jabbarzadeh - ISBN.
73. Odontoiatria digitale e intelligenza artificiale. O Panahi, SF Eslamlou, M Jabbarzadeh - 2025 - ISBN.
74. Dentisterie numérique et intelligence artificielle. O Panahi, SF Eslamlou, M Jabbarzadeh - 2025 - ISBN.
75. Odontología digital e inteligencia artificial. O Panahi, SF Eslamlou, M Jabbarzadeh - 2025 - ISBN.
76. Digitale Zahnmedizin und künstliche Intelligenz. O Panahi, SF Eslamlou, M Jabbarzadeh - 2025 - ISBN.
77. Panahi O. Predictive Health in Communities: Leveraging AI for Early Intervention and Prevention. Ann Community Med Prim Health Care. 2025; 3(1): 1027.
78. The remote monitoring toothbrush for early cavity detection using artificial intelligence (AI). O Panahi, M Zeinalddin - IJDSIR, 2024.
79. Stammzellen aus dem Zahnmark. O Panahi - 2021 - Verlag Unser Wissen.
80. Stomatologia cyfrowa i sztuczna inteligencja. O Panahi, SF Eslamlou, M Jabbarzadeh - ISBN.
81. Odontoiatria digitale e intelligenza artificiale. O Panahi, SF Eslamlou, M Jabbarzadeh - 2025 - ISBN.
82. Dentisterie numérique et intelligence artificielle. O Panahi, SF Eslamlou, M Jabbarzadeh - 2025 - ISBN.
83. Odontología digital e inteligencia artificial. O Panahi, SF Eslamlou, M Jabbarzadeh - 2025 - ISBN.
84. Digitale Zahnmedizin und künstliche Intelligenz. O Panahi, SF Eslamlou, M Jabbarzadeh - 2025 - ISBN.
85. Panahi O. Predictive Health in Communities: Leveraging AI for Early Intervention and Prevention. Ann Community Med Prim Health Care. 2025; 3(1): 1027.
86. 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(4), 4015-4037.
87. Panahi, U., & Bayılmış, C. (2023). Enabling secure data transmission for wireless sensor networks based IoT applications. Ain Shams Engineering Journal, 14(2), 101866.
88. Omid Panahi, and Uras Panahi. AI-Powered IoT: Transforming Diagnostics and Treatment Planning in Oral Implantology. J AdvArtifIntell Mach Learn. 2025; 1(1): 1-4.
89. Panahi U. (2025). AD HOC Networks: Applications, Challenges, Future Directions, Scholars' Press. ISBN: 978-3-639-76170-2.
90. Panahi, P., & Dehghan, M. (2008, May). Multipath Video Transmission Over Ad Hoc Networks Using Layer Coding And Video Caches. In ICEE2008, 16th Iranian Conference On Electrical Engineering,(May 2008) (pp. 50-55).
91. Omid Panahi.(2021) Система исследований в информационных системах управления здравоохранением, M Gholizadeh - Sciencia Scripts Publishing.
92. UrasPanahi. AI-Powered IoT: 54, O Panahi - Trans forming Diagnostics and Treatment Planning in, 2025.
93. DrMansourehZeynali. Will AI Replace Your Dentist? The Future of Dental Practice. OnJ Dent & Oral Health. 8 (3): 2025, DO Panahi, DA Ezzati - OJDOH. MS. ID.
94. A New Frontier in 60, O Panahi, A Intelligence - Periodontology. Mod Res Dent.
95. AI in der modernen 48, DO Panahi, DS Dadkhah - Zahnmedizin.
96. Panahi, U. (2025). Redes AD HOC: Aplicações, Desafios, Direcções Futuras. Edições Nosso Conhecimento. ISBN 978-620-8-72962-2.
97. Panahi, U. (2025). AD HOC networks: Applications. Challenges, Future Paths. Our Knowledge.
98. Panahı, U. (2022). Nesnelerin interneti için hafif siklet kriptoloji algoritmalarına dayalı güvenli haberleşme modeli tasarımı [Design of a lightweight cryptography-based secure

communication model for the Internet of Things]. Sakarya Üniversitesi.

100. Koyuncu, B., & Panahi, P. (2014). Kalman filtering of link quality indicator values for position detection by using WSNS. International Journal of Computing, Communications & Instrumentation Engineering, 1. 100. Koyuncu, B., Gökçe, A., & Panahi, P. (2015). Archaeological site bir arkeolojik sit alanının rekonstrüksiyonundaki bütünleştirici oyun motoru tanıtımı. In SOMA 2015.

101. Panahi O, Eslamlou SF. Peridonio: Struttura, funzione e gestione clinica. ISBN: 978-620-8-74559-2.

102. Panahi O, Dadkhah S. AI in der modernen Zahnmedizin. ISBN:978-620-8-74877-7.

103. Panahi O. Cellules souches de la pulpe dentaire. ISBN: 978-620-4-05358-5.

104. Omid Panahi, Faezeh Esmaili, Sasan Kargarnezhad. Искусственный интеллект в стоматологии. SCIENCIA SCRIPTS Publishing. 2024.

105. Panahi O, Melody FR. (2011). A Novel Scheme About Extraction Orthodontic and Orthotherapy. International Journal of Academic Research. 3(2).

106. Panahi O. The evolving partnership: surgeons and robots in the maxillofacial operating room of the future. J Dent Sci Oral Care. 2025; 1: 1-7.

107. Panahi O, Dadkhah S, Sztuczna inteligencja w nowoczesnej stomatologii. ISBN:978-620-8-74884-5.

108. Panahi O. The Future of Medicine: Converging Technologies and Human Health. Journal of Bio-Med and Clinical Research. RPC Publishers. 2025; 2.

109. Panahi O, Raouf MF, Patrik K. (2011) The Evaluation Between Pregnancy and Periodontal Therapy. Int J Acad Res. 3: 1057-1058.

110. Panahi O, Nunag GM, Nourinezhad Siyahtan A. (2011). Molecular Pathology: P-115: Correlation of Helicobacter Pylori and Prevalent Infections in Oral Cavity. Cell Journal (Yakhteh), 12(Supplement 1 (The 1st International Student Congress On Cell and Molecular Medicine). pp. 91-92. SID.

111. Panahi O. The Age of Longevity: Medical Advances and The Extension of Human Life. Journal of Bio-Med and Clinical Research. RPC Publishers. 2025; 2.

112. Panahi O, Eslamlou SF. Peridoncio: Estructura, función y manejo clínico. ISBN: 978-620-8-74557-8.

113. Omid Panahi, Sevil Farrokh. Building Healthier Communities: The Intersection of AI, IT, and Community Medicine. Int J Nurs Health Care. 2025; 1(1):1-4.

114. Dr Omid Panahi, Стволовые клетки пульпы зуба, ISBN: 978-620-4-05357-8.

115. Panahi O. Nanomedicine: Tiny Technologies, Big Impact on Health. Journal of Bio-Med and Clinical Research. RPC Publishers. 2025; 2.

116. Dr Omid Panahi* and Dr Amirreza Amirloo. AI-Enabled IT Systems for Improved Dental Practice Management. On J Dent & Oral Health. 8(4): 2025. OJDOH.MS.ID.000691.

117. Panahi O. (2013). Comparison between unripe Makopa fruit extract on bleeding and clotting time. International Journal of Paediatric Dentistry. 23:205.

118. Panahi O, Eslamlou SF. Peridontium: Struktura, funkcja I postępowanie kliniczne. ISBN: 978-620-8-74560-8.

119. Panahi, O., & Eslamlou, S. F. (2025). Artificial Intelligence in Oral Surgery: Enhancing Diagnostics, Treatment, and Patient Care. J Clin Den & Oral Care, 3(1), 01-05.

120. Panahi O, Eslamlou SF, Jabbarzadeh M. Odontoiatria digitale e intelligenza artificiale. ISBN: 978-620-8-73913-3.

121. Omid P, Soren F. (2025). The Digital Double: Data Privacy, Security, and Consent in AI Implants. Digit J Eng Sci Technol. 2(1):105.

122. Panahi O, Eslamlou SF, Jabbarzadeh M. Medicina dentária digital e inteligência artificial. ISBN: 978-620-8-73915-7.

123. Panahi O. Stammzellen aus dem Zahnmark. ISBN: 978-620-4-05355-4.

124. Panahi O. (2025). AI-Enhanced Case Reports: Integrating Medical Imaging for Diagnostic Insights. J Case Rep Clin Images. 8(1):1161.

125. Panahi O. (2025). Navigating the AI Landscape in Healthcare and Public Health. Mathews J Nurs. 7(1):5.

126. Panahi O. (2025). The Role of Artificial Intelligence in Shaping Future Health Planning. Int J Health Policy Plann. 4(1):01-05.

127. Panahi O, Falkner S. (2025). Telemedicine, AI, and the Future of Public Health. Western J Med Sci & Res. 2(1):10.

128. Panahi O, Azarfardin A. Computer-Aided Implant Planning: Utilizing AI for Precise Placement and Predictable Outcomes. Journal of Dentistry and Oral Health. 2(1).

129. Panahi O. (2025). AI in Health Policy: Navigating Implementation and Ethical Considerations. Int J Health Policy Plann. 4(1):01-05.

130. Panahi O, Eslamlou SF, Jabbarzadeh M. Stomatologia cyfrowa i sztuczna inteligencja. ISBN: 978-620-8-73914-0.

131. Panahi O. (2025). Innovative Biomaterials for Sustainable Medical Implants: A Circular Economy Approach. European Journal of Innovative Studies and Sustainability. 1(2):1-5.

132. Panahi O (2024) Bridging the Gap: AI-Driven Solutions for Dental Tissue Regeneration. Austin J Dent 11(2): 1185.

133. Panahi O, Eslamlou SF, Jabbarzadeh M. Dentisterie numérique et intelligence artificielle. ISBN: 978-620-8-73912-6.

134. Panahi O, Zeinalddin M (2024) The Convergence of Precision Medicine and Dentistry: An AI and Robotics Perspective. Austin J Dent 11(2): 1186.

135. Omid P, Mohammad Z (2024) "The Remote Monitoring Toothbrush for Early Cavity Detection using Artificial Intelligence (AI)", IJDSIR 7(4): 173-178.

136. Omid P (2024) Modern Sinus Lift Techniques: Aided by AI. Glob J Oto 26(4): 556198.

137. Panahi O (2024) The Rising Tide: Artificial Intelligence Reshaping Healthcare Management. S J Publc Hlth 1(1) :1-3.

138. 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 pp187-194.

139. Panahi O, Eslamlou SF, Jabbarzadeh M. Digitale Zahnmedizin und künstliche Intelligenz. ISBN: 978-620-8-73910-2.

140. Panahi U. (2025). AD HOC Networks: Applications, Challenges, Future Directions, Scholars' Press. ISBN: 978-3-639-76170-2.

141. Panahi U. AD HOC-Netze: Anwendungen, Herausforderungen, zukünftige Wege, Verlag Unser Wissen. ISBN: 978-620-8-72963-9.

142. Panahi O, Eslamlou SF, Jabbarzadeh M. Odontología digital e inteligencia artificial. ISBN: 978-620-8-73911-9.

143. Koyuncu, B., Gokce, A., & Panahi, P. (2015, November). The use of the Unity game engine in the reconstruction of an archeological site. In 19th Symposium on Mediterranean Archaeology (SOMA 2015) (pp. 95–103).

144. 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(2), 148–150.

145. Panahi O. Smart Materials and Sensors: Integrating Technology into Dental Restorations for Real-Time Monitoring. J Dent Oral Health. 2025 Mar;2(1). doi:10.61415/JD004/2025/NAR0271-0833.

146. Omid Panahi, Mohammad Zeinalddin. The remote monitoring toothbrush for early cavity detection using artificial intelli-gence (AI). IJDSIR. 2024;7(4):173-178.

147. Artificial Intelligence in Dentistry, Unser wissen Publishinghttps, O Panahi, F Esmaili, S Kargarnezhad - blackwells. co. uk/bookshop/product/Knstliche …, 2024.

148. Panahi O. (2025). Deep Learning in Diagnostics. Journal of Medical Discoveries. 2(1).

149. Panahi O. (2025). Algorithmic Medicine. Journal of Medical Discoveries. 2(1).

150. Panahi O. (2025). The Future of Healthcare: AI, Public Health and the Digital Revolution. MediClin Case Rep J. 3(1):763-766.

151. Omid P. Artificial Intelligence in Oral Implantology, Its Applications, Impact and Challenges. Adv Dent & Oral Health. 2024; 17: 555966.

152. Omid P. (2011). Relevance between gingival hyperplasia and leukemia. Int J Acad Res. 3:493-494.

153. Panahi O. Teledentistry: Expanding Access to Oral Healthcare. Journal of Dental Science Research Reviews & Reports.J Dental Sci Res Rep. 2024; 6: 2-3.

154. Panahi O, Ezzati A. (2025). AI in Dental-Medicine: Current Applications & Future Directions. Open Access J Clin Images. 2(1):1-5.

155. Dr Omid Panahi* and Dr Masoumeh Jabbarzadeh. The Expanding Role of Artificial Intelligence in Modern Dentistry. On J Dent & Oral Health. 8(3): 2025. OJDOH.MS.ID.000690.

156. Panahi, O. (2025). Wearable Sensors and Personalized Sustainability: Monitoring Health and Environmental Exposures in Real-Time. European Journal of Innovative Studies and Sustainability, 1(2), 1 1-19.

157. 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.

158. Omid P, Sevil Farrokh E. Bioengineering Innovations in Dental Implantology. Curr Trends Biomedical Eng&Biosci. 2025; 23(3): 556111. DOI: 10.19080/CTBEB.2025.23.5560111

158. Omid P, Sevil Farrokh E. Bioengineering Innovations in Dental Implantology. Curr Trends Biomedical Eng&Biosci. 2025; 23(3): 556111. DOI: 10.19080/CTBEB.2025.23.5560111

159. Omid Panahi. Artificial Intelligence: A New Frontier in Periodontology. Mod Res Dent. 8(1). MRD. 000680. 2024.DOI: 10.31031/MRD.2024.08.000680.

160. Panahi O, Melody FR, Kennet P, Tamson MK. Drug induced (calcium channel blockers) gingival hyperplasia. JMBS 2011;2(1):10-2.

161. Dr Omid Panahi* and Dr Amirreza Amirloo. AI-Enabled IT Systems for Improved Dental Practice Management. On J Dent & Oral Health. 8(4): 2025. OJDOH.MS.ID.000691. DOI: 10.33552/OJDOH.2025.08.000691.

162. Omid P, Reza S. How Artificial Intelligence and Biotechnology are Transforming Dentistry. Adv Biotech & Micro. 2024; 18(2): 555981. DOI: 10.19080/AIBM.2024.17.555981.

163. Panahi, O., & Zeinaldin, M. (2024). AI-Assisted Detection of Oral Cancer: A Comparative Analysis. *Austin J Pathol Lab Med*, *10*(1), 1037.

164. Omid Panahi, Sevil Farrokh. USAG-1-Based Therapies: A Paradigm Shift in Dental Medicine. Int J Nurs Health Care. 2024;1(1):1-4.

165. Omid Panahi, Sevil Farrokh. Can AI Heal Us? The Promise of AI-Driven Tissue Engineering. Int J Nurs Health Care. 2024; 1(1):1-4.

166. Maryam Gholizadeh, Dr Omid Panahi, (2021), Investigating System in Health Management Information Systems, Scholars Press Academic Publishing. ISBN: 978-613-8-95240-4.

167. Omid Panahi. "AI Ushering in a New Era of Digital Dental-Medicine". Acta Scientific Medical Sciences 8.8 (2024): 131-134.

168. Panahi, O., & Farrokh, S. (2025a). The use of machine learning for personalized dental-medicine treatment. Global Journal of Medical and Biomedical Case Reports, 1, 001.

169. 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.

170. Maryam Gholizadeh, Dr Omid Panahi, (2021), Untersuchungssystem im Gesund heits management Informations systeme, Unser wissen Publishing. ISBN: 978-620-3-67046-2.

171. Panahi O, Zeinaldin M. Digital Dentistry: Revolutionizing Dental Care. J Dent App. 2024; 10 (1):1121.

172. Omid P, Evil Farrokh E. Beyond the Scalpel: AI, Alternative Medicine, and the Future of Personalized Dental Care. J Complement Med Alt Healthcare. 2024; 13(2): 555860. DOI: 10.19080/JCMAH.2024.12.555860.

173.Panahi, O. (2024). Dental Implants & the Rise of AI. *On J Dent & Oral Health*, *8*(1), 2024.

174. Maryam Gholizadeh, Dr Omid Panahi, (2021), Indagare il sistema nei sistemi informativi di gestione della salute, SAPIENZA Publishing. ISBN: 978-620-3-67049-3.

175. Panahi O, et al. (2025). Smart Robotics for Personalized Dental Implant Solutions. Dental. 7(1):21.

176 Dr Omid Panahi, Dr Sevil Farrokh Eslamlou, Dr Masoumeh Jabbarzadeh, Medicina dentária digital e inteligência artificial, ISBN: 978-620-8-73915-7.

177. Panahi O. AI in Surgical Robotics: Case Studies. Austin J Clin Case Rep. 2024; 11(7): 1342.

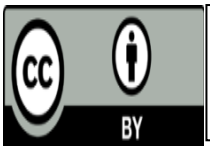
178. Omid Panahi*and Reza Safaralizadeh. AI and Dental Tissue Engineering: A Potential Powerhouse for Regeneration. Mod Res Dent. 8(2). MRD. 000682. 2024.

179. Maryam Gholizadeh, Dr Omid Panahi, (2021), Systeemonderzoek in Informatiesystemen voor Gezondheidsbeheer, ONZE KENNIS Publishing. ISBN: 978-620-3-67050-9.

180. 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.

181. Maryam Gholizadeh, Dr Omid Panahi, (2021), System badawczy w systemach informacyjnych zarządzania zdrowiem, NAZSA WIEDZA Publishing. ISBN: 978-620-3-67051-6.

Journal of Innovations in Medical Research and Clinical case Reports (JIMRCR)



DOI:10/JIMRCR/2026/004