

Feng Liu
Editor

Dental Digital Photography

From Dental Clinical Photography to Digital
Smile Design



PEOPLE'S MEDICAL PUBLISHING HOUSE

 Springer

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From Dental Clinical Photography
to Digital Smile Design

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Editors and Authors

About the Editors



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- Executive committee member and academic secretary of Chinese Society of Esthetic Dentistry (CSED).
- Member of Prosthodontics Professional Committee of the Chinese Stomatological Association (CSA).
- Executive committee member of the Oral Plastic Surgery Branch of the China Association of Plastic surgery (CAPA).
- Youth Committee of Medical Aesthetics and Beauty Branch of the Chinese Medical Association (CMA).
- European Society of Cosmetic Dentistry (ESCD) Chairperson of China, Member of Executive Committee.
- Certified International Trainer of International Computer Dental Association (ISCD).
- Member of American Academy of Cosmetic Dentistry (AACD) and Japan Academy of Ethetic Dentistry (JAED).
- Published more than 50 scientific papers and lectures in major academic journals.
- Editor and reviewer for the Chinese Journal of Stomatology and other academic journals.
- Editor- in-Chief for the main translation and publication of 12 monographs.
 1. “Dental digital photography”. 2006, Beijing, People’s medical publishing house.
 2. “The aesthetic of the clinical practice of Stomatology”, 2007, Beijing, People’s medical publishing house.
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12. "Case Omnibus of Chinese Esthetic Dentistry 2015", 2013. Beijing. People's medical publishing house.



Yi Li is prosthodontic specialist in the department of comprehensive dentistry in 1st clinical division of Peking University School and Hospital of Stomatology, as well as a member of the Chinese Stomatological Association (CSA) and Japan Academy of Esthetic Dentistry (JAED). Dr. Li has been engaged in aesthetic prosthodontics clinical and teaching activities. She served as part of a series of aesthetic series in theory teaching and clinical work organized by the training center at Peking University School of Stomatology's continuing education programs. She won second place in the first VITA Cup medical technology matches in 2012. She participated in the preparation of the second edition of *Dental Digital Photography* as the second author and other professional books, such as *Fiberpost Technology*, *Tooth Preparation in the Esthetic Dentistry*, and *The Fine Impression Techniques*.



Xiaorui Shi, DDS is a prosthodontic specialist who works in the department of comprehensive dentistry in 1st clinical division of Peking University School and Hospital of Stomatology in 2010. She is a youth professional committee member of the Chinese Society of Esthetic Dentistry (CSED), and member of Japan Academy of Esthetic Dentistry (JAED). Dr. Shi focuses on clinical examination, diagnosis and multidisciplinary comprehensive analysis of occlusion problems. She has participated in two international multi-center cooperation projects and helped to draft of a number of clinical monographs, such as *the second edition of Dental Digital Photography*, *Fiber Post Technology*, *Tooth Preparation in the Esthetic Dentistry*, *The Fine Impression Techniques*, *Application of facebow and articulator* and *the 9th edition of Undergraduate Textbook on Occlusion*. She has also completed a number of domestic and foreign experts' training courses.

About the Authors



Liang Han is Deputy Secretary-General of Chinese Stomatological Association (CSA), editorial board member of the *Chinese Medical Continuing Education Magazine in dentistry*, member and secretary of the dental equipment branch of the Chinese Stomatological Association Committee, and vice president of Beijing Daxingxingyei Stomatological Hospital. Dr. Han graduated from the Stomatological School of the Fourth Military Medical University with a Master's degree in dentistry. Dr. Han is mainly engaged in oral outpatient management, oral clinic team building, oral medicine digital research and oral health science propaganda at present. Dr. Han participates in oral professional lectures and health science propaganda activities organized by oral medical institutions, financial institutions, communities and media organizations.



Tongfeng He graduated from the Fourth Military Medical University in 1985. He worked at the critically acclaimed outpatient Department of Stomatology, He established Pine Valley Dental and now has two high-quality clinics: Beijing Feng Jing Oral and Huajing Oral Nest Clinic. Dr. He is a member of the Chinese Stomatological Association (CSA), Honorary Vice President of the Chinese Academy of Esthetic Dentistry. Professional Committee of the implantation branch of the Beijing Stomatological Association, China (BSAC), and Sedative and Analgesic Specialized Committee of Beijing Stomatological Association .China (BSAC). He is director of the Bicon Implant China training center, editor of "Dental Cosmetology and Planting" for the World Dental Forum, member of ICOI, and member of DentalED, among others.

Dr. He is one of the earliest all-ceramic technology physicians. He has a wealth of clinical experience in the field of oral beauty, cultivation, and other fields. He is invited to lecture in the country frequently.



Wei He has a master's degree from the College of Dental Medicine, Xi'an Jiao Tong University and holds China's first international certification of dental aesthetics DSD master degree. He is a member of the First Aesthetics Committee of the Chinese Stomatological Association (CSA) and Head of the Xian Yazhi. Two of his clinical cases were included in the *Case Omnibus of Chinese Esthetic Dentistry 2015*. He is an Ivoclar aesthetics lecturer and Korea "Taward World" oral hospital guest physician. He is one of the Chinese dentists who developed DSD digital design in clinical practice. In 2012, he was an invited guest for the Korean 34th oral annual session. He carried out the DSD aesthetic design tour in more than 20 cities (Beijing, Shanghai, Fujian, Hangzhou, Nanjing, Changchun, Dalian, Changsha, etc.). His lecture provided on-site practical instruction for thousands of dentists.



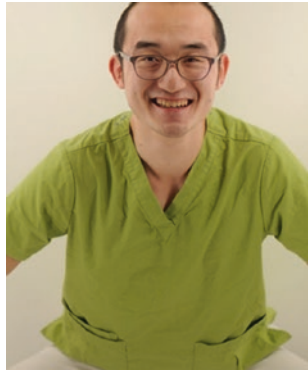
Huan Huang is Director of Beijing GAIDE International Dental Center (GIDC), Secretary of the private oral health care branch of the Beijing Stomatological Association, China (BSAC). He was the Chairperson for Chinese region of Aesthetic training center of UCLA in 2014 and is the China District Director of GIDE/Loma Linda master of aesthetics and implantology course since 2008. He was the Chinese version editor of DTI “World Dental Forum,” Chinese editor-in-chief of “Planting Forum,” an American Dental Association (ADA) member, and a member of the Dental Instruments Branch of the Chinese Stomatological Association (CSA).



Shan Jiang Director of Beijing Noah’s clinics, graduated from the Oral Department of Capital Medical University in 1989 and enrolled in “Beijing Excellent Dental.” Dr. Jiang published his first work on technical porcelain in 1993 and joined Ivoclar Vivadent in 1995. He became Technical Director of China Ivoclar Vivadent. Dr. Jiang gave hundreds of lectures at major hospitals in China, participated in EMAX ceramic research and trials in 2002, and participated in the preparation of domestic oral medical textbooks in 2004. He established Beijing Noah clinics in 2005 and developed the first domestic porcelain veneer technology in 2006. He accumulated a lot of minimally invasive clinical experience with porcelain laminate veneers. Dr. Jiang served as one of the EMAX’s global aesthetic contest selection experts in 2016.



Shiming Liu graduated from the Peking University School of Stomatology with a DDS in Prosthodontics and is a member of the Chinese Stomatological Association (CSA) and IPCC. She majored in basic research related to dental restorative material and clinically specializes in the restoration of tooth defect, and multidisciplinary treatment of dentition defects and implants. She published a number of papers in domestic core journals, SCI and EI. She helped to draft clinical monographs such as *Fiber Post Technology* and the *Graduate Textbook on Fixed Restoration Research*. Since 2012, she participated in clinic training center training courses in aesthetic dentistry at the Peking University School of Stomatology. She has served as interpreter for the third VieSID courses in China.



Xinran Liu is a prosthodontist who graduated from the Peking University School of Stomatology in 2013 with a DDS. He is a member of the European Society of Cosmetic Dentistry (ESCD). After graduation, Dr. Liu served as a prosthodontist in the department of comprehensive dentistry in 1st clinical division of the Peking University School and Hospital of Stomatology, focusing on all types of direct and indirect fixed restorations as well as comprehensive dental aesthetics treatment. He helped to draft “Beijing Cosmetic Dentistry Training Materials,” “*Case Omnibus of Chinese Esthetic Dentistry 2015*,” and other professional works.



Xing Liu graduated from Peking University School of Stomatology in 2014 with a DDS in prosthodontics as a student of Professor Deng Xuliang. He served as an oral comprehensive physician in the department of comprehensive dentistry in 1st clinical division of Peking University School and Hospital of Stomatology, with a focus on fixed prostheses, the comprehensive treatment of aesthetics dentistry, digital work flow in dentistry and related research, bone regeneration, and biomaterials. He is a member of the Chinese Stomatological Association and the European Society of Cosmetic Dentistry (ESCD).



Bo Peng graduated from Central South University Xiangya Medical College of Oral (former Hunan Medical University) in 1996. He is the director of ARRAIL Dental Medical in Shenzhen. a senior specialist in esthetic restorative dental treatment, a member of the American Association of Cosmetic Dentistry (AACD), and a member of the European Association of Cosmetic Dentistry (ESCD). He participated in the first session of the Committee of Cosmetic Dental Plastic Surgery (a branch of China Cosmetic Dental Association) and the first Aesthetic Specialized Committee of the Chinese Stomatological Association (CSA). He has been to South Korea, the United States, Germany, and Italy for continuing education in esthetic dentistry. He has accumulated rich experience and published many clinical papers in the area of dental aesthetics and digital photography.



Ying Wang graduated from Peking University School and Hospital of Stomatology with a master's degree in 2013. Dr. Wang is a member of the oral biology and medicine branch of the Chinese Stomatological Association, worked in the department of comprehensive dentistry in 1st clinical division of Peking University School and Hospital of Stomatology, and is involved with the tooth repair and integrated treatment of periodontal disease as a main research direction. Dr. Wang's basic and clinical research focused on bone regeneration during the period of study, with a major in the design, preparation, cell and animal experimental evaluation, and clinical application of biodegradable stents and biodegradable membranes. Dr. Wang published two SCI papers with first authorship and a cumulative impact factor of 5.874.



Mingming Xu, PhD is a prosthodontic specialist, a member of the Chinese Stomatological Association, and a youth member of the Chinese Society of Biomaterials. Dr. Xu focuses on dental aesthetics and functional mandibular defects with digital restoration and the study of dental materials. Dr. Xu has participated in multiple research projects, including national 863 program, national supported program, and the National Science Fund. Dr. Xu achieved the digital sequence repair of severe maxillary defects, is committed to platform construction at multi-center oral medical clinical research and digital medical research, established the first network platform for oral medical clinical research and multilayer centers as a leader, and promotes this platform for applications at the grassroots level. Dr. Xu has published 16 articles, including six SCI papers and one piece of translated work.



Tongkai Xu was admitted to the Department of Stomatology at Beijing University School of Medicine in 2001 and received a doctoral degree in oral clinical medicine in 2009. Currently, he works for the university. Dr. Xu studied at the University of Rochester in the United States between 2012 and 2013 and completed the Advanced Oral General Dentistry training project (AEGD). He was hired as one of the first comprehensive physicians at Peking University Stomatological Hospital and has visited Japan, Germany, France, Russia, and other countries for continuing education. He is a youth member of the oral plastic surgery branch of the Chinese Plastic and Cosmetic Surgery Association. He has edited and translated a number of books on stomatology and written a number of articles. His main research interests include dental color, full ceramic adhesive restoration, and oral education.



Tao Yu, DDS graduated from Peking University School of Stomatology in 2015. He worked in the outpatient department of the General Department of Peking University School and Hospital of Stomatology. He has published several articles in major academic journals, participated in the publication of professional books, also have participated in the translation of two professional books.



Yu Tian, PhD is a physician at the Peking University School of Stomatology and member of the stomatological periodontal branch of the Chinese Stomatological Association. She received a bachelor's degree, master's degree, and Ph.D. in clinical medicine from the Peking University School of Stomatology. Dr. Yu is currently engaged in the comprehensive treatment of periodontal disease design, periodontal surgery, non-surgical treatment, and implant surgery, with a focus on periodontal tissue and implant aesthetics-related processing. She participated in a number of National Natural Science Funds, the Capital Health Industry Development fund, and other research projects. She published three articles in domestic and foreign academic journals as first author, one of which was included by SCI.



Zhensheng Zhang graduated from the School of Stomatology at Tianjin Medical University and is founder and president of Tianjin De-best Dental Clinic. Dr. Zhang is a member of the International Computer Dental Association (ISCD), a training instructor in international ceramic cores, a member of the Implant Dentist Association (ICOI), and member of the Chinese Esthetics Dental Association (CAED), executive director and member of the Chinese Stomatological Association (CSA), and a member of the American Dental Association (ADA). Dr. Zhang is pioneer of and expert on chair-side dental CAD/CAM systems and has been invited to many colleges and universities to provide advanced training courses on the subject. Dr. Zhang visited the United States and Germany many times for professional studies and is a German SIRONA Dental College consultant and CEREC senior training instructor.

Preface

The significance of medical photography in clinical practice has long been known to dentists in various disciplines, especially oral surgeons. By means of clinical photography, the dentist can record a patient's case with greater medical accuracy. By analyzing these photographic images in medical records, the dentist can schedule appropriate treatment. Furthermore, the information exchange between patients and other relevant departments is enhanced. Clinical treatment plans, patient education, and other market development can be greatly improved.

Photography has been widely used in oral medicine in recent years, especially in aesthetic procedures. Advanced oral clinical photography is an important aspect in the advancement of this field. This book focuses on each subdiscipline of oral medicine with regard to general clinical image shooting and meets the requirements for dental aesthetic treatments. It focuses on the international standards and specifications for dental aesthetics and the application of clinical photography in these treatments.

In this revised third edition of *Dental Digital Photography*, you will notice some adjustments to the framework compared with the first two editions. The presentation of basic knowledge, photographic equipment, and basic applications has no obvious change in structure. However, the content is more substantial than in the previous versions. This edition also describes how to meet the requirements of clinical photography using the frequently upgraded hardware equipment.

The second part of the book was greatly enriched. A variety of clinical images are presented so that the clinician can understand their significance clearly. We also describe the basic process of the very popular Digital Smile Design (DSD) in the section on image post-processing and applications. Information was added on related cases of comprehensive oral aesthetic treatment, including clinical photography. Specifications and clinical shootings are included in the appendix, which can become a virtual assistant to the dentist.

This book follows the development of the new era of clinical photography, comprehensively describing definitions, principles, methods, standards and specifications. It can be used as a primer for oral photography education, as well as a textbook for clinicians who are interested in further improving their oral aesthetics practices. For regular readers who have already read the previous editions, I believe that the third edition of *Dental Digital Photography* will be more comprehensive, deeper, more systematic, and provide a greater sense of knowledge. It will contribute to a clearer understanding of the scientific oral clinical photography concepts and methods.

I hope readers of all levels will find useful content herein, gaining assistance and inspiration from this book.

2016 July

Feng Liu

Preface to the Third Edition

After a lapse of 5 years, I received a solicitation for a third edition of *Dental Digital Photography*. Although I have published twelve professional books in these years, my affection for *Dental Digital Photography* cannot be replaced.

Ten years ago, when I was a new dentist, I found a breakthrough point in clinical photography with the support of a doctor and predecessor at Peking University School of Stomatology. With my curiosity, resilience, and aptitude for professional technology, I promoted aesthetic dentistry along with clinical at the same time. By benefiting from the large amount of data in clinical photography, I became one of the aesthetic dentists in China who had a large number of successful cases.

I was fortunate to have had deep communication with industry predecessors Dr. Shan Jiang and Dr. Tongfeng He. I inherited a lot of oral aesthetics clinical skills from them. At the same time, I worked with Dr. Liang Han and Dr. Huan Huang as brothers and comrades for many years. Under the leadership of these colleagues with common aspirations, I had the opportunity to publish the first edition of *Dental Digital Photography* in 2006. It was the China's first specialized monograph for oral clinical photography. Because it addressed a technology gap, the book was quickly recognized by many clinicians. The first edition was reprinted several times within a few years. Many dentists stepped into the world of oral clinical photographs with this book.

Dental Digital Photography and *Clinical Practice of Stomatology Aesthetics* are two of my early masterpieces. The latter was written solely by me. Many dentists know me through these two books. Photography is indeed very significant for clinical doctors. With the popularity of dental clinical photography, the clinical skills of aesthetic dentists have improved quickly in China. Around the year 2010, we were able to see a number of young dentists with excellent clinical photography skills. However, one flower is not thriving. All flowers bloom together in full in a spring garden. At that time, the early spring of Chinese oral aesthetics had come. Flowers bloomed all over the country.

I received the solicitation for the second edition of *Dental Digital Photography* in 2010. Due to my deeper understanding of clinical photography, I had already felt the contents of the first edition to be slightly lacking. Thus, I added lots of new content and revised the book carefully. After 4 months of hard work, the second edition of the book was published successfully in 2011. The achievement of the second edition was like a golden treasure. You can quickly get started with clinical photography by reading this book—just like mining a gold mine that you never set foot in before.

Dental aesthetics has been a focus of dental clinicians. Clinical photography technology is a necessary tool to record dental aesthetics treatment. The sales record of the second edition *Dental Digital Photography* was strong. It was out of stock several times in 5 years and reprinted many times. In recent years, an increasing number of physicians and lecturers have produced very fine cases, with fewer producing poor-quality photos. By the end of 2014, I began to assist the chairman of the Xing Wang by editing *Case Omnibus of Chinese Esthetic Dentistry 2015*. This book featured more than 100 high-quality oral aesthetics cases across the country. Some case photographs had me amazed. All of them showed that the treatment and photography skills of aesthetic dentists in China had greatly improved.

I enjoy the rapid change and promotion in our industry. When I demonstrated our capabilities and results to colleagues in Europe, the United States, and Japan, they expressed their praise and recognition. I was really proud that several case reports and my clinical thoughts were accepted by foreign dentists. Some of my articles have been translated into English and German were published in the foreign media. I believe we have a responsibility to demonstrate our skills on the international stage and enhance the perception of the Chinese in the context of the world.

Such recognition is enhanced when we established the Chinese Society of Esthetic Dentistry (CSED) with Professors Jianguo Tan and Cong Fan. In recent years, I have been involved in professional activities of foreign dental aesthetics society. Firstly, I participated in the American Academy of Cosmetic Dentistry (AACD). Then, I was enrolled in the European Society of Esthetic Dentistry (ESCD) and the Japan Academy of Esthetic Dentistry (JAED). For 2 years I served as the chairperson for China in the ESCD. During the process of contacting foreign counterparts, I felt more and more urgent that China needs its own oral aesthetic organization, when the Chinese Stomatological Association (CSA) aimed to set up such a subsidiary organization.

Finally, after nearly 2 years of preparation, the Chinese Society of Esthetic Dentistry was formally established in September 2015. Before the Institute was formally established, Professor Tan Jianguo told me that our Committee should work to promote the growth of the field by having more colleagues demonstrate the Chinese style on the international stage. After the founding of the first oral aesthetics Committee, one of the specific jobs was to establish the China Stomatological Aesthetic Standards (CSED), which are specifications on clinical photography aesthetics.

Why should we set up our own specifications? The AACD has its own clinical photography specifications that are widely acknowledged by oral aesthetics dentists. However, the ESCD believed that the AACD standards were relatively simple and had limitations by considering “beautiful” results without occlusal and function problems. Thus, they cannot meet the requirements of oral aesthetics treatment. Therefore, the ESCD developed its own specifications. Many European dentists recognize and follow the specifications of ESCD. By careful study, we found that the differences between AACD and ESCD were very obvious.

Which specifications should be followed by Chinese oral aesthetic dentists—the AACD or the ESCD? Experts from 15 professional colleges, 7 subspecialties, and 29 clinical doctors discussed this problem repeatedly. Combined with the requirements of oral aesthetics analysis, design, and demonstration, they created the CSED Specifications of Clinical Aesthetics Photography, which consist of 16 images.

I am responsible for the draft of these specifications. I am very grateful to Chairman Tan Jianguo for delegating the draft settlement to me. Although I was familiar with the clinical photographs, it was quite difficult for me to draw up specifications that meet the requirements of oral esthetics, just like Guyi Li (a famous singer in China) singing the song “Unforgettable Tonight.” To take advantage of this opportunity, I began to earnestly study and research with my team. I consulted with experts in other professional fields on various occasions. This was a great opportunity for me and my team.

Finally, when the specifications were drafted, I was very excited. Our specifications were different from those of AACD. They represent the improvement of dental aesthetic treatment concepts. CSED’s specification is similar to ESCD’s specification. However, there are still a lot of differences. The CSED specifications represent the clinical thinking of a Chinese oral aesthetic clinician. We can be very confident when showing our specifications to the world and spreading the idea of oral aesthetics concept from China.

While I was developing the CSED specifications, I received a solicitation for the third edition of *Dental Digital Photography* from the publisher. I felt that it was the right opportunity. With this opportunity, we combed through a variety of commonly used clinical images. We had to deeply think about dental photography and other areas related to clinical photography. All of these aspects were fully written and expressed in this revision.

There is a big difference between this revision and the first edition. I was informed that this book would be published in an English version as a classic monograph of the People's Medical Publishing House. This was a huge pressure on me, and also a huge opportunity at the same time. As far as I know, it is relatively rare for a Chinese dentist to publish their professional literature in English. This means that more foreign doctors will recognize and understand the developments in this field in China. This is consistent with the target of my Committee objectives.

In the process of finishing the manuscript, I recalled past events from the first edition of the book. Dr. Shan Jiang, Dr. Tongfeng He, and Dr. Liang Han and Dr. Huan Huang. Each of those familiar names has become a leader of in China's dental aesthetics field. Thanks to them for giving me the opportunity to mature from an unknown doctor. My powerful team consists of young doctors such as Yi Li, Xiaorui Shi, Tongkai Xu, Yu Tian, Xinran Liu, Shiming Liu, Xing Liu, Ying Wang and Tao Yu. It also includes doctors in private clinics, such as Bo Peng, Zhensheng Zhang and Wei He. Although we do not work together, we maintained close contact. All of them are solid supporters who helped to make my mission successful. It is my good fortune to have had the opportunity to learn from each other and promote common development.

I believe that the third edition of this book will gain the favor of oral aesthetic clinicians thanks to the joint efforts of everyone involved. I hope this book will help more clinicians and will be read by more foreign doctors, providing a clearer picture of the aesthetics of Chinese dentists in the world.

Finally, my special thanks go to Dr. Mingming Xu, deputy director at Peking University Hospital of Stomatology. She is my excellent partner in life and career. She always provides me with the utmost support and complete confidence by encouraging me to run all the way on my favorite road.

Beijing, China
December 1, 2015

Feng Liu

Foreword to the Third Edition

—Praise for the third revised edition of Dr. Feng Liu *Dental Digital Photography*



In 2006, Dr. Feng Liu published his first edition of *Dental Digital Photography*. He finished the revision of the second edition in 2011. Today, presented herein is his edition of the third revision. The revised edition of *Digital Dental Photography* not only has been restructured from the original version, but a lot of new content was also added. Its theoretical approach is more systematic, more clinically significant, and more valuable.

Dental clinic doctors must accumulate complete image information in order to improve their clinical skills and achieve a higher level of research on the subject. At the same time, complete high-quality image data is essential to teaching. However, some clinicians lack sufficient knowledge. The effect of the academic report or teaching is greatly influenced by the image data, even arousing suspicion and doubts for their academic level. In recent years, due to the rapid development of digital photography, traditional film photography has been completely replaced by digital photography in the field of stomatology. A book on digital photography technology and its specific applications in the field of stomatology is very important for dentists.

Dr. Feng Liu has published more than 10 books in recent years. I have read some of his works, and I greatly appreciate his hard work and efforts. Dr. Feng Liu constantly improves his clinical technology by means of dental clinical photography. At the same time, he has shared the clinical data accumulated by clinical photography with colleagues. Especially in the field of aesthetic dentistry, Dr. Feng Liu work has received the recognition and affirmation of his fellows. *Dental Digital Photography* has become a tool of many dentists. Dr. Feng Liu works promote dental clinical research in China. He has helped to improve the level of clinical research.

People's Medical Publishing House will revise the third edition of the *Dental Digital Photography*, publishing and translating it into English simultaneously. It will be pushed to the foreign market, allowing more foreign counterparts to understand China and promoting international exchanges and cooperation.

I believe that the publication of this book is something to be proud of. I also sincerely hope that Chinese stomatology will be recognized by international colleagues, contributing to the progress of oral medicine in China.

Congratulations to Dr. Feng Liu on the publication of the third edition of *Dental Digital Photography* in English. I hope all dentists will benefit from reading this book.



Xing Wang
Honorary Chairmen of Chinese Stomatological Association
Beijing, China
March 7, 2016

Foreword to the Third Edition



Digital technology has penetrated into all walks of life, bringing revolutionary changes in people's work and life. The emergence of digital medicine has greatly improved the accuracy and convenience of diagnosis and treatment. Dental digital photography is one of the embodiments of digital medicine.

In the process of diagnosis and treatment of oral diseases, it is necessary to treat diseases and restore normal physiological functions, as well as important to pay special attention to the aesthetic of face and oral morphology. Image data is not only the indispensable data for disease analysis and treatment design but also an important carrier for communication between doctors and patients, as well as for academic exchanges and technical training between medical peers.

We are very pleased to see that Dr. Feng Liu devoted himself to the research and application of oral digital photography more than 10 years ago, and edited and published the first edition of *Dental Digital Photography*. What is even more gratifying is that this book has been widely welcomed by readers since its publication. After a lapse of 5 years, the second edition was published. Today, after another lapse of 5 years, the third edition of *Dental Digital Photography* is about to be interviewed. Moreover, according to the plan of the People's Health Publishing House, this book will be used as a classic professional book and the English version will be published abroad in the same period, which is not common in professional books in China.

Dr. Feng Liu devoted himself to the clinical photography and cosmetic dentistry. He not only studied the book but also led the research and practice for dental aesthetic photography. He formed a professional team and worked with the experts of the Chinese Society of Esthetic Dentistry to develop the specification of "Chinese dental aesthetic photography," which has effectively promoted the development of cosmetic dentistry in China.

The author of the third edition of *Dental Digital Photography* is as many as 18, which shows that it is the crystallization of the wisdom and experience of a strong team. The content is richer, more novel, and perfect. Its guidance and promotion effect to the dental aesthetic photography and the whole dental field are more obvious. I believe there will be more readers who like it. In view of this, I would like to try my best to recommend it to our dentist colleagues.

俞岩

Guanyan Yu
Chairmen of Chinese Stomatological Association
Beijing, China

Foreword to the Third Edition



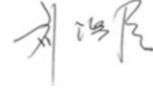
The third edition of *Dental Digital Photography*, edited by Dr. Liu Feng, has new content was revised from the previous edition. The book is divided into 9 chapters and 37 sections. It discusses topics such as the history and significance of dental photography, basic concepts and knowledge, basic techniques of clinical photography, clinical still life images, clinical operation images, image post-processing, clinical basic shooting, specifications for oral aesthetics clinical photography, and the selection and application of oral clinical photography equipment. A comprehensive system of presentation has been used in this book. Particularly because it is based on the application of clinical imaging in dental aesthetic treatment, the content of this book is practicable. It has strong implications for clinical guidance. It is a comprehensive book on dental digital photography in China.

Oral medicine, particularly oral clinical medicine, is a special industry. Collecting oral imaging in oral disease diagnosis plays an important role in the treatment. The role of the oral image cannot be replaced in prosthodontics, orthodontics, and the oral presentation of facial aesthetic design, restoration, and comparisons before and after the correction. It also can provide objective evidence of medical disputes. Therefore, oral photography is specialized professional knowledge and an important skill to be mastered by dental professionals.

The second edition of the book provides new knowledge and skills for the popularization and improvement of dental photography technology. It is a clinically useful reference book and is recommended reading for dental professionals.

Dr. Liu Feng is a hard-working professional with a unique perspective who continues to encourage young oral medicine experts. We are colleagues who cooperated in many societies and associations. He is on the Prosthodontics Professional Committee of the Chinese Stomatological Association (CSA), an executive committee member of the dental aesthetics sub-societies of CSA, and an executive committee member of oral plastic surgery in the branch of the China Association of Plastic Surgery (CAPA). Dr. Liu Feng was served as editor-in-chief for more than 10 of monographs about prosthodontics, oral aesthetics, and

photography, signifying his hard work. As a young promising scholar, he published three editions of this book in 10 years. The English versions will be released simultaneously, which shows his enterprising academic and professional spirit. I believe Dr. Liu and his team can provide us with more and newer achievements of professional theory and technology. We are full of expectations and confidence for him.



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March 30, 2016

Foreword to the Third Edition



About 10 years ago, the young Dr. Liu Feng presented me with a gift: a copy of his newly published book—the first edition of *Digital Dental Photography*. It aroused my interest immediately. First of all, I had begun photography as a hobby at that time. A book combining photography and the dental profession certainly met my taste. Secondly, I was not familiar with Liu Feng. After that, I learned that he was a young talent in the first outpatient department in our hospital. When I received the book from him, I had a fleeting thought: “The author who published this monograph is so young.” However, after I read it, I realized it was a rare good book.

The author combined the basic concepts of “photography” and “medical photography” with clinical applications. It discusses basic concepts, practical technology, and equipment for medical photography, while presenting various types of oral clinical photography through real stories and pictures to readers. The development of oral medicine in China is foremost. Various technologies and new therapies are described throughout, with clinical developments summarized for the general trend of international practice. The book includes a collection of clinical data, especially in the field of oral aesthetics treatment, which is in line with the academic and aesthetic standards of foreign counterparts. The publication of *Dental Digital Photography* meets all requirements and is highly respected.

Subsequently, the author published several books related to the clinical practice of oral aesthetics, including *The Clinical Practice of Oral Stomatology Aesthetics* and *Case Omnibus of Chinese Esthetic Dentistry 2015*. Dr. Liu Feng showed me a sample of the third edition of *Digital Dental Photography* a few days ago and invited me to write a preface for his book. I majored in oral pathology and am rarely involved in the practice of clinical photography operations described in this book. However, based on the above opportunities, I gladly accepted the invitation.

Dr. Liu Feng’s exploration and assiduous spirit in dental photography is very prominent in our Peking University Stomatology Hospital. He is a doctor in the prosthodontics department. Photography is his hobby. He is one of the few experts in our hospital in the field of oral aesthetic treatments with multidisciplinary collaboration and exploration. He has a keen grasp of

the subject of clinical photography, which is closely related to the clinical practice of oral medicine. "From heart to hand," he published this book with his enthusiasm and experience. He shared them with readers in a timely matter, with perseverance and constant expanding progress.

The content of the book is updated with each version. Each new book accompanies and witnesses his academic growth. This is commendable in the physician. In our daily lives, we often look forward to finding love in the most beautiful years. Similarly, in a dentist's career, it is very common in the most passionate and formative years to pursue professional dreams. I always believe that there must be feeling in writing. The author must move himself firstly, then have the opportunity to move his readers. I can feel Dr. Liu's passion in the third edition of *Dental Digital Photography*.

The birth of photography was more than 170 years ago. Human society has experienced a remarkable visual revolution during these years. Some people have even compared photography with printing in the progress of human civilization. Photography has established a close relationship between visual and reality, which helps us to achieve a variety of visions never reached, such as off the beaten track of the scenery or famous people that we never met.

Medical photography is an applied field of photography. It objectively records the process of scientific activities of medicine. It is an important means of information collection, storage, and display in medical research. A picture is worth a thousand words. The role of medical images in medical research cannot be replaced. Clinical stomatology is a medical discipline with more practical operations. The dentist can record the patient's mouth and extraoral areas in real time. The image is used for case analysis, treatment design, efficacy assessment, communication and display, data storage, and more. This has become a part of the daily work of general practitioners. Particularly in recent years, with the rise of aesthetic dental treatment, the requirements for the technical specifications of clinical photography are greater. Therefore, the publication of the third revision of *Dental Digital Photography* is necessary and timely. The author added specifications for clinical photography in the United States, Europe, and China in the new version. The English version will be published simultaneously. I think this is an objective reflection of our oral medicine development—from flourishing to standardized, from sporadic introductions to international standards. Medical teaching and research work are examined with an international view and consciously comply with "rules" in daily work. The rules become habits. The professional level can be upgraded through exchanges and continuity, ultimately enhancing the discourse power of our counterparts. I believe that the new version of *Dental Digital Photography* will promote the dental clinical practice of medical image collection, processing, and applications.

The power of images is huge: "Seeing is believing." I hope that colleagues in all aspects can pick up the camera, then record and witness every detail. I hope that *Dental Digital Photography* will always accompany you as a tool on your journey.



Tiejun Li
Vice-Dean of Peking University
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Beijing, China
March 23, 2016

Preface to the Second Edition

I wrote the preface for the second edition with less excitement and more calmness. Early in 2011, I received a solicitation for a revised edition of *Dental Digital Photography*, which had been published for 5 years. It has been more than 10 years since I first applied photography in dental clinical practice.

Several thousand copies of the first edition of *Dental Digital Photography* were sold in the past 5 years. I believe that tens of thousands of dentists have read it. This book helped many dentists to recognize the importance of clinical photography, improving their abilities to take a standardized clinical photography image. However, I also benefited from this book. Through this book, I was recognized by many predecessors and colleagues even though I was an ordinary dentist from the Peking University stomatological clinic. I also was presented with opportunities to improve my skills through my numerous communications with readers.

Dental Digital Photography was a step to a new level of my career. I deeply thank my teachers Dr. Tan Jianguo and Dr. Guo Hang who gave me this opportunity. I also thank Dr. Jiang Shan, Dr. He Tongfeng, Dr. Huang Ju, and Dr. Han Liang, who helped me to complete the manuscript of this book, as well as the teachers of the People's Health Publishing House.

Five years ago, oral clinical photography seem to be very profound knowledge. Many clinical doctors who used SLR cameras found the distance of a macro lens to be too far. They were at a loss with DSLR. Five years later, almost every department of every professional college has several cameras. Almost all large stomatological hospitals are equipped with DSLR cameras. The dentists who pursue this professional are keen on clinical photography and have mastered these skills.

A few years ago, Chinese stomatological doctors would be criticized for insufficient clinical photography skills when they spoke at international academic conferences. Today, the clinicians with the most advanced level of skills at various types of international academic conferences are Chinese. Clinical photography is no longer a weakness of Chinese doctors.

The concept of dental photography has been accepted by most dentists. Clinical photography has become an integral part of the daily work of many oral doctors. The popularity of its rapid expansion is beyond the imagination. Every time I think of these variations and developments, I am proud of my contribution to the development of the field of oral medicine in China.

Of course, friends and readers have alerted me to the shortcomings of the first edition in the past few years. For example, some chapters were too refined and readers had some difficulty understanding them. Some chapters needed to be enriched to provide a deeper understanding for the reader.

With this opportunity to revise the text, I added lots of content that should interest many readers. In this way, a dentist who has no basic experience in photography can better understanding the field. At the same time, I made a thorough analysis to eliminate any confusion and disagreement for dentists who have shooting experience.

The book is dedicated to my stomatology colleagues. I hope it will be helpful to general dentists as well.

Beijing, China
June 12, 2011

Feng Liu

Foreword to the Second Edition

I am glad to see the second edition of *Digital Dental Photography* reprinted by Dr. Liu Feng after a lapse of 5 years. The second edition is not only an acknowledgement of his hard work, but it also shows a greater interest in aesthetic dentistry. From another perspective, it reflects the rapid development of the field of Chinese stomatology.

Compared with traditional photography, the images of digital photography have the advantages of being high quality, easy to store, easy to transmit, and low cost. It has become a necessary auxiliary tool in aesthetic dentistry. It faithfully records the patient's stage in the process and research treatment options. It is very important to improve the quality of health care. A valuable photograph not only facilitates communications between doctors and patients, but it also improves the efficiency of diagnosis and treatment. It is the most convincing method for the technical exchanges between colleagues.

As a general practitioner at Peking University School of Stomatology, Dr. Liu Feng established breakthroughs in the area of dental aesthetics. He expands his research field by using his spare time to study assiduously. While fulfilling medical teaching and research, he took ordinary photos of patients as a starting point. He has made certain achievements. Each young dentist should learn from his spirit, in accelerating the construction of talent in today's country. He has firmly established the concept that everyone can become a successful dentist and always keep a sense of innovation.

The youth are the hope of our cause. Peking University School of Stomatology will provide a platform for young dentists to create opportunities. A large number of young dentists can emerged on this platform continuously.

I believe that this book will be useful and helpful to dental practitioners.



Tao Xu
Dean of Peking University
School of Stomatology
Beijing, China
June, 2011

Preface to the First Edition

—To each dental colleague who pursues excellence

Although I have published a lot of papers about dental digital photography in a variety of professional journals and newspapers, it took me more than a year to draft *Dental Digital Photography* from the topics identified to complete publication. I consider this book to be a special gift for my 10 years of dental experience.

As a young dental doctor, I was presented with the opportunity to publish this monograph as editor-in-chief. All of these works have benefited from the vigorous support of the leaders of the outpatient department at Peking University Stomatological Hospital. With their support and training, I had the privilege of obtaining a professional SLR digital camera. This opportunity provided me with the chance to practice dental digital photography. By combining my clinical experience with the photography equipment, I advanced my photography skills to a professional level, and I was recognized and affirmed by many colleagues and predecessors in the industry. Through the publication of this book, I am able to share my knowledge and experience with the readers. I hope to promote the practice and application of dental digital photography, along with the rapid development of dental aesthetics.

With the growth of the economy and improved living standards, more people have begun to pursue physical excellence. Some people went on a diet and fitness regimen to get in good shape at the expense of sweat, hunger, or even medicine and surgery. Some people went on an operating table for cosmetic surgery to change their appearances. Many people also recognized that a perfect smile will improve their appearance. We are engaged in the work of oral aesthetics to help people obtain a more attractive smile. This is a very popular field of dentistry.

The smile is powerful and expresses a positive state of mind. A sincere smile represents a peaceful heart and happy mood—an optimistic attitude of life. The smile shows that the heart is full of sunshine and a person has confidence. A professional smile can also show a spirit of dedication. A smile is able to provide a sense of beauty to others and provide ease to ourselves at the same time. A smile is a silent greeting that can sow seeds of friendship between people.

The smile of Mona Lisa is representative of the Western smile—mysterious and beautiful. As the lyrics of song “Smile of Mona Lisa” goes, “Her smile is so mystery so beauty.” Vairocana Buddha’s smile in Longmen Grottoes is typical of the Oriental smile. Integrated with wisdom, nobility, and peace, the smile will make the whole world quiet. When you are lonely, depressed, and sad, just focus on their smiles. In a moment, your heart will be at peace like water, still and warm.

Smiles are very important. The goal of dental aesthetics is to help patients have more attractive smiles. Because the smile reveals teeth, teeth are an important part of the smile. Dental aesthetics is a complicated specialty. An oral aesthetic doctor not only has professional knowledge of stomatology, but also understands aesthetics, psychology, color, and other humanities. Dental aesthetic treatments include knowledge from the departments of prosthodontics, endodontics, orthodontics, periodontology, and implanting. They help patients optimize their smiles to enhance their charm through the integrated “smile design,” making full use of various treatments. This is a beautiful process. The dentist should be sensitive to the patient’s desires.

Therefore, dental aesthetics is different from other dental treatments. It is not only a professional technical job, but also an artistic endeavor. The requirement for dentists is higher.

To expand their business and take advantage of a larger market of patients, many dentists have begun to perform oral aesthetic treatments. However, does it mean they are qualified to practice oral aesthetics after mastering the techniques for tooth bleaching, resin filling, porcelain crowns, veneers, and other treatments? How can we understand more deeply the flexible concepts of aesthetic design? How can we more quickly and more accurately carry out aesthetic analysis and aesthetic design?

A dentist may master the skills for fillings, tooth extractions, and even porcelain crowns. However, that alone does not really bring "beauty" to the patient. An excellent dental aesthetic clinician also needs good aesthetic consciousness and aesthetic quality. He or she needs to understand aesthetic psychology at the same time. We need an aesthetic sensibility and artistic temperament.

What does it mean to have a sense of aesthetics and an artistic temperament? Firstly, aesthetic consciousness is the ability to discover beauty. It is a kind of sensitivity to beauty. Ask yourself: Can you find the little bit of beauty in your daily life? Would you appreciate the beauty of the first green of spring, summer, flowers, brilliant autumn, and winter snow? First of all, a dentist who strives for excellence in oral aesthetics should be full of passion, love life, be sensitive to beauty, and appreciate artists and musicians.

Where do the aesthetic consciousness and artistic temperament come from? Is it inherent in you? Indeed, some people are full of an artistic sense, romantic temperament, and a strong ability to grasp the beauty of nature. Their aesthetic quality is high. They can easily achieve aesthetic creations. However, such genius is rare. Most people—including myself—do not have such genius. To better complete the tasks of aesthetic creation in dental aesthetics, we need to constantly watch for aesthetic qualities in our daily lives to improve our ability to grasp beauty.

If you have sensitivity to beauty, you will always appreciate and understand beauty. Furthermore, you will sensitive to flaws. After we discover the aesthetic defects, we can create beauty. This is the basis of successful fulfillment of the tasks of oral aesthetics. There are many ways to develop our aesthetic qualities. Aesthetics in daily life appear in many forms, such as paintings, dances, sculptures, architecture, and other arts. Even food contains a lot of beauty. Conscious touching, appreciation, and thinking can improve our aesthetic quality.

Is there any effective and immediate way to train your aesthetic sense? Photography is a very good and effective way to cultivate this skill and improve your aesthetic consciousness. Photography can help us to capture and reproduce beauty. Through photography, beautiful scenes or figures can be solidified into a beautiful picture. Photography is the perfect combination of art and technology. Expressed through photography, we can show the goodliness that the ordinary people do not pay attention to. In fact, dental aesthetics is the perfect combination of dental technology and artistic design to achieve a therapeutic effect of "more beautiful, more natural." Therefore, photography and dental aesthetics have a great deal in common. In addition, the aesthetics of photography is an important technology. It plays an important role in dental aesthetics. Therefore, to fulfill the task of dental aesthetics, photography should be learned first!

In my 10 years of working experience after college, I obtained rapid growth in the field of dental aesthetics thanks to a keen sense of observation, recognition of the important role of dental photography, purchasing of photography equipment, and efforts to study photography and dental aesthetics. I hope more of my young and ambitious colleagues will recognize the importance and necessity of dental photography in oral aesthetics. By reading this book, I hope you can quickly advance your professional skills.

Because of the limitations of my knowledge and experience, there will inevitably be some omissions in the book. I welcome comments from colleagues to correct and enlighten me. I thank you!

Feng Liu

Beijing, China

January 19, 2006

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Postscript of the Third Edition

Mark of time.

When the news broke that Leonardo DiCaprio won the award for Best Actor at the 2016 Oscar ceremony, Leo's fans celebrated all over the world. He was nominated for the award for the first time at the age of 19. After that, it took him 22 years to get approval from the academy.

In the year 1997, the second year after my graduation, the movie *Titanic* swept across every cinema in the city. It touched that young heart of mine with its breathtaking scenes and sad, beautiful love. Although almost every young man was attracted to Kate's charm, Leonardo was even more attractive with his handsomeness. Leonardo's name spread all over the world. He became an idol for many men and women around the world. However, this fame did not bring him an Oscar—not even a nomination. The Academy of Motion Picture Arts and Sciences did not accept Leonardo.

Almost 20 years passed by. No longer a beautiful young man, Leonardo has become an uncle quietly. He has played in tons of great movies—none of which ever brought him an Oscar. However, just when Leonardo found inner peace in life and perfection in his acting skills, he finally got the Oscar. Time has changed the innocence in his eyes to firmness and reservation in his brow. Time has left on the face of this man, and also everyone's heart.

Five more years just flew by. After 3 months of seclusion to complete revisions, the third edition of this book was finally completed. From tentative words in the first edition to smooth discourse in the second edition, to deeper thoughts in the third edition, *Digital Dental Photography* is finally approaching its maturity.

The aim of this book is to direct beginners on the use of a tool and to help advanced practitioners reach a clearer vision of dental photography. Because the English version will be published at the same time, this book is not only supposed to introduce international development in this field to Chinese audiences, but also to present the current situation and developments in this field in China to the world. The task of this book requires a superior writing level, which has made the revision difficult.

Fortunately, time has firmed my confidence a bit.

The 20 years after graduation has passed in a flash. I just went through the midpoint of both my life and career. The struggling young man, who even forgot to eat or sleep, has become a man who is leading a growing team in his middle age. The satisfaction brought by the growth of myself and my team members speaks for itself. I have tasked myself with learning and bringing foreign advanced technologies home. Now, I am promoting developments and ideas from China abroad so that the world will see them. A strong mind and mature thoughts have brought me peace and calm. However, a relatively young look and inner peace, which is a little too quiet, sometimes creates apparent differences, even to myself.

Recalling the past 2 decades, I am glad that time has marked my face lightly. However, I am even more grateful that time has marked my heart and soul unreservedly.

After three months and nights of revision, today the book is finally finished. I have to hand it over again, and my mood is a little excited. Because this is a book that will face the world. At the same time, my mood is also a bit embarrassing, because it is a book will face the world and to a certain extent, it may represent China's development in this field. But I think, this may become a normal state in the future.

Today is an interesting day, only once in every 4 years. Just stop here. The uncompletely, unfinished expression, let them be left to the next book, or the next edition. Then, time and tide will leave us more marks, and we may have a wealth of ideas and profound thoughts.

Late at night, I look forward to the rise of the sun tomorrow, also the experience of the flow of time and the appreciation of life in full blossom.

2016.2.29

Feng Liu