

Optical Coherence Tomography Of Ocular Diseases

This book includes different exciting topics in the OCT fields, written by experts from all over the world. Technological developments, as well as clinical and industrial applications are covered. Some interesting topics like the ultrahigh resolution OCT, the functional extension of OCT and the full field OCT are reviewed, and the applications of OCT in ophthalmology, cardiology and dentistry are also addressed. I believe that a broad range of readers, such as students, researchers and physicians will benefit from this book.

A picture says more than a thousand words. This is something that we all know to be true. Imaging has been important since the early days of medicine and biology, as seen in the anatomical studies of Leonardo Da Vinci or Andreas Vesalius. More than 100 years ago, the first noninvasive imaging technologies, such as K- rad Roentgen's X-ray technology, were applied to the medical field—and while still crude—revolutionized medical diagnosis. Today, every patient will be exposed to some kind of advanced imaging technology such as medical resonance imaging, computed tomography or four-dimensional ultrasound during their lifetime. Many diseases, such as brain tumors, are initially diagnosed solely by imaging, and most of the surgical planning relies on the patient imagery. 4D ultrasound is available to expecting parents who wish to create unique early memories of the new baby, and it may soon be used for the morphometric diagnosis of malformations that may one day be treatable—inutero! Light and electron microscopy are unequal brethren, which have contributed to most of our knowledge about the existence and organization of cells, tissues and microorganisms. Every student of biology or medicine is introduced to the fascinating images of the microcosm. New advances have converted these imaging technologies, which were considered by many to be antiquated, into powerful tools for research in systems biology and related fields.

OCT is a relatively new imaging technique that is becoming increasingly popular among ophthalmologists in both private and academic settings. Imaging has been a slow moving area in ophthalmology for some time, but now OCT is providing another, more detailed source of demonstrable change in the eye, in diagnostic, therapeutic or post-surgical setting. OCT and ultrasound both measure advancing disease states and post surgical healing. The difference is that OCT shows more subtle changes, particularly post-surgically.

Fourier-Domain optical coherence tomography (OCT) is the latest technology available to provide high-speed, high-resolution imaging of the cornea, anterior chamber angle, macula, and optic nerve head. It is uniquely suited for ophthalmologists that treat diseases from the front to the back of the eye. Inside Imaging the Eye From Front to Back With RTVue Fourier-Domain Optical Coherence Tomography, Drs. David Huang, Bruno Lumbroso, Jay S. Duker, James

G. Fujimoto, Joel S. Schuman, and Robert N. Weinreb cover up-to-date OCT technology and diagnostic software of the RTVue. It is the first book that covers clinical applications from the front to the back of the eye, as opposed to concentrating either on posterior segment imaging or anterior segment imaging. Inside you'll find:

- Explanation of Fourier-Domain OCT technology
- Teaching of scan pattern selection
- Step-by-step instruction for scan acquisition
- Teaching of the interpretations of OCT images and measurements by many case examples
- Interpretation of en face images

Some chapters covered:

- Anterior segment
- Cornea
- Posterior segment
- Retina
- Age-related macular degeneration
- Diabetic retinopathy
- Glaucoma

Imaging the Eye From Front to Back With RTVue Fourier-Domain Optical Coherence Tomography is the must-have book for general ophthalmologists, glaucoma specialists, retina specialists, cornea specialists, and refractive surgeons, as well as biomedical engineers.

"The recent introduction of optical coherence tomography angiography (OCTA) has remarkably expanded our knowledge of different retinal, chorioretinal, and optic disc disorders. OCTA is nowadays often introduced as a routine exam in clinical practice, granting the opportunity to non-invasively investigate retinal and choroidal circulation. In this book, many major experts in posterior eye imaging share their experiences and their latest images and ideas about OCTA"--

Because of its many advantages optical coherence tomography (OCT) has revolutionized the way in which retinal diseases are screened and managed and how treatments are monitored. In this volume the latest developments and findings are presented by experts in their respective fields. After a short introduction covering the available equipment and the basic techniques, the imaging features of various pathological findings in retinal diseases are presented. The topics cover the outer layers including new modalities for choroid imaging, out-layer diseases such as the various types of macular degeneration, retinal diseases such as diabetic retinopathy and vascular occlusion, and retina and vitreous interface pathologies. The final chapters are dedicated to the practicality of using OCT for the pre- and postsurgical evaluation of the posterior segment and for the differential diagnosis of vitreoretinal diseases as well as in the management of patients with retinal and neuro-ophthalmological diseases. Making the essentials of the recently held ESASO course on OCT available in one volume, this publication is a must-read for experienced as well as trainee ophthalmologists who need to use OCT in their daily practice.

Imagination is the key to any discovery, and its presence in the science to improve vision is no exception. Vision science is racing forward, spurred on by a host of exciting novel research discoveries and the efforts of scientists. This book, a collection of reviewed and relevant research chapters, intends to provide readers with a comprehensive overview of the latest and most advanced findings in several aspects of ophthalmology, ophthalmic pathology, ocular imaging, and certain treatments and surgical strategies. It is an excellent, well-integrated review of treatment options in eye disease

that aims to provide a thorough overview of the recent developments written by international authors. "Frontiers in Ophthalmology and Ocular Imaging" can be used as an important reference for clinically oriented ophthalmologists and scientists.

Diabetes and Fundus OCT brings together a stellar cast of authors who review the computer-aided diagnostic (CAD) systems developed to diagnose non-proliferative diabetic retinopathy in an automated fashion using Fundus and OCTA images. Academic researchers, bioengineers, new investigators and students interested in diabetes and retinopathy need an authoritative reference to bring this multidisciplinary field together to help reduce the amount of time spent on source-searching and instead focus on actual research and the clinical application. This reference depicts the current clinical understanding of diabetic retinopathy, along with the many scientific advances in understanding this condition. As the role of optical coherence tomography (OCT) in the assessment and management of diabetic retinopathy has become significant in understanding the vitreoretinal relationships and the internal architecture of the retina, this information is more critical than ever. Includes unique information for academic clinicians, researchers and bioengineers Provides insights needed to understand the imaging modalities involved, the unmet clinical need that is being addressed, and the engineering and technical approaches applied Brings together details on the retinal vasculature in diabetics as imaged by optical coherence tomography angiography and automated detection of retinal disease

"Optical Coherence Tomography of Ocular Diseases, Fourth Edition covers a range of subjects, from principles and operation techniques to clinical interpretation and the latest innovations in OCT. This book is an essential text for imaging technology. OCT now occupies a dominant role as a diagnostic tool for retinal conditions and glaucoma. At the same time, the technology continues to show potential for emerging clinical and research applications across all the ophthalmological subspecialties. To reflect these rapid advances, this new edition of Optical Coherence Tomography of Ocular Diseases features a complete and thorough revision of the existing text as well as the addition of cutting-edge content to bring this classic resource completely up to date"--

This open access book provides a comprehensive overview of the application of the newest laser and microscope/ophthalmoscope technology in the field of high resolution imaging in microscopy and ophthalmology. Starting by describing High-Resolution 3D Light Microscopy with STED and RESOLFT, the book goes on to cover retinal and anterior segment imaging and image-guided treatment and also discusses the development of adaptive optics in vision science and ophthalmology. Using an interdisciplinary approach, the reader will learn about the latest developments and most up to date technology in the field and how these translate to a medical setting. High Resolution Imaging in Microscopy and Ophthalmology – New Frontiers in Biomedical Optics has been written by leading experts in the field and offers insights on engineering, biology, and medicine, thus being a valuable addition for scientists, engineers, and clinicians with technical and medical interest who would like to understand the equipment, the applications and the medical/biological background. Lastly, this book is dedicated to the memory of Dr. Gerhard Zinser, co-founder of Heidelberg Engineering GmbH, a scientist, a husband, a brother, a colleague, and a friend.

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This book introduces the latest optical coherence tomography (OCT) imaging and computerized automatic image analysis techniques, and their applications in the diagnosis and treatment of retinal diseases. Discussing the basic principles and the clinical applications of OCT imaging, OCT image preprocessing, as well as the automatic detection and quantitative analysis of retinal anatomy and pathology, it includes a wealth of clinical OCT images, and state-of-the-art research that applies novel image processing, pattern recognition and machine learning methods to real clinical data. It is a valuable resource for researchers in both medical image processing and ophthalmic imaging.

Features more than 1,000 superb illustrations depicting the full spectrum of retinal diseases using OCT scans, supported by clinical photos and ancillary imaging technologies. Presents images as large as possible on the page with an abundance of arrows, pointers, and labels to guide you in pattern recognition and eliminate any uncertainty. Includes the latest high-resolution spectral domain OCT technology and new insights into OCT angiography technology to ensure you have the most up-to-date and highest quality examples available. Provides key feature points for each disorder giving you the need-to-know OCT essentials for quick comprehension and rapid reference. An excellent diagnostic companion to Handbook of Retinal OCT: Optical Coherence Tomography, by the same expert author team of Drs. Jay S. Duker, Nadia K. Waheed, and Darin R. Goldman.

Pathological Myopia is a major cause of severe vision loss worldwide. The mechanisms for vision loss include cataract, glaucoma, retinal detachment, and above all, degeneration of the macula within the posterior staphyloma. Pathological Myopia is one of the only current books to specifically address this disease and discusses recent developments in imaging technologies and various approaches to treatments, such as laser photocoagulation, photodynamic therapy, pharmaco-therapeutic injections in the vitreous, and surgery. Complete with high-quality color images, this book is written and edited by leaders in the field and is geared towards ophthalmologists, including residents and fellows in training, glaucoma and cataract specialists, and vitreoretinal macula experts.

High-speed anterior segment optical coherence tomography (OCT) offers a non-contact method for high resolution cross-sectional and three-dimensional imaging of the cornea and the anterior segment of the eye. As the first text completely devoted to this topic, Anterior Segment Optical Coherence Tomography comprehensively explains both the scientific principles and the clinical applications of this exciting and advancing technology. Anterior Segment Optical Coherence Tomography enhances surgical planning and postoperative care for a variety of anterior segment applications by expertly explaining how abnormalities in the anterior chamber angle, cornea, iris, and lens can be identified and evaluated using the Visante OCT™. Inside Anterior Segment Optical Coherence Tomography, Dr. Roger Steinert and Dr. David Huang, along with 22 of the field's leading professionals, provide a wealth of useful clinical and physiological material about this new diagnostic imaging technique. Valuable images are included to assist in the pre- and postoperative assessment of various anterior segment disorders. Additionally, this unique resource contains detailed information on biometric measurements to enhance diagnostic capability. On the leading edge of anterior segment imaging:

- Mapping of corneal thickness and keratoconus evaluation
- Measurement of LASIK flap and stromal bed thickness
- Visualization and measurement of anterior chamber angle and diagnosis of narrow angle glaucoma
- Measuring the dimensions of the anterior chamber and assessing the fit of intraocular lens implants
- Visualizing and measuring the results of corneal implants and lamellar procedures
- Imaging through corneal opacity to see internal eye structures

With the increase in popularity of anterior chamber imaging, and anterior segment OCT proving to be the best tool for high resolution biometry, Anterior Segment Optical Coherence Tomography is a must-have for anterior segment, refractive, cornea, and glaucoma surgeons.

This book provides a collection of optical coherence tomographic (OCT) images of various diseases of posterior and anterior segments. It

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covers the details and issues of diagnostic tests based on OCT findings which are crucial for ophthalmologists to understand in their clinical practice. Throughout the chapters all aspects of this non-invasive, popular imaging technique, known for ingenuity and accuracy, is clearly illustrated. Atlas of Ocular Optical Coherence Tomography has been categorized into eleven sections, discussing and illustrating distinct OCT features, as well as showing other image modalities such as fluorescein angiography, fundus autofluorescence, perimetry and laboratory examination. This book also covers choroidal pathologies and vitreous abnormalities. The last section has been allocated to anterior segment disease, including cornea, angle, iris and conjunctival abnormalities. Above all, the numerous images, and detailed descriptions of diseases, make this book an essential guide for general ophthalmologists and ophthalmology residences.

Written by the leading authorities in the field, Essentials of OCT in Ocular Disease is a core clinical reference on this important new technology used to examine the structure of the eye. It provides residents and practicing ophthalmologists with essential information on how to use OCT in various clinical scenarios and guidance on patient management. Chapters include coverage of recent innovative diagnostic applications as well as OCT-guided surgical procedures, including IOL position, DMEK, PDEK, GLUED IOL, and subtenon injection. Key Features: Edited by Amar Agarwal, a pioneer in OCT research, with chapters written by world-renowned experts in the use of OCT, including Jay Duker, Roger Steinert, and Carol Shields Covers both anterior and posterior applications of OCT and recent modifications in OCT systems Online access to videos demonstrating OCT-guided surgical procedures This book is an indispensable clinical guide for residents and fellows in ophthalmology as well as an excellent desk reference for practicing ophthalmologists -- it will be a treasured and clinically useful volume in their medical libraries throughout their careers.

Part of the Essentials in Ophthalmology series, this atlas is designed to comprehensively cover optical coherence tomography of the anterior segment of the eye. The aim is to improve knowledge of the fundamentals of OCT technology for anterior segment, clarify the differences with posterior segment OCT and emphasize the immense relevance and usefulness that anterior segment OCT study has for diagnosis, therapeutic orientation, surgical guidance, and improvement in patient management. Atlas of Anterior Segment Optical Coherence Tomography is organized into comprehensive chapters on the following topics: fundamentals, technologies and technological differences among platforms, application of OCT, corneal OCT angiography, as well as case-based chapters. Numerous highly-detailed figures, illustrations and photographs make this an ideal resource for the corneal specialist seeking further instruction on this cutting-edge technology. The case-based chapters include such conditions as bowman dystrophies, trauma, cataract, glaucoma, sclera, refractive surgery, ocular infections, and are structured to facilitate the consultant surgeon by providing practical information applicable to practical cases in their practice.

This text presents a comprehensive evaluation of the recent and emerging imaging technologies for the clinical assessment of glaucoma. It should provide an understanding of the technology that is available and the results to expect from each method.

The second edition of OCT and Imaging in Central Nervous System Diseases offers updated state-of-the-art advances

using optical coherence tomography (OCT) regrading neuronal loss within the retina. Detailed information on the OCT imaging and interpretation is provided for the evaluation of disease progression in numerous neurodegenerative disorders and as a biological marker of neuroaxonal injury. Covering disorders like multiple sclerosis, Parkinson's disease, Alzheimer's disease, intracranial hypertension, Friedreich's ataxia, schizophrenia, hereditary optic neuropathies, glaucoma, and amblyopia, readers will given insights into effects on the retina and the and optic nerve. Individual chapters are also devoted to OCT technique, new OCT technology in neuro-ophthalmology, OCT and pharmacological treatment, and the use of OCT in animal models. Similar to the first edition, this book is an excellent and richly illustrated reference for diagnosis of many retinal diseases and monitoring of surgical and medical treatment. OCT allows to study vision from of the retina to the optic tracts. Retinal axons in the retinal nerve fiber layer (RNFL) are non-myelinated until they penetrate the lamina cribrosa. Hence, the RNFL is an ideal structure for visualization of any process of neurodegeneration, neuroprotection, or regeneration. By documenting the ability of OCT to provide key information on CNS diseases, this book illustrates convincingly that the eye is indeed the "window to the brain".

Integrated or microscope-integrated intraoperative ocular coherence tomography (i2OCT or mi-OCT, respectively) has revolutionized real-time augmentation of the surgical operating field. While corneal and retinal specialists have immediately found uses for this technology, others are beginning to use it to improve outcomes and flatten the learning curve. This book presents the use of i2OCT in pediatric ocular surgery. Case scenarios in pediatric retinal disease, corneal lamellar keratoplasty, and even pediatric cataract surgery are discussed. More novel applications highlighted include its use to identify the levator muscle in oculoplastic surgery, especially re-operations, and to assess the results of glaucoma drainage devices. Identifying extraocular muscles in re-operation for strabismus ensures minimal tissue disruption during surgery. Complex pediatric cataract surgeries can be performed far more simply and effectively using integrated ocular coherence tomography technology. This volume provides invaluable information to both early career and experienced pediatric ocular specialists, as well as any researchers who are likely to encounter i2OCT or mi-OCT technology in the future.

OCT provided a great advantage over other diagnostic modalities, as it could noninvasively provide tomographic images of the retina of a living eye. As a result, a number of new findings in retinal diseases were made using the time-domain OCT. OCT has now become an essential medical equipment OCT has now become an essential medical equipment in ophthalmic care and quality textbooks describing the functionality of OCT are very important in the education of young ophthalmologists and eye care personnel. In this book are chosen high quality OCT images of rather common diseases as well as images of several rare diseases.

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This book focuses on the practical aspects of Optical Coherence Tomography (OCT) in glaucoma diagnostics offering important theoretical information along with many original cases. OCT is a non-invasive imaging technique that acquires high-resolution images of the ocular structures. It enables clinicians to detect glaucoma in the early stages and efficiently monitor the disease. Optical Coherence Tomography in Glaucoma features updated information on technical applications of OCT in glaucoma, reviews recently published literature and provides clinical cases based on Cirrus and Spectralis OCT platforms. In addition, newer techniques like event and trend analyses for progression, macular ganglion cell analysis, and OCT angiography are discussed. This book will serve as a reference for ophthalmologists and optometrists worldwide with a special interest in OCT imaging providing essential guidance on the application of OCT in glaucoma. With Handbook of Retinal OCT, you can master the latest imaging methods used to evaluate retinal disease, uveitis, and optic nerve disorders. Ideal at any stage of your career, this easy-to-use, clinically oriented handbook provides a quick, templated, and portable guide for the interpretation of Optical Coherence Tomography scans. "My initial impression was that it deserved a score of 5/5 in value for money, and I have had no reservations in affirming this rating after reading the book" Reviewed by: Birmingham Heartlands Hospital Date: Nov 2014 Consult this title on your favorite e-reader, conduct rapid searches, and adjust font sizes for optimal readability. Compatible with Kindle®, nook®, and other popular devices. Locate answers quickly with templated chapters—each focused on one specific diagnosis or group of diagnoses with a particular OCT appearance. Adopt the latest techniques for evaluating age-related macular degeneration, diabetic retinopathy, retinal vein occlusion, and much more. See how the full spectrum of diseases presents through approximately 370 illustrations including the highest-quality spectral-domain OCT images available. Recognize image patterns and get clear visual guidance from multiple arrows and labels used throughout to highlight the key details of each disease. Access the full text online at Expert Consult.

Optical Coherence Tomography - Atlas and Text covers the multiple uses and interpretation of OCT and its various applications in ophthalmology related to the posterior segment and the retina. The book presents the diagnosis and management of glaucoma, age related macular degeneration, the integration of OCT and fluorescein angiography and the diagnosis and management of ocular tumors.

In the last 10 years, there has been huge progress in the general understanding of ocular disorders due to the availability and development of new in vivo imaging techniques, such as anterior and posterior eye segment optical coherence tomography as well as biochemical methods allowing rapid confirmation of clinical diagnosis. Introducing noninvasive diagnostic methods in ophthalmology led to an improvement in early differential diagnosis of conditions such as corneal dystrophies, dry eye disease, and various retinal and optic nerve diseases. Recent advances in diagnostic methods have

also impacted the treatment methods. This book intends to provide the reader with a comprehensive overview of current ocular diagnostic methods, including the theoretical basis as well as practical approaches and usage in clinical practice. This Atlas of Inherited Retinal Disorders provides a thorough overview of various inherited retinal dystrophies with emphasis on phenotype characteristics and how they relate to the most frequently encountered genes. It also meets the previously unmet needs of PhD students who will benefit from seeing the phenotypes of genes they work on and study. Further, because genetic-testing costs are quite high and spiraling higher, this Atlas will help geneticists familiarize themselves with the candidate gene approach to test patients' genomes, enabling more cost-efficient testing. This invaluable atlas is organized into eight sections starting with an introduction to the basic knowledge on retinal imaging, followed by diseases listed according to inheritance pattern and disorders with extraocular manifestations grouped by defining features. This structure will be intuitive to clinicians and students studying inherited retinal disorders.

Optical Coherence Tomography represents the ultimate noninvasive ocular imaging technique although being in the field for over two-decades. This book encompasses both medical and technical developments and recent achievements. Here, the authors cover the field of application from the anterior to the posterior ocular segments (Part I) and present a comprehensive review on the development of OCT. Important developments towards clinical applications are covered in Part II, ranging from the adaptive optics to the integration on a slit-lamp, and passing through new structural and functional information extraction from OCT data. The book is intended to be informative, coherent and comprehensive for both the medical and technical communities and aims at easing the communication between the two fields and bridging the gap between the two scientific communities.

Written by an expert in the field, this book is a comprehensive and up-to-date guide to the evaluation and management of lacrimal drainage disorders. Lacrimal disorders are one of the most common conditions encountered not only by oculoplastic surgeons and general ophthalmologists, but also by otorhinolaryngologists in their daily practice. Consisting of 77 chapters, it addresses the basic anatomy and underlying pathology, patient evaluation, and the surgical procedures currently performed in managing various lacrimal disorders. Surgical modalities including the endoscopic approaches are thoroughly and succinctly captured in pictures with detailed legends to aid understanding and offer a visual treat. Since familiarity with a surgical technique is incomplete without the knowledge of risk factors and red flags, the book discusses in detail how to deal with surgical complications and failure. The Atlas of Lacrimal Drainage Disorders is an essential companion to the author's previous work "Principles and Practice of Lacrimal Surgery"..

Optical Coherence Tomography (OCT) plays a vital role in pediatric retina diagnosis, often revealing unrecognized retinal disorders and connections to brain injury, disease, and delayed neurodevelopment. Handbook of Pediatric Retinal OCT

and the Eye-Brain Connection provides authoritative, up-to-date guidance in this promising area, showing how to optimize imaging in young children and infants, how to accurately interpret these images, and how to identify links between these images and brain and developmental disorders. Illustrates optimal methods of OCT imaging of children and infants, how to avoid pitfalls, and how to recognize and avoid artifacts Explains how the OCT image may relate to brain disease and delayed neurodevelopment Features more than 200 high-quality images and scans that depict the full range of disease in infants and young children Provides guidance in identifying retinal layers and important abnormalities. Covers the structural features of the retina and optic nerve head in developmental, acquired, or inherited conditions that affect the eye and visual pathways Offers practical ways to set up imaging programs in the clinic, operating room, or neonatal nursery

Optical Coherence Tomography gives a broad treatment of the subject which will include 1) the optics, science, and physics needed to understand the technology 2) a description of applications with a critical look at how the technology will successfully address actual clinical need, and 3) a discussion of delivery of OCT to the patient, FDA approval and comparisons with available competing technologies. The required mathematical rigor will be present where needed but be presented in such a way that it will not prevent non-scientists and non-engineers from gaining a basic understanding of OCT and the applications as well as the issues of bringing the technology to the market. Optical Coherence Tomography is a new medical high-resolution imaging technology which offers distinct advantages over current medical imaging technologies and is attracting a large number of researchers. Provides non-scientists and non-engineers basic understanding of Optical Coherence Tomography applications and issues.

Optical coherence tomography (OCT) angiography is an important new imaging modality that is already being used by ophthalmologists in retina centers worldwide. It uses motion as intrinsic contrast, thus obviating the need to inject any intravenous dye. It uses infrared light that is invisible to the patient, and only requires few seconds per scan. This makes it both easier to use and much better tolerated by patients than traditional dye-based fluorescein angiography (FA) and indocyanine green (ICG) angiography. Inside Optical Coherence Tomography Angiography of the Eye Drs. David Huang, Bruno Lumbroso, Yali Jia, and Nadia Waheed include detailed information on clinical applications and fundamental principles needed to understand and use this new technology. This includes information on high-speed OCT systems, algorithms to extract flow contrast, the appearance of the normal eye, the findings in myriad diseases, and tips on how to deal with artifact and pitfalls. The 3-dimensional nature of OCT angiography provides visualization that was not possible before with either FA or ICG and readers will come to appreciate how this enables the visualization of previously difficult to image vascular beds such as the 4 retinal vascular plexuses (radial peripapillary, superficial, intermediate, and deep),

the choriocapillaris, and the deeper choroidal vessels. Given its noninvasive nature and ease of use, OCT angiography imaging is rapidly taking an important place in everyday ophthalmology and may soon replace fluorescein angiography in everyday practice. Optical Coherence Tomography Angiography of the Eye is designed to be the definitive text on this cutting-edge technology for the retina specialist and comprehensive ophthalmologist.

Optical Coherence Tomography of Ocular Diseases, Second Edition is a completely revised and updated version of this classic text. Incorporated within over 700 pages are a multitude of updated features unique to this edition including over 1,600 color images, state-of-the-art technology, and case presentations. These elements cohesively work together to successfully demonstrate the retina in normal and diseased states using the innovative Stratus OCT™. Optical Coherence Tomography of Ocular Diseases, Second Edition is written with the clinician in mind. The text's primary objective is to illustrate the appearance of the eye in health and disease, comparing conventional clinical technologies using OCT imaging. This method introduces the clinician to the manifestations of disease as elucidated by OCT, while presenting the more familiar fundoscopic and fluorescein angiographic appearance side-by-side. Drs. Joel S. Schuman, Carmen A. Puliafito, and James G. Fujimoto, PhD together with their co-authors have collaborated to produce this comprehensive resource. OCT applications in retinal diseases, glaucoma, neuro-ophthalmology, anterior segment and a description of OCT technologies are all topics extensively covered in this new edition. An appendix is included that contains a wealth of technical information for those interested in learning more about the principles of operation of this medical diagnostic imaging technology. This text will provide a clinical reference for the retinal and glaucoma specialist that shows how to utilize and interpret OCT imaging to enhance diagnostic sensitivity and specificity as well as to enhance therapeutic decision making and monitor the outcome of treatment. Both clinicians and scientists interested in optical imaging of the eye will find this insightful text a useful reference. Features: Over 1,600 color images. Strong focus on retina, glaucoma, and the anterior segments. Utilizes and interprets OCT imaging.

This atlas presents chapters on common and rare macular diseases including variants of age-related macular degeneration (dry, neovascular, polypoidal choroidal vasculopathy), cystoid macular edema, macular telangiectasia, central serous retinopathy and pachychoroid disease, photic retinopathy, presumed ocular histoplasmosis syndrome, myopic degeneration, angioid streaks, and a recently described entity: perifoveal exudative vascular anomalous complex. It provides a wealth of representative images, using various modalities to help the reader recognize the respective conditions. Importantly, it also includes images acquired using techniques more recently adopted in clinical practice such as autofluorescence, optical coherence tomography (OCT), and OCT angiography. The concise text reviews the basic concepts of etiology, diagnosis, and management in a highly accessible format. In contributions prepared by internationally respected experts, the atlas provides a cutting-edge analysis of each condition, as well as excellent summaries of recent work in the field. Macular Disorders is one of nine volumes in the series Retina Atlas. The series offers a global perspective on vitreoretinal diseases, covering imaging

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basics, retinal vascular disease, ocular inflammatory disease, retinal degeneration, surgical retina, macular disorders, ocular oncology, pediatric retina and trauma. In nine volumes and over 100 chapters, Retina Atlas offers comprehensive and validated information on retinal disorders.

This book gives a clinical context to optical coherence tomography (OCT) findings, while considering the differential diagnosis and providing patient management guidance. Relevant anatomical and technical aspects are discussed, followed by a pragmatic illustration of the use of OCT for the clinical spectrum of multiple sclerosis and optic neuritis, and finishing with information on monitoring ocular side effects of recently approved disease-modifying treatments in multiple sclerosis. Optical Coherence Tomography in Multiple Sclerosis: Clinical Applications is aimed at clinical neurologists working with patients suffering from MS and general neurologists who see patients with visual symptoms in their daily practice. Ophthalmologists sharing clinical responsibilities with neurologists for patients under disease-modifying treatments will also find the book of interest.

Optical coherence tomography (OCT) is the optical analog of ultrasound imaging and is emerging as a powerful imaging technique that enables non-invasive, in vivo, high resolution, cross-sectional imaging in biological tissue. This book introduces OCT technology and applications not only from an optical and technological viewpoint, but also from biomedical and clinical perspectives. The chapters are written by leading research groups, in a style comprehensible to a broad audience.

This open access book gives a complete and comprehensive introduction to the fields of medical imaging systems, as designed for a broad range of applications. The authors of the book first explain the foundations of system theory and image processing, before highlighting several modalities in a dedicated chapter. The initial focus is on modalities that are closely related to traditional camera systems such as endoscopy and microscopy. This is followed by more complex image formation processes: magnetic resonance imaging, X-ray projection imaging, computed tomography, X-ray phase-contrast imaging, nuclear imaging, ultrasound, and optical coherence tomography.

The first comprehensive review of the use of optical coherence tomography in neurological diseases for neurologists, neuro-ophthalmologists, and neuroradiologists.

I am very proud and excited to introduce to you this book, which provides many interesting indications on how to better understand and handle the world of optical coherence tomography (OCT). Reading the chapters, you will be aware that this device is extremely important not just in the clinical practice of retinal diseases, but is also very useful as a surgical tool. Moreover, application of OCT has crossed the borders of the retina and is currently being applied to corneal diseases and glaucoma. I am confident you will find enough useful information to improve your practice using OCT and to provide a better quality of care for your patients.

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