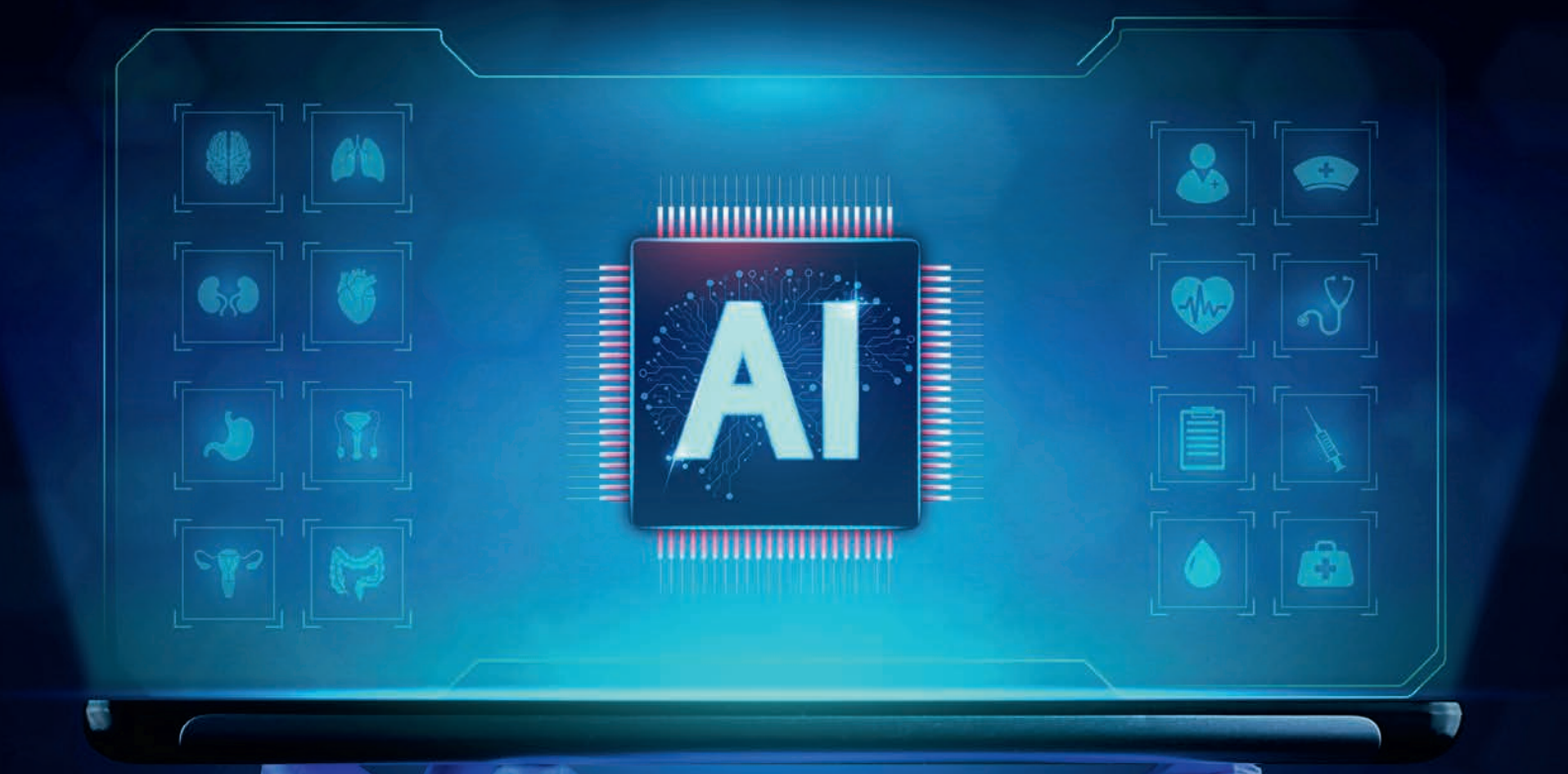
issn 2193-4673 • Vol. 4 • Issue 4/2023

4/23

digital

international magazine of digital dentistry

including AI supplement



interview
Big data in implant dentistry—
"We are standing at the beginning"

case report
A fully guided digital workflow for
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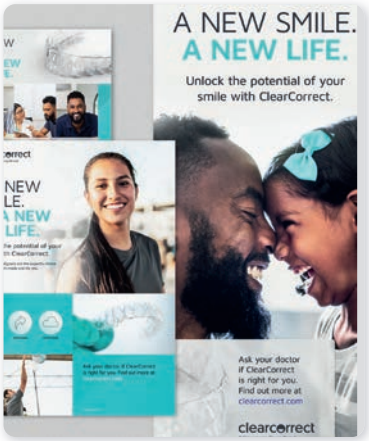

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Magda Wojtkiewicz

Managing Editor

Artificial intelligence opens a new chapter in dental healthcare

Artificial intelligence (AI) is already present in our everyday life, whether we are aware of it or not. AI is also revolutionising the field of dentistry, offering a wide range of applications that improve patient care, diagnostics and practice management. In this issue of digital, you will find our second AI supplement, a section dedicated to AI and its presence in dentistry. Before you dive into the details, here are some examples of AI being applied in dentistry.

Diagnostic and imaging support

One of the most significant applications of AI in dentistry is in diagnostic support. AI algorithms can analyse dental radiographs and photographs, aiding dentists in the detection of issues such as dental caries, periodontal disease and oral cancer. These algorithms can identify abnormalities and anomalies in radiographs and scans, supporting early disease detection and timely intervention.

Treatment planning

AI can assist dentists in creating treatment plans tailored to individual patients. By analysing patient data, including medical history, images and dental records, AI can suggest optimal treatment plans and prosthetic designs. This not only improves the precision of treatments but also enhances treatment outcomes.

Predictive analytics

AI can predict oral health outcomes and treatment success based on historical patient data. Dentists can use these insights to develop treatment plans that are more personalised and provide better patient management.

Virtual consultations and teledentistry

The rise of virtual consultations and teledentistry has been accelerated by AI. Chatbots and virtual assistants powered by AI can provide patients with information, guidance and even initial assessments of dental issues. Teledentistry platforms utilise AI to facilitate remote consultations, enabling dentists to diagnose and treat patients from a distance.

Patient management

AI streamlines various patient management tasks within dental practices. It can handle appointment scheduling, send automated reminders to patients and assist with billing, making the dental office more efficient and patient-friendly.

Natural language processing in electronic health records

AI-driven natural language processing tools are increasingly being used to analyse textual information within electronic health records. By extracting and analysing relevant patient data, AI can enhance decision-making and improve patient care.

Oral health monitoring

AI-powered devices and apps are being developed to monitor patients' oral hygiene habits. These tools can provide personalised recommendations for better oral care, helping patients maintain their oral health between dental visits.

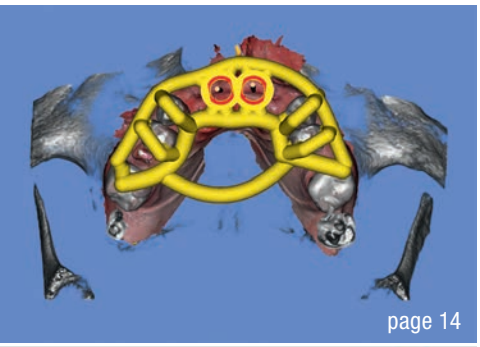
Education and training

In dental education, AI is playing a crucial role in providing realistic training experiences. Dental simulators and virtual reality tools, powered by AI algorithms, allow students and dentists to practice various dental procedures in a safe and controlled environment.

Quality assurance

AI can ensure the quality of dental impressions and prostheses. By analysing these products, AI can verify that they meet specific standards and accuracy criteria, reducing errors and enhancing patient satisfaction.

As AI technologies continue to evolve, the applications in dentistry are expected to expand even further. Dentists and dental practices that embrace AI can already benefit from improved diagnostic accuracy, personalised treatment planning, enhanced patient engagement and greater efficiency in practice management. However, it is essential to stay updated with the latest advancements in the field, as AI in dentistry continues to evolve rapidly.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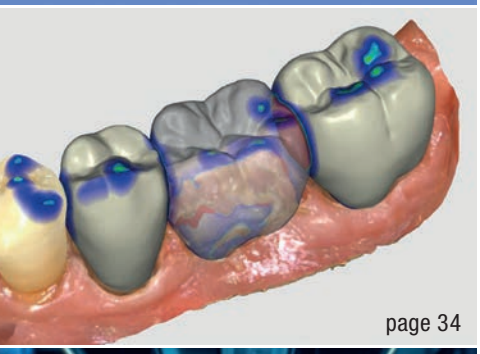
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Introducing SmileShade: Revolutionising dental shade identification and communication

By Dental Tribune International

The SmileShade app uses a novel digital workflow to help dental professionals accurately assess dental shade. *(Image: © Les Kalman)*

Research Driven, a Canadian company specialising in the development of medical and dental devices and technologies, has recently announced the launch of SmileShade, an innovative dental colour identification and communication mobile app. Developed with support from an Implant Dentistry Research and Education Foundation grant from the International Congress of Oral Implantologists, SmileShade is poised to revolutionise the way in which dentists assess and communicate dental shade.

SmileShade leverages groundbreaking technology to accurately capture dental colour, allowing dentists to communicate and implement precise shade matches with ease. The app can significantly streamline the shade matching process, ultimately leading to better patient outcomes and enhanced dental experiences.

The key features of SmileShade are the following:

1. *Bluetooth sensor technology:* SmileShade utilises advanced Bluetooth sensors that can accurately capture dental shades with unprecedented precision. This technology allows dentists to identify and communicate the ideal shade match for restorative procedures.
2. *VITA and IPS e.max integration:* SmileShade seamlessly integrates with industry standard shade guides, including the VITA and IPS e.max (HT) shade guides. This ensures that dentists can match shades consistently and reliably, enhancing the quality of dental restorations.
3. *Intuitive mobile app:* The SmileShade mobile app is user-friendly and designed with dentists in mind. It offers a seamless user experience, enabling quick and efficient shade identification and communication.
4. *Enhanced communication:* Dentists can easily share shade information with dental laboratories, colleagues and patients, fostering improved collaboration and informed decision-making. The shade comparison feature is beneficial for all stages of treatment documentation.
5. Research-backed innovation: SmileShade is the result of extensive research and development conducted by experienced researchers and developers.

SmileShade aims to enhance the dental experience for both practitioners and patients by providing an efficient, accurate and user-friendly solution for dental shade identification and communication. The software was an honouree of the 2022 Consumer Electronic Show Innovation Awards, a global competition recognising outstanding design and engineering in consumer technology products.

Dr Les Kalman, an assistant professor of restorative dentistry in the Schulich School of Medicine and Dentistry at Western University in London and the creator of SmileShade, commented: “SmileShade is the result of years of research and development, and we are excited to offer dentists a novel mobile, digital tool that will streamline their work and elevate the quality of dental care they provide.”

Dental professionals can download SmileShade free from the App Store and visit the official website for more information: www.smileshade.ca.

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Digital dentistry: Dentsply Sirona and 3Shape expand their workflow integration

By Dentsply Sirona

Dentsply Sirona, the world's largest manufacturer of professional dental products and technologies, and 3Shape, a leading innovator of digital solutions for dental patient care, have begun the next chapter in their workflow integration. The harmonisation of DS Core, Primemill and Primeprint with the 3Shape TRIOS intra-oral scanner, powered by 3Shape Unite, creates more integrated workflows for digital dentistry. Dentists and dental technicians will benefit from simple, secure and connected technology solutions for effective collaboration, which will enable them to provide excellent dental care and move forward with confidence.

Seamless execution of laboratory orders with DS Core to 3Shape Dental System

Dentsply Sirona intra-oral scanners, such as Primescan, will now connect directly with the 3Shape Dental System software via DS Core. Dentists will be able to easily transmit orders to their laboratory partners via DS Core. In the laboratory, this data can then be directly processed in 3Shape Dental System, which will save valuable time.

Innovative in-office Primemill and Primeprint solutions for 3Shape TRIOS users via DS Core

Dentists will be able to seamlessly connect TRIOS scanners to Primemill and Primeprint for in-office milling and printing via 3Shape Unite, DS Core and inLab CAD software. Thus, high-quality prosthetic restorations, such as permanent crowns; temporary restorations, such as provisional crowns; removable prostheses; models; dental appliances, such as splints; and surgical guides can be manufactured directly in the dental practice on the same day.

For Dentsply Sirona and 3Shape, this is an important next step in their workflow integration and will advance digital dentistry in practices and laboratories and help improve oral health worldwide.

"3Shape and Dentsply Sirona are providing seamless workflows for our shared customer base. Dentists and labs will now benefit from smooth in-office manufacturing and send-to-lab solutions thanks to an expanded and validated interconnection of our systems. By being faithful to 3Shape's open system principles, we are excited to combine such powerful opportunities in the industry," said Dr Rune Fisker, senior vice president of product strategy at 3Shape.

"The closer integration of leading offerings from Dentsply Sirona and 3Shape via DS Core opens new possibilities for dental practices and labs. Our customers expect to easily combine solutions from different companies in their practice to confidently deliver optimal performance. We are committed to expanding workflow integrations through our platform, DS Core, and thereby help dental professionals move forward with confidence.

We are excited that 3Shape TRIOS users will now be able to expand their practices easily with in-office manufacturing solutions such as Primemill and Primeprint," commented Andreas Frank, an executive vice president and chief business officer at Dentsply Sirona.

More information is available at www.dentsplysirona.com and www.3shape.com.

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