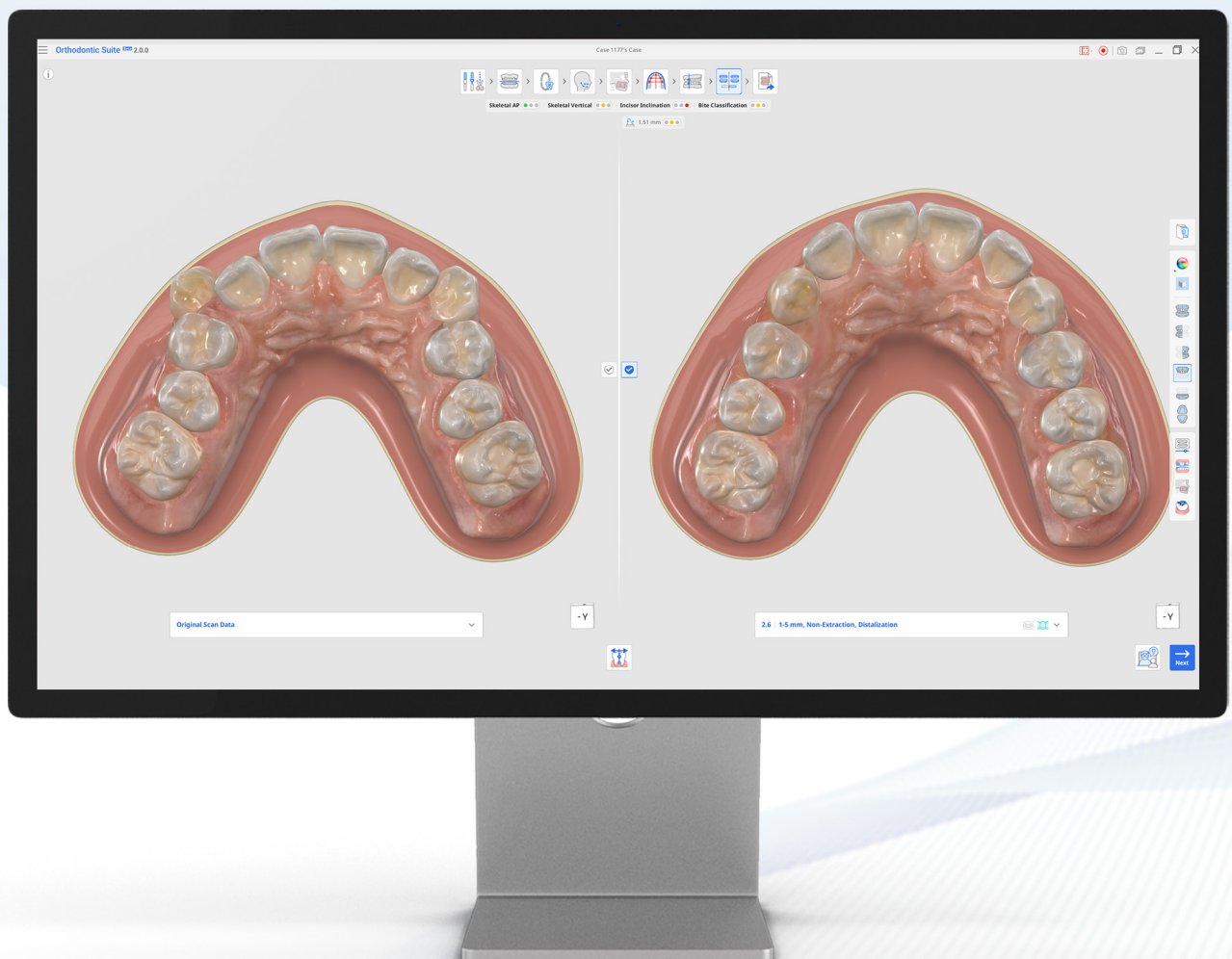


MEDIT

Revolutionizing Orthodontics

Through Intelligent Treatment Planning Software



Medit Orthodontic Suite
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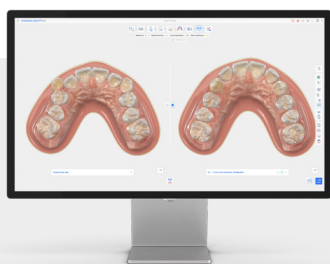
Get Started with
Medit Orthodontic Suite



Revolutionizing Orthodontics Through Intelligent Treatment Planning Software

Executive Summary

This paper introduces a groundbreaking AI-intelligent orthodontic simulation software, based on patented technology that automates and personalizes the aligner treatment planning process. It integrates biomechanical rules with patient-specific anatomical data to expeditiously create accurate, realistic, and clinically reproducible simulations of multiple treatment options chairside with the patient in-office. For practices equipped with a 3D printer, aligner treatment can be designed, presented to the patient and started all on the same day.



Medit Orthodontic Suite offers a paradigm shift in orthodontic workflow, efficiency, and patient satisfaction.

Current Challenges in Orthodontic Aligner Planning

The dominant orthodontic treatment models suffer from the following limitations:

•Mismatch Between Simulation and Reality:

Current automated solutions simulate idealized outcomes, not necessarily clinically achievable ones. Often, the tooth movements employed by the automated simulation do not follow the rules of biomechanics and are not possible or appropriate when considering patient specific conditions. The result is unmet expectations for patients and frustration for clinicians.

•Manual, Iterative workflow:

Aligner treatment planning currently involves exporting patient data to external staging centers where a technician – often without sufficient knowledge or experience - proposes a single, initial plan. Doctors must evaluate and improve or change the initial plan, resulting in revisions to the initial plan. This multiple back-and-forth cycle is time consuming, inefficient, error-prone and significantly extends the time between the patient evaluation visit and start of treatment.

•Fragmented workflow and delayed treatment initiation:

Most existing solutions for in-office aligner design allow operators to manage the entire planning process independently, but these programs are difficult to master and cumbersome to use. While they avoid the back-and-forth process with a technician, they are not efficient for same-day aligner starts.

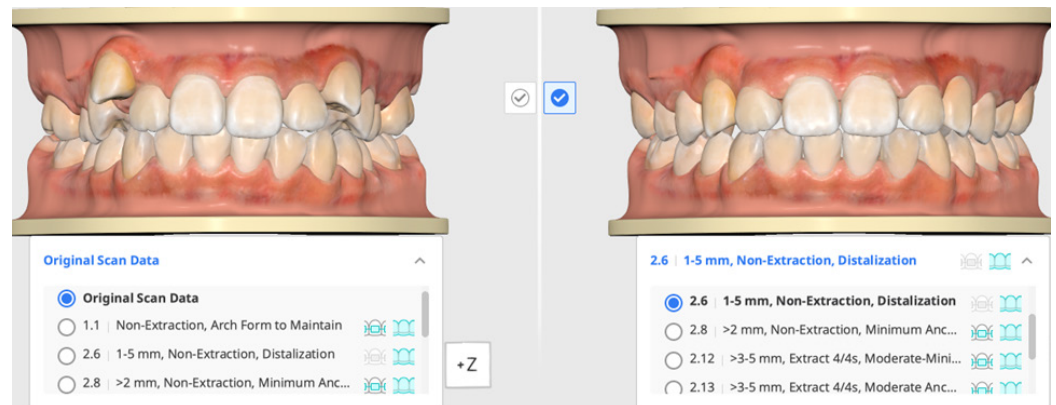
The Solution: Medit Orthodontic Suite

AI and advanced programming integrate biomechanical rules with patient-specific anatomical data to expeditiously create accurate, realistic, and clinically reproducible simulations of multiple treatment options chairside with the patient in-office. For practices equipped with a 3D printer, aligner treatment can be created, presented to the patient and started all on the same day.



Medit Orthodontic Suite offers a paradigm shift in orthodontic workflow, efficiency, and patient satisfaction.

- Simulations employ only clinically achievable tooth movements to instantly create meaningful and reproducible simulations that can be used chairside for patient education and communication, establishing realistic expectations.
- Using patient specific data, combining automation with limited, yet efficient operator input, multiple relevant treatment option simulations are produced from an intra-oral scan in just minutes for consideration and discussion with the patient (e.g., non-extraction vs. extraction, expansion, IPR, distalization, class II or class III elastics.)



- When the doctor and patient choose one of the treatment options, a fully staged aligner set-up is automatically created in seconds. The doctor has total control of final tooth positions, movement speed, IPR, attachments and staging. STL files of aligner stages can be immediately downloaded for in-office aligner production – allowing same day aligner case starts. Remaining aligner stages can be downloaded and produced in-office or outsourced for professional manufacturing.

Key Innovations Enhancing Medit Orthodontic Simulations:

Biomechanically Informed Tooth Movements

This software is governed by clinical rules based in biomechanics to determine tooth movement. These rules consider factors such as clinically reproducible amounts of anteroposterior molar movement, paths to align teeth within the selected archforms, and simulation mechanics based on known endpoint data.

Personalized Archform Selection

An archform that closely match the patient's unique dental and skeletal structure is selected by the operator from 10 commonly occurring, predefined archforms. This ensures that simulations are based on the individual's actual anatomy, leading to more accurate, viable simulations and treatment planning for each unique patient.

Integration of Comprehensive Patient Data

The software incorporates various data sources, including cephalometric X-rays and intraoral scans, upper and lower molar bite relationship, and functional occlusal plane to inform the simulation process. By analyzing this comprehensive data, the software can determine occlusal tables, molar bite classes, and WITS values, which are critical for creating relevant, accurate and reproducible treatment simulations.

Multiple Treatment Options

Clinicians can view and compare multiple treatment scenarios instantly. This gives both the doctor and patient the ability to collaboratively select the best course of action before committing to a plan. The ability to select among realistic scenarios empowers patients and aligns expectations with achievable results.

Dynamic Treatment Planning

Clinicians can interact with the chosen simulation by adjusting tooth positions, endpoint positions, and treatment mechanics. The system responds by recalculating and displaying updated simulations, allowing for real-time refinement of treatment plans.

Streamlined Aligner Workflow

This software facilitates the rapid generation of data files corresponding to the desired orthodontic set-up. These files can be used for 3D printing or other manufacturing methods, significantly reducing the time from simulation to appliance production. Eliminates the need to send data to external staging services.

Clinical Advantages:



• Enhanced Accuracy

By basing simulations on individualized archforms and comprehensive patient data, the system achieves higher precision in predicting treatment outcomes.



• Improved Efficiency

The integration of simulation and appliance fabrication streamlines the treatment process, enabling quicker initiation of therapy and improved patient experience.



• Greater Flexibility

Clinicians can explore multiple treatment scenarios and adjust plans dynamically, leading to more personalized patient care.



• Patient Engagement

Visual simulations help patients understand their treatment plans better, potentially increasing compliance and satisfaction.



• Lower Cost of Care

By eliminating multiple human interactions and reducing dependency on outside technicians, operational costs drop.



• Accessible Orthodontics

Shorter turnaround and reduced costs make high-quality aligner therapy available to a broader patient base.

Technical Workflow Overview:

1. Scan Acquisition

3D intraoral images are captured and imported into the system.

2. AI-Driven Analysis

The software evaluates molar position, archform, and occlusion to determine viable treatment plans based on anatomical feasibility.

3. Simulation Generation

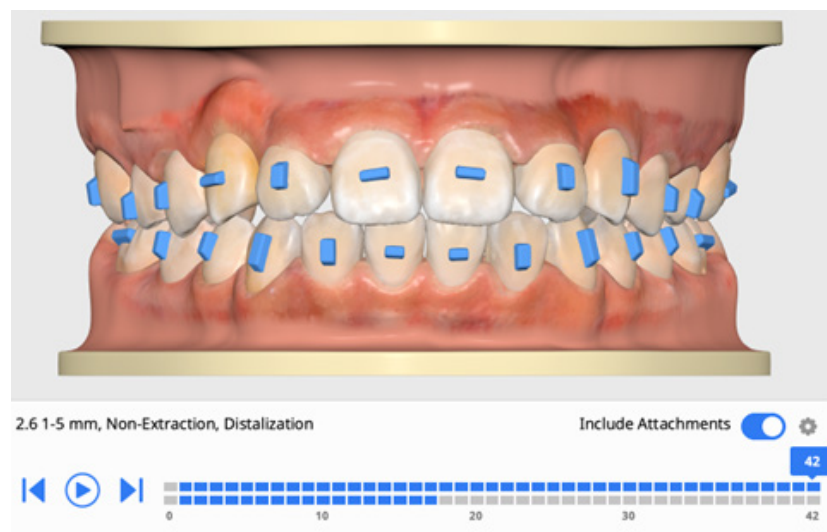
Multiple visual treatment outcomes are simulated and presented to the practitioner and patient.

4. Treatment Plan Selection

The most appropriate plan is selected collaboratively.

5. Aligner Fabrication

If available, an in-house 3D printer can immediately create the first aligner; otherwise, print files are dispatched for remote fabrication.

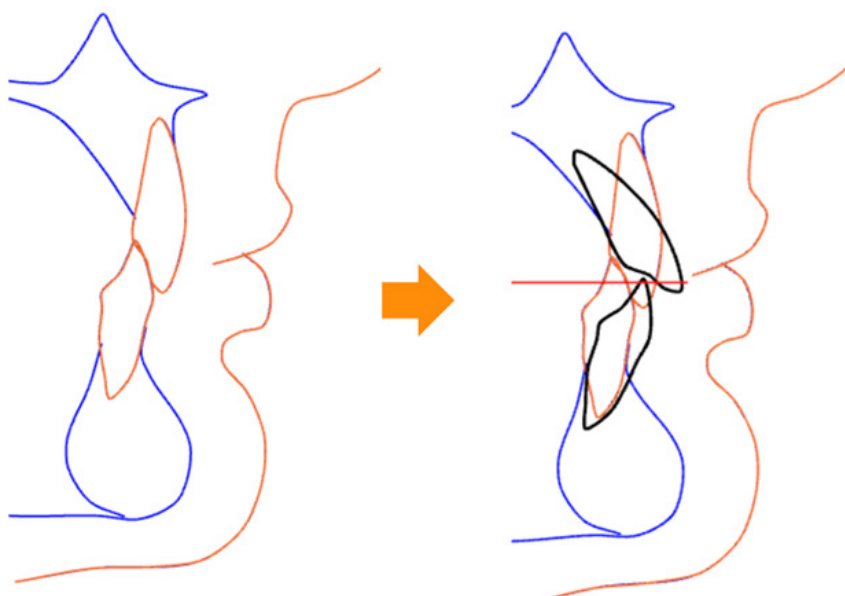
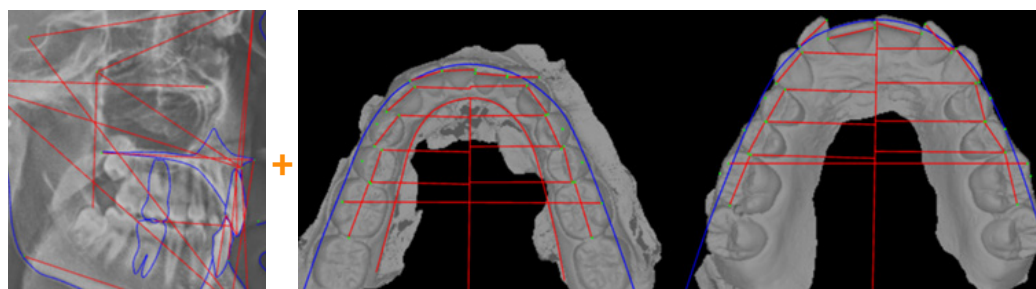


Case Example:

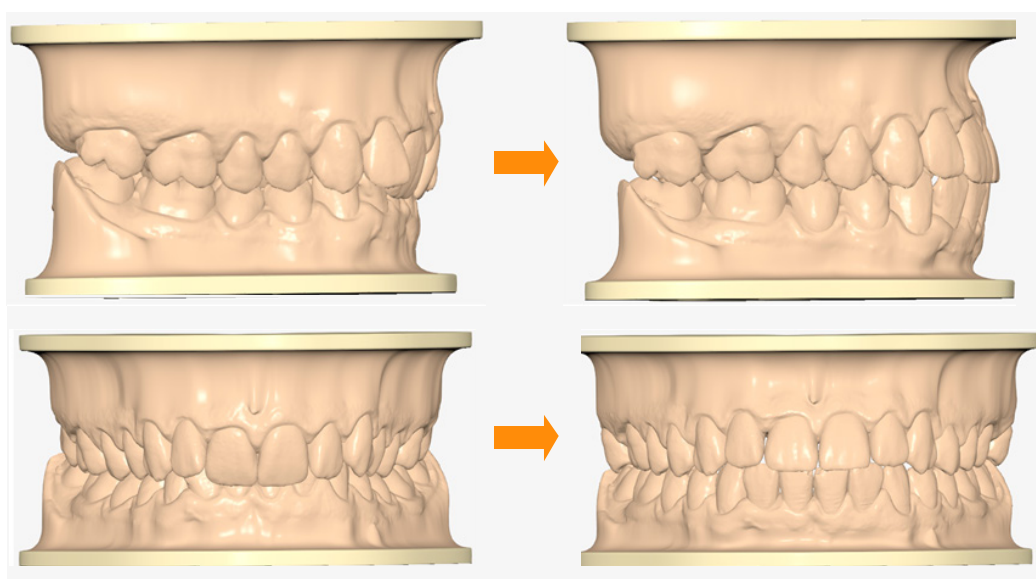
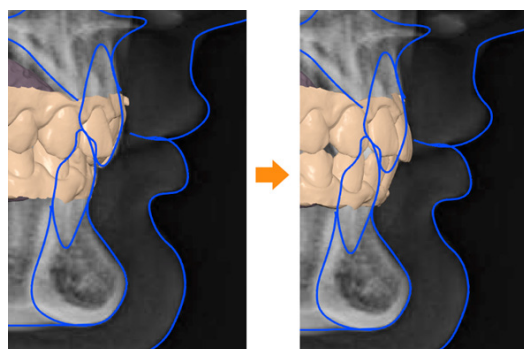
The developers of Medit Orthodontic Suite have been using computer generated 2D orthodontic VTOs (Visual Treatment Objectives) for over 25 years to predict the amount of upper and lower incisor advancement based on the tracing of the lateral cephalometric radiograph, the tracing of the dental models, the amount of dental crowding, arch form, molar classification and mechanics used to treat the case. Thousands of treated case outcomes, fully documented with cephalometric overlays have been compared to the 2D VTO predictions for a high level of accuracy.

The development and programming of the Medit Orthodontic Suite is based upon this data, assuring that the accuracy of the 3D VTO produced is consistent with or better than the accuracy of the proven 2D VTOs. The following case example illustrates this comparison.

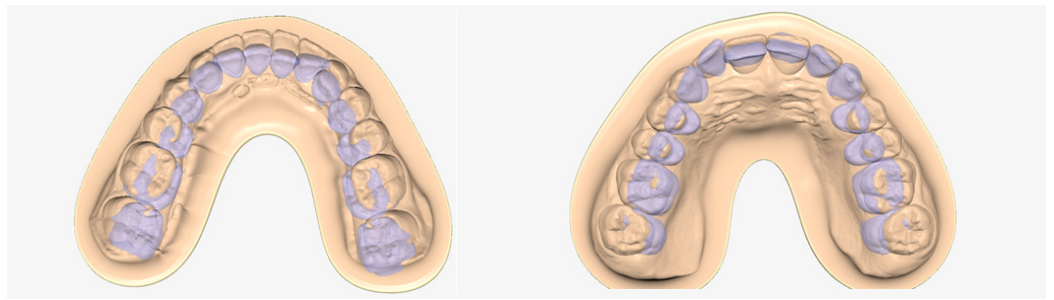
Class II Elastic 2D VTO:



Class II Elastic 3D VTO
Medit Orthodontic Suite



Class II Elastic 3D VTO
Medit Orthodontic Suite

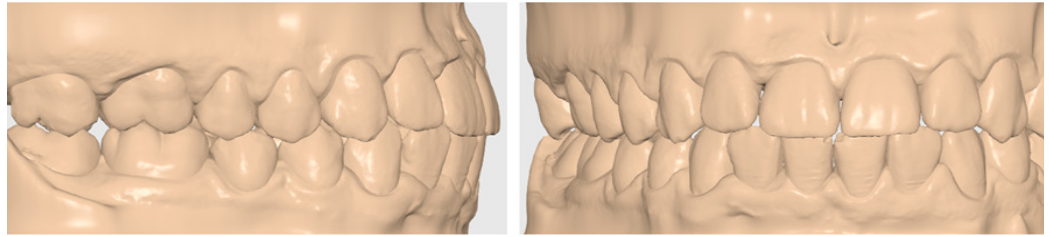


Actual Treatment Results



3D VTO

Medit Ortho Simulation
(Prediction)



Actual Treatment
Result



Competitive Differentiation

Feature	Current Aligner Platforms	Medit Ortho Suite
Personalization	Standardized smile goals	Patient-specific goals based on anatomy
Planning Process	Manual and iterative	Automated, rules-based
Time to Treatment	Days to weeks	Same day (with 3D printer)
Outcome Accuracy	Idealized simulation	Realistic, anatomy-based simulation
Practitioner Involvement	External technicians	Direct in-clinic control
Cost	High due to multiple revisions and human designers	Low due to automation

Market Impact and Future Directions

The orthodontic market is ripe for disruption. As demand increases for faster, affordable, and personalized care, our AI-driven simulation software is positioned to lead the industry with the best-in-class orthodontic workflow.

Conclusion

This next-generation orthodontic simulation software marks a paradigm shift in dental care.

Moving away from generic, one-size-fits-all models, it delivers real-time, patient-specific, and achievable orthodontic plans that start with the individual—both in anatomy and expectations.

By eliminating inefficiencies, improving clinical precision, and reducing costs, this AI-powered platform enables practitioners to offer superior, accessible, and personalized aligner treatment - redefining what is possible in orthodontic care.



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