



**Auflage:** 1st Edition 2021  
**Seiten:** 232  
**Abbildungen:** 534  
**Einband:** Hardcover, 21,6 x 28 cm  
**ISBN:** 978-1-64724-051-6  
**Erschienen:** Juni 2021

**Quintessenz Verlags-GmbH**

📍 Ifenpfad 2-4  
12107 Berlin  
Deutschland

☎ +49 (0) 30 / 76180-5

📠 +49 (0) 30 / 76180-680

✉ info@quintessenz.de

🌐 <https://www.quintessence-publishing.com/deu/de>

## Buch-Information

**Hrsg.:** Panayi, Nearchos C.  
**Titel:** Customized Orthodontic Appliances  
**Untertitel:** Theory, Design, Application  
**Kurztext:**

Since its recognition as the first specialty of dentistry, the practice of orthodontics has been influenced by the development of new materials, techniques, bracket designs and prescriptions, appliances, and software. However, never before has there been as revolutionary a change as digitization. Digitization and automation are transforming the entire landscape of how orthodontics is practiced, and the consequence is the “do it yourself” concept. With the technology available today with intraoral scanning, CBCT imaging, and CAD software, we can create the virtual patient and manipulate dental models virtually. Not only does this enable better and more precise treatment planning, but it also facilitates better communication with the patient. Perhaps most exciting is that it permits in-house designing and printing of the majority of orthodontic appliances. This book describes the current digital technology that is used in orthodontics, including volume and surface scanning, 3D printing, CAD software, and artificial intelligence, before delving into a “design it yourself” guide presenting the application of this technology in all aspects of orthodontic treatment. It describes all the necessary technologic ingredients to be used in a self-sufficient digital orthodontic clinic, and it focuses on the in-house design and production of tailor-made appliances by digitally diagnosing and evaluating the virtual patient and then creating an individualized treatment plan. Now you can design your own expanders, retainers, clear aligners, brackets, indirect bonding trays, and even wires with a wire-bending robot. It is incredible what technology has to offer; we just have to have the courage to learn and experiment with it. For the benefit of our patients, the challenge is laid.

**Contents**

Chapter 1. Introduction  
*Rafi Romano*

**3D Technology in Orthodontics**

Chapter 2. CBCT in Orthodontics  
*Apostolos I. Tsolakis, Christos Angelopoulos, Nearchos C. Panayi, Kostas Tsiklakis*  
 Chapter 3. Surface Scanning  
*George Michelinakis*  
 Chapter 4. Additive Manufacturing  
*Nearchos C. Panayi, Gkiaouris Ioannis, Spyridonas Efstathiou*  
 Chapter 5. Orthodontic Office Digital Workflow  
*Moshe Davidovitch, Nearchos C. Panayi*

**3D Applications in Orthodontics**

Chapter 6. In-House Custom Appliance Design  
*Nearchos C. Panayi, Apostolos I. Tsolakis*  
 Chapter 7. Custom Appliance Design with the Laboratory  
*Santiago Isaza, Stefano Negrini*  
 Chapter 8. In-House Customized Orthodontic Brackets: UBrackets Software  
*Nearchos C. Panayi*  
 Chapter 9. In-House Customized Lingual Orthodontic Appliances  
*Chris Riolo*  
 Chapter 10. In-House Clear Aligners  
*Nearchos C. Panayi, Mavrikis Manolis, Evangelos Akli*  
 Chapter 11. In-House Digital Indirect Bonding

*Nearchos C. Panayi, Moshe Davidovitch, Riccardo Nucera*

Chapter 12. In-House Orthognathic Surgical Splints

*Federico Hernández Alfaro, Adaia Valls Ontañón*

### **The Future of Orthodontics**

Chapter 13. In-House Orthodontic Archwire-Bending Robots

*Alfredo Gilbert*

Chapter 14. Artificial Intelligence and Machine Learning in Orthodontics

*Rosalía Leonardi, Cristina Grippaudo, Silvia Allegrini, Ambrosina Michelotti*

### **Contributors**

Evangelos Akli • Federico Hernández Alfaro • Silvia Allegrini • Christos Angelopoulos •  
Moshe Davidovitch • Spyridonas Efstathiou • Alfredo Gilbert • Ioannis Gkiazouris •  
Cristina Grippaudo • Santiago Isaza • Rosalía Leonardi • Manolis Mavrikis • George  
Michelinakis • Ambrosina Michelotti • Stefano Negrini • Riccardo Nucera • Adaia Valls  
Ontañón • Nearchos C. Panayi • Chris Riolo • Rafi Romano • Kostas Tsiklakis •  
Apostolos I. Tsolakis

**Fachgebiet(e):** Kieferorthopädie