

## Full-Face Hyaluronic Acid Implants Assisted by Artificial Intelligence- Generated Post-treatment 3D Models

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**Abstract :** Introduction: Full-face aesthetic treatments often present a difficult task: since different patients possess different anatomical and tissue characteristics, there is no guarantee that the same treatment will have the same effect on multiple patients; additionally, full-face rejuvenation and beautification treatments require not only a high degree of technical skill but also the ability to choose the right product for each area and a keen artistic eye. Method: We present an artificial intelligence-based algorithm that can generate realistic post-treatment 3D models based on the patient's requests together with the doctor's input. These 3-dimensional predictions can be used by the practitioner for two purposes: firstly, they help ensure that the patient and the doctor are completely aligned on the expectations of the treatment; secondly, the doctor can use them as a visual guide, obtaining a natural result that would normally stem from the practitioner's artistic skills. To this end, the algorithm is able to predict injection zones, the type and quantity of hyaluronic acid, the injection depth, and the technique to use. Results: Our innovation consists in providing an objective visual representation of the patient that is helpful in the patient-doctor dialogue. The patient, based on this information, can express her desire to undergo a specific treatment or make changes to the therapeutic plan. In short, the patient becomes an active agent in the choices made before the treatment. Conclusion: We believe that this algorithm will reveal itself as a useful tool in the pre-treatment decision-making process to prevent both the patient and the doctor from making a leap into the dark.

**Keywords :** hyaluronic acid, fillers, full face, artificial intelligence, 3D

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