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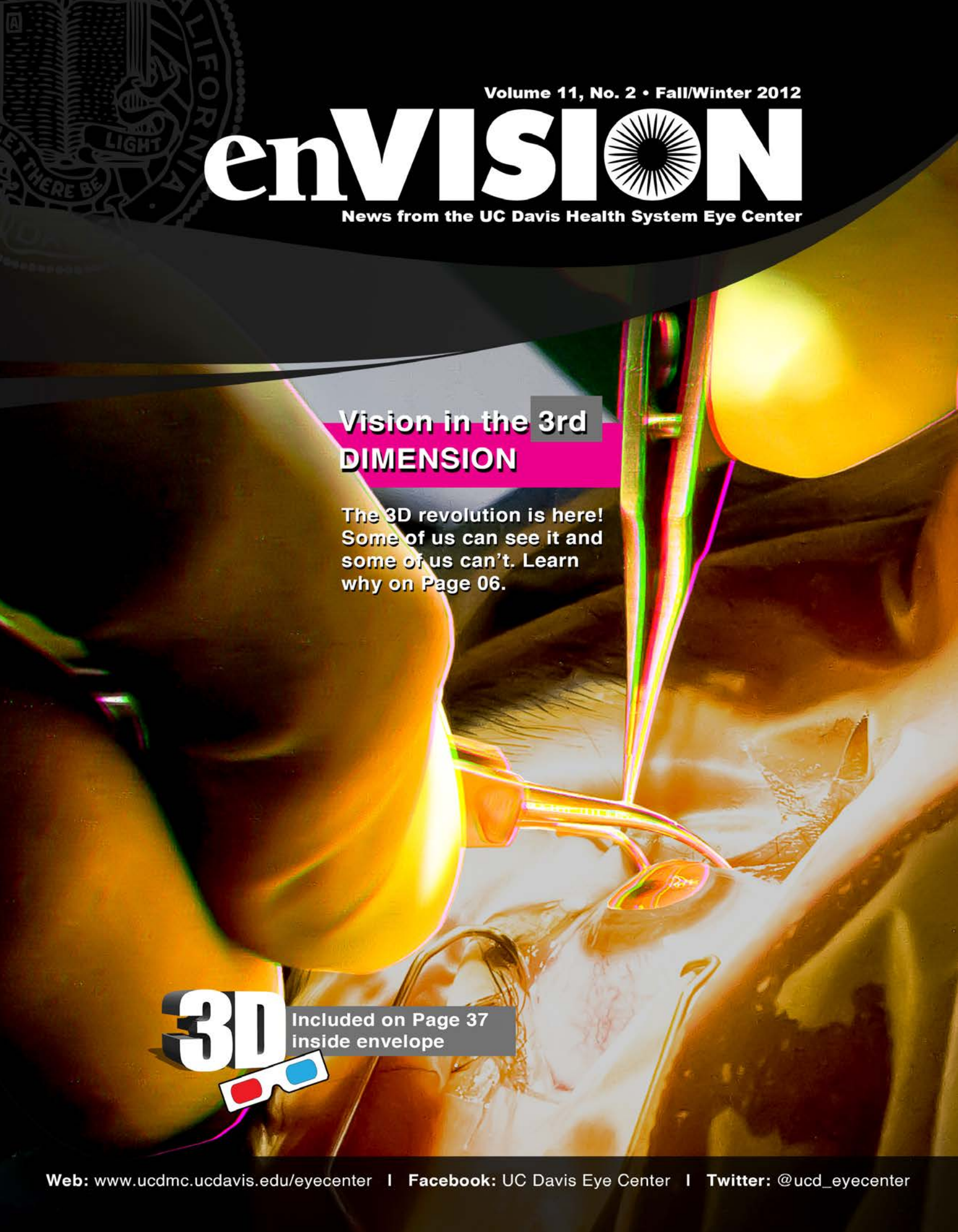
enVISION

News from the UC Davis Health System Eye Center

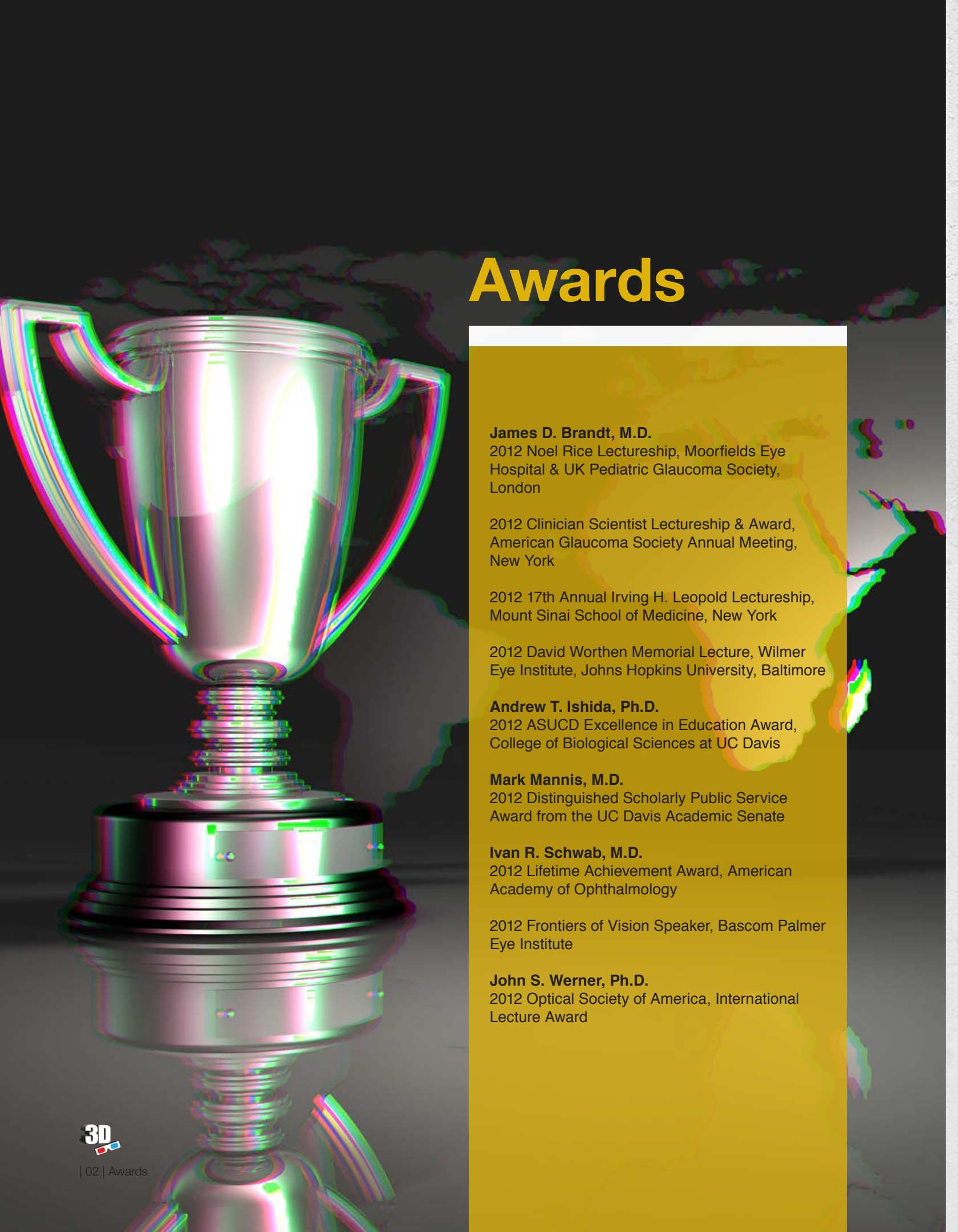


Vision in the 3rd DIMENSION

The 3D revolution is here! Some of us can see it and some of us can't. Learn why on Page 06.

3D

Included on Page 37 inside envelope



Awards

James D. Brandt, M.D.
2012 Noel Rice Lectureship, Moorfields Eye Hospital & UK Pediatric Glaucoma Society, London

2012 Clinician Scientist Lectureship & Award, American Glaucoma Society Annual Meeting, New York

2012 17th Annual Irving H. Leopold Lectureship, Mount Sinai School of Medicine, New York

2012 David Worthen Memorial Lecture, Wilmer Eye Institute, Johns Hopkins University, Baltimore

Andrew T. Ishida, Ph.D.
2012 ASUCD Excellence in Education Award, College of Biological Sciences at UC Davis

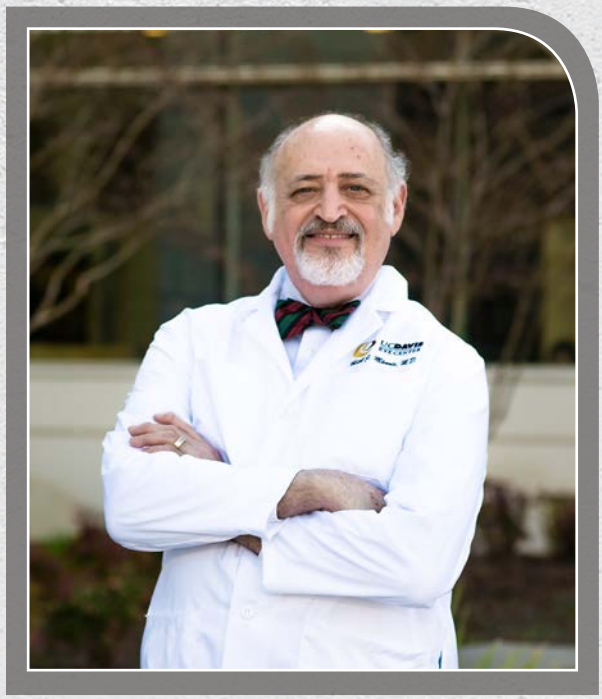
Mark Mannis, M.D.
2012 Distinguished Scholarly Public Service Award from the UC Davis Academic Senate

Ivan R. Schwab, M.D.
2012 Lifetime Achievement Award, American Academy of Ophthalmology

2012 Frontiers of Vision Speaker, Bascom Palmer Eye Institute

John S. Werner, Ph.D.
2012 Optical Society of America, International Lecture Award

Unraveling the
Mysteries of Vision



After 30 years of practicing ophthalmology, I am still in awe of the complexity of the eye and the visual system. And it rather amazes me that this far into my career as a physician, there is still so very much that we do not understand about this remarkable organ of sight that is so important to all of us. I think that most of us would agree that vision is the most critical of our senses. Certainly, anyone with good vision, who has experienced even temporary vision compromise, understands the fear of not being able to see.

And so, with this in mind, all of us at the Eye Center are dedicated not only to the maintenance and restoration of vision through excellence in clinical medicine, but we are dedicated to unlocking the mysteries of the eye, i.e., what makes it work and why it can go awry. To accomplish this, we are focused on a range of research projects from clinical investigations to unraveling basic mechanisms of vision at the cellular and molecular levels. Science of this type requires the close collaboration of clinicians with basic investigators and calls to the task a broad range of scientific disciplines from biochemistry and physics to bioengineering to bedside care.

Here at the Eye Center, we are committed to harnessing the scientific and clinical expertise at Davis to explore these issues. In this issue of enVision, we explore "3D vision"–a concept very much in vogue in the cinema and television industries. But it is more than a novelty, and understanding depth perception is basic to understanding an important aspect of how we see our world. This is only one small example of the infinite aspects of our visual system.

From stem cell technology to high-definition imaging, from artificial tissue construction to the control of wound healing, from studies of retinal physiology to the new pace making treatments for diabetes and macular degeneration–all of these are pieces in the puzzle of vision on which UC Davis scientists and clinicians are hard at work to understand.

Our pledge to our patients and to the public is to continue this focus and to increase our expanding comprehension of how we see.

Mark Mannis, M.D., FACS
Professor and Chair
Department of Ophthalmology & Vision Science
UC Davis Health System Eye Center

To view our 2011 Faculty Publications Index please visit our website @ *www.ucdmc.ucdavis.edu/eyecenter/pdf/2011FacPublicationlist.pdf*

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Our Mission

We will realize our vision through pioneering collaborative vision research, providing state-of-the-art, world-class eye care, and training superbly prepared ophthalmologists and vision scientists.

Our Vision

Our vision is to be the world's transformational leader in collaborative vision research and in the development of cures for blinding eye disease from cornea to cortex.

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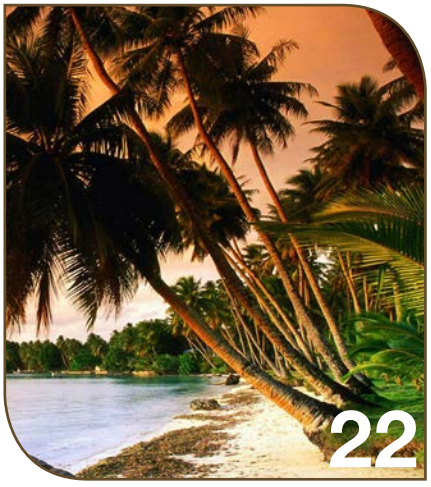


3D
SOME
SOME

E SEE IT DON'T

by Nandini Gandhi, M.D

On September 27, 1922, the Ambassador Hotel Theater in Los Angeles was abuzz with movie-goers awaiting the premiere of "The Power of Love," the world's first feature-length 3D film. They watched through their bi-colored glasses as the actors, as if alive, walked off the screen and into the spaces in front of them, behind the screen, into the seats next to them, into the space above their heads. This exciting and novel visual experience spawned a trend in 3D movie-making that peaked in the 1950s and continues to inspire the film industry today.

In this edition of enVision, we share this visual experience with you through the three-dimensional images that you will find throughout the pages of the magazine. How do the enclosed glasses work with our visual system to add a third dimension to these images?

Binocular creatures that we are, our visual systems are equipped to afford us a three-dimensional visual experience. Because the eyes are spaced apart by about two inches, each eye obtains and processes a slightly different image of the world. Through the process of sensory fusion, these similar but disparate images fall on corresponding retinal elements in each eye and are transmitted to the visual cortex of the brain, where they are carefully integrated into a three-dimensional image. Binocular vision also requires motor fusion, where both eyes are precisely aligned in all positions of gaze to allow for similar images to be perceived by each eye. Disrupting either of these fusional mechanisms by vision loss or ocular misaligment interferes with our ability to experience binocular vision and three-dimensional depth perception.

The 3D anaglyph glasses in this magazine work in conjunction with our fusional abilities to add a third dimension to these otherwise flat pictures. The three-dimensional images that you see in this magazine are a composite of two colored images, one red and one blue. The red and blue lenses allow only one image to enter each eye; the red lens transmits the red image and the blue lens transmits the blue image. These two images, when transmitted to the visual cortex, are integrated into the three-dimensional image that you perceive. So when viewed without the glasses, the images most likely appear blurred or out of focus. But with the glasses on, the images come alive, just as they did for the awestruck audience at the Ambassador Theater nearly one century ago. We invite you to sit back, relax, and enjoy the visual experience made possible by novel technology and your ancient, complex visual system.

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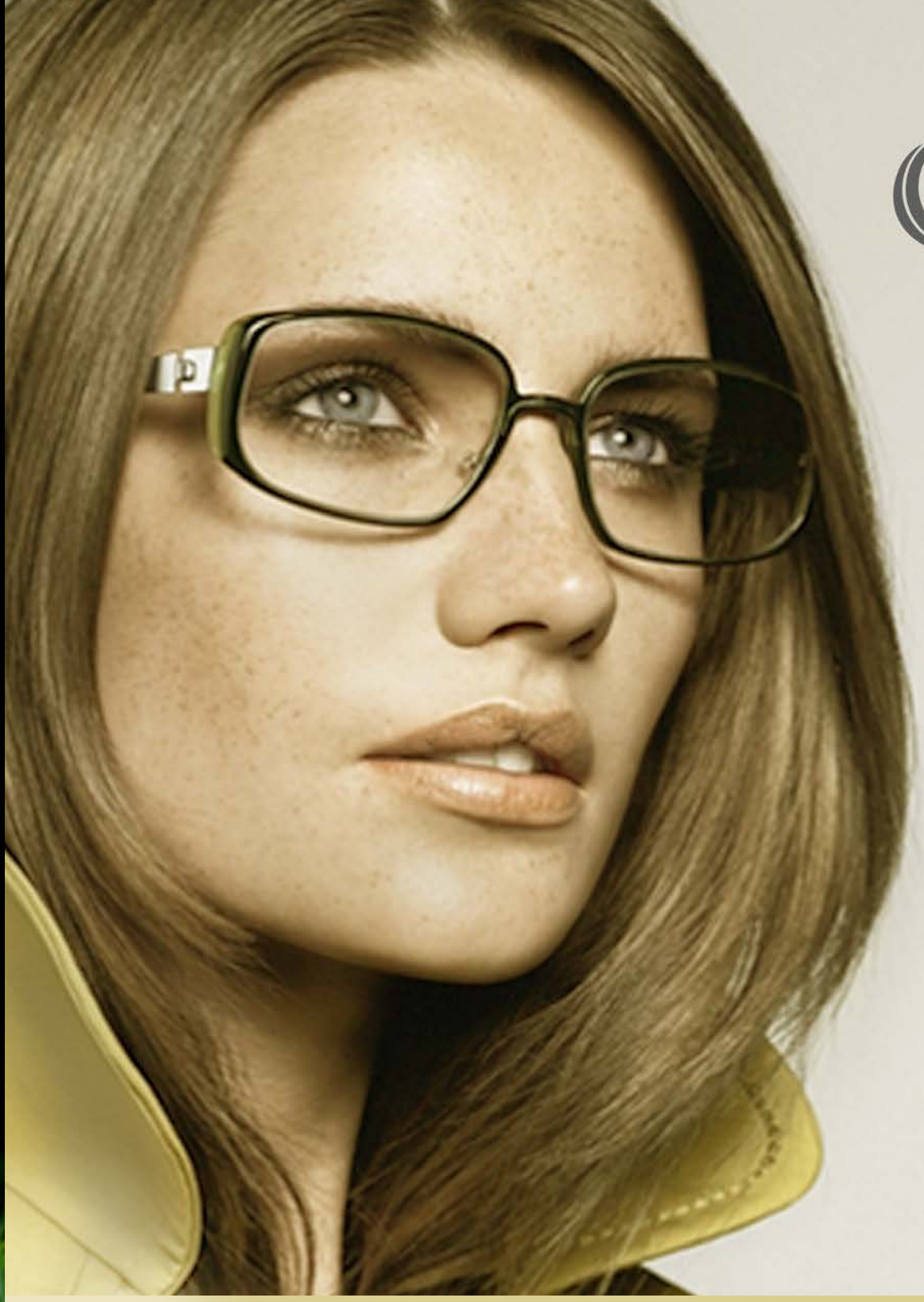
UC DAVIS EYE CENTER



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For some of the patients, it had been an exhausting six-day walk from their villages to the town of Arba Minch in Southern Ethiopia, all of whom made the long trek with the hope of having their vision restored. Arba Minch ("Forty Springs" in Amharic) is so named because of the many local springs and is situated in an area of abundant and stunning natural beauty. But for its population of 82,000 and for the many tens of thousands of people in surrounding rural Ethiopia, vision threatening, albeit treatable, disease remains a serious public health problem.

Two UC Davis Eye Center alumni, Huck Holz (Class of '06) and Jason Dimmig

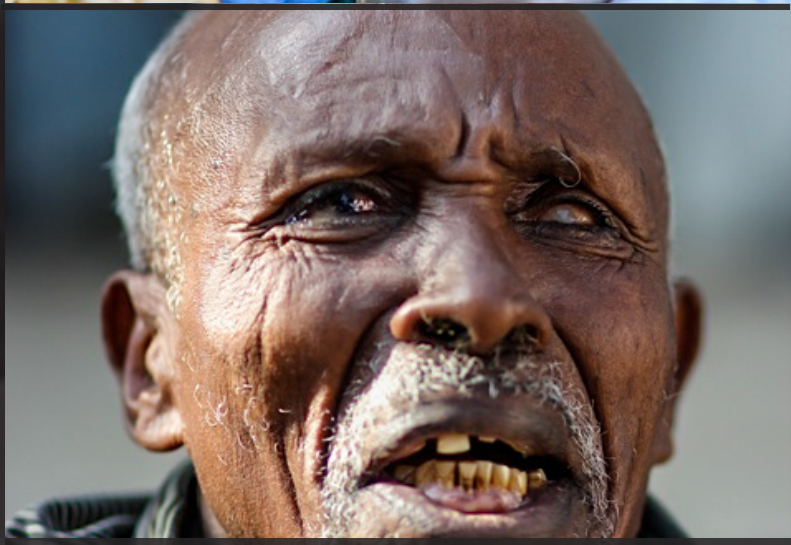
HIOPIA

UC DAVIS EYE CENTER ALUMNI PROVIDE CARE AND CLINICAL TEACHING

(Class of '05) brought their skills to Arba Minch in 2011 in collaboration with local ophthalmologist, Hailu Yewubnesh, who serves as the ophthalmologist for over 2 million people in Southern Ethiopia. Both Holz and Dimmig have previous ties to the African subcontinent. Huck Holz spent time in Ghana in 2006 with the Himalayan Cataract Project–the organization that also sponsored this project–and has traveled to Uganda, Kenya and Tanzania. Jason Dimmig has a very personal connection, as the proud father of an adopted child from Ethiopia–now three years old. This trip, inspired by the two UC Davis graduates, was primarily about skills transfer; their goal was not just the delivery of much needed eye care in the

short time available but also, and perhaps more importantly, teaching the local ophthalmologists in techniques that they could use for the local population.

In the six days of their Ethiopian sojourn, Drs. Holz and Dimmig, along with two other surgeons, screened over 700 patients and performed 355 cases, among which were many cataract surgeries, glaucoma filtering procedures, and five corneal transplants. Holz mentored Dr. Yanobnesh, who has spent some time in the U.S. as an observational fellow, in her first solo corneal transplant. The surgeons were supported by technicians trained through the Himalayan Cataract Project. A significant portion of the surgical equipment and supplies were



donated for the trip, while the Himalayan Cataract Project provided funding to acquire equipment and supplies as well. The local ophthalmologists in the region have undertaken the follow-up care. When asked what motivated them to take on a project of this scope, Holz responded: “UC Davis taught us to look beyond the horizon. At the Eye Center, we acquired not only the basic tools of our trade but also a dedicated work ethic that includes providing eye care to those without access to regular vision care.” using only what he brought to Ethiopia, Jason Dimmig pointed out that “the training I received at UC Davis did not just prepare me for my practice in Oregon, but more than prepared me to work in the developing world where vision problems

are often much more complex and challenging."

This remarkable story of our UC Davis graduates is not best told in words but in the faces of the patients who received the gift of sight from these two young physicians.

Dr. Dimmig
(UCD residency Class of 2005) works at Bend Ophthalmology in Bend, Oregon.

Dr. Holz
(UCD residency Class of 2006) is on the staff at Kaiser Permanente, Santa Clara, California.

Dr. Dimmig w/ His Family

THE UC DAVIS EYE TEAM VISITS VIETNAM

In June 2012, traveling half a world away to Vietnam, three members of the UC Davis Eye Center participated in the 4th Vietnamese American Ophthalmology Symposium in the largest city in Vietnam, Hoi Chi Minh City. The UC Davis Eye Team included Mary O'Hara M.D., Hai Tong O.D., and Larisa Johnson-Tong O.D. Joining them was Michael Pi M.D., a pediatric anesthesiologist, Ashley Le RN, an operating room nurse, both from Honolulu, Hawaii, and Maggie Lloyd, a recent college graduate, who documented the trip.

Traveling north, approximately 690 miles, the group's journey took them to Hue City, located in Central Vietnam. There, they consulted with ophthalmic physicians and residents at the Hue Central Hospital. Dr. O'Hara

participated in examinations under anesthesia for retinoblastoma patients and also conducted strabismus surgery with several of the Vietnamese ophthalmologists. Dr. Hai Tong worked with ophthalmologists and orthoptists on diagnosis and measurement of strabismus. This trip was a particularly meaningful experience for Dr. Tong who was born in Vietnam. He presented his lectures and consultations in fluent Vietnamese. Dr. Johnson-Tong demonstrated hands-on techniques of specialty contact lens fitting for keratoconus, pediatric aphakia and other corneal irregularities.

Through clinical interactions, lectures and some delicious Vietnamese meals, a true collaboration developed between the members of the UC Davis Eye team and their Vietnamese colleagues. The Vietnamese doctors were eager to learn. In return, they shared their creative and resourceful uses of limited resources. As Dr. Michael Pi observed, “They do so much with so little!”

UC DAVIS IN

EL SALVADOR

WITH ORBIS INTERNATIONAL

In the ongoing and growing partnership with Orbis International, Eye Center faculty members have once again brought the skills of UC Davis to an international setting. Three members of the UC Davis staff–Mark Mannis, Chair of Ophthalmology; Carrie Muntz RN, Children's Surgery Center operating room nurse; and Michael Chen, Cornea Fellow–joined the international team as part of the Flying Eye Hospital program in San Salvador, El Salvador in August of this year. In Central America for a week, the UC Davis team members participated with a multi-national group of volunteers including

ophthalmologists, anesthesiologists, nurses, and technicians in a program of providing corneal transplants to 11 deserving patients who would not otherwise have had access to this technology. A major part of the effort was skills transfer, instructing the local surgeons in transplant techniques. Carrie Muntz provided CPR training to local nurses- something that is not routinely taught in El Salvador. The coming year will take UC Davis faculty to Ethiopia, Zambia, and back to Central America.

JP PERLMAN:
SHARING HIS KNOWLEDGE
WITH EYE CENTER RESIDENTS

Jonathan Perlman-known to all his friends as "JP"-was greeted with enthusiastic applause from the entire Eye Center staff this year when he received the Volunteer Clinical Faculty Teacher of the Year Award from the residents at their graduation dinner. This award is given as a tribute to an individual who has gone the extra mile to teach our residents and medical students. Instruction from the Volunteer Clinical Faculty is an important part of our residents' professional training, since it is clinical teaching that comes from the context of practice outside the setting of academe. What everyone agreed upon, residents and faculty alike, was that JP does this with genuine gusto and with a sense of giving back some of what he received from his own mentors.

JP Perlman is a native of Massachusetts and the son of a retired ophthalmologist. Despite his father's profession, JP was not actually headed for ophthalmology when he first went to medical school at UC San Diego. But the draw to our profession finally attracted him, and he completed his ophthalmology residency at White Memorial Medical Center in Los Angeles followed by a fellowship in oculoplastics in Miami. He married his wife, Shawna, between residency and fellowship. Shawna trained as a nurse practitioner and is a native of Napa. The couple decided to head back west, first to a practice near Stanford and then to the Woodland Clinic where JP practiced for a decade beginning in 1992. In May of 2002, he decided to open his own practice in Woodland, where for the

last 10 years, he has practiced both general ophthalmology and oculoplastics.

When asked what has been a particularly satisfying aspect of his professional life, JP speaks enthusiastically about his medical eye missions to Sinaloa, Mexico to provide much needed surgical care to people to whom this would not normally be available. He has been accompanied on these trips by Bob Miller, also a Volunteer Clinical Faculty as well as our faculty member and cataract surgeon, Jeffrey Caspar. “What makes these trips so satisfying is seeing how sincerely grateful these patients are,” he points out.

Family is central to JP’s life; he and Shawna have three daughters-Rachael (21) who is a senior at Bates College; Brenna (18) who is a freshman at Tulane; and Hallie Rose (13) now in the seventh grade at Holmes Junior High Schol in Davis. Living on 20 acres near Davis, when not practicing ophthalmology, Jonathan enjoys making olive oil from the trees on his property. He is also learning to fly and honing his skills as a horseman. Shawna works part-time as a school nurse.

When asked why he takes time out of his busy practice to come in to the Eye Center and spend time with the residents in clinic and on the consult service, he says: “Working with the residents is actually a bit selfish, since I learn an enormous amount doing this. I also feel that I want to give something back to the profession.” To JP, the Eye Center “feels like a big family.” All of us at UCD are pleased and honored to have JP in the fold.

35th Annual UC Davis Health System Eye Center Symposium

Trade winds and balmy weather greeted the participants of the 35th Annual UC Davis Health System Eye Center Symposium entitled, “Big Topics on the Big Island: An Update of Comprehensive Ophthalmology”. Every year, the UC Davis Health System Eye Center presents a scientific conference highlighting the latest treatments and novel technologies in ophthalmology. This year the Eye Center, which held its meeting for the first time on the Big Island of Hawaii, featured three keynote speakers, Dr. Marian S. Macsai, a cornea specialist and Chief of Ophthalmology at the University of Chicago, Pritzker School of Medicine, Dr. Robert J. Cionni, renowned cataract surgeon from the Eye Institute of Utah, and Dr. James D. Brandt, Director of the Glaucoma Service at the UC Davis Health System Eye Center.

Dr. Macsai presented a current update on Omega 3 fatty acids and how these relate to ocular surface disease as well as a very popular talk on recurrent corneal abrasions (a scratch to the front part of the eye). Dr. Cionni gave several impressive video presentations on complex cataract surgeries and on specialty cataract lens implants that give patients good distance and reading vision at the same time. Dr. Brandt presented an

"Big Topics on the Big Island"

enlightening lecture on ocular biomechanics and explained how the individual structure of the eye could influence the disease, glaucoma, a vision-threatening malady.

Guest faculty, Dr. Andrea Gray, a former UC Davis Ophthalmology Resident, and her practice manager, Ms. Lori Collins, gave lively and pertinent presentations on the Electronic Medical Record and on,"Creating a Culture of Radical Customer Service and Staff Teamwork".

Breakfast Roundtable discussions were offered each day during which participants met in intimate, small group settings with experts from the Eye Center to discuss a wide range of topics including the Electronic Medical Record, Corneal diseases, and Neuro-ophthalmology issues. The meeting was rounded out with a Journal Club symposium discussing the latest research in the visual sciences and a presentation of the Best of Grand Rounds, led by UC Davis Ophthalmology Resident House staff who presented challenging patient cases seen at the Eye Center.

The Eye Center once again delivered an action packed series of lectures for the purpose of educating and updating practicing ophthalmologists on new concepts of eye disease evaluation and management. Our Symposium 2013 will take place in the world-famous Napa Valley and will continue the tradition of delivering the latest in eye care to your local ophthalmologists.

UCDAVIS EYE CENTER

PLANTING THE SEED CORN

The UC Davis Eye Center strongly believes in investing in young researchers interested in vision research. For over 30 years, every resident in the Department of Ophthalmology & Vision Science at Davis has been involved in research projects as part of his/her ongoing ophthalmology training. In addition, all fellows in the department are required to complete a research project as part of their fellowship training, whether in the field of retina, glaucoma, or cornea.

Medical students interested in ophthalmology frequently pursue research projects in the department, working along side various faculty. In 2007, we had two medical students awarded the Howard Hughes Medical Institute Research Scholarship for work mentored by Eye Center faculty.

Medical students, residents, and fellows past projects have included investigating innovative treatments for macular degeneration, glaucoma, corneal dystrophies, optic neuritis in patients with multiple sclerosis and other potentially vision-impairing disorders. Currently, we have two medical students and a resident working on a project that exams anti-bodies related to cancer, which may affect the retina and cause visual loss. Each year our residents and fellows are required to present their research projects at our annual Department of Ophthalmology Symposium. The symposium is attended by ophthalmologists from around the United States. In addition, our medical students, residents, and fellows frequently present their research at the American Academy of Ophthalmology (AAO), the Association for Research in Vision and Ophthalmology (ARVO), as well as at a variety of ophthalmologic subspecialty meetings. Many of these research projects are published in current vision journals.

Investing in the seed corn of our young researchers, both medical students and residents, is a way to ensure that we continue to do research in important areas of disabling eye disease. Clearly, without funding support we cannot initiate these research projects. Few funding agencies support medical student and resident research specifically. Hopefully, donors to the Eye Center will realize the importance of this investment in the future.

By John L. Keltner M.D.
Director of Research

NEW FACULTY MEMBER

ALA MOSHIRI, M.D., PH.D.

The UC Davis Eye Center is pleased to announce the appointment of Ala Moshiri, M.D., Ph.D. Dr. Moshiri becomes the third member of the Eye Center's Retina Service. After an aggressive national recruitment, Dr. Moshiri emerged as the top candidate out of The Wilmer Eye Institute at Johns Hopkins University, where he completed his fellowship in Vitreo-Retinal Surgery and his ophthalmology residency. Prior to his training at Wilmer, Dr. Moshiri completed a Translational Program internship at University of Texas, Houston, an M.D./Ph.D. at the University of Washington, and a Bachelor's Degree of Science in chemistry at the University of California, Berkeley. His clinical expertise includes all diseases of the retina, including macular degeneration, diabetic retinopathy, and retinal detachment. He has a special interest in hereditary retinal diseases such as retinitis pigmentosa, Stargardt disease, and other related genetic conditions. In line with his clinical interests, Dr. Moshiri is in the process of creating a cutting-edge research program. Through partnerships with basic scientists on the Davis campus, he is currently assembling an interdisciplinary research team to better understand these hereditary diseases and develop novel treatments for each condition. Please join the UC Davis Eye Center in extending a warm welcome for our newest faculty member.

ANNUAL EYE CENTER RESEARCH SYMPOSIUM

The UC Davis School of Medicine Education Building was the setting for the Eye Center's re-inauguration of its Annual Research and Alumni Day, dedicated to the research projects of our residents. Presentations of their original research were given by the residents and fellows and were formally discussed by members of the practice community, a format which all found engaging and stimulating.

In addition to the residents' and fellows' presentations, the Eye Center presented two special awards. Dr. Michael Schermer was recognized as the first recipient of the Outstanding Alumnus of the Year. Dr. Schermer, a highly respected member of the ophthalmic community and one of the early graduates of the UC Davis ophthalmology residency program, presented an inspiring talk entitled, "Think Outside the Office". This talk highlighted aspects of his career that were not office-based but provided service to our communities as well as communities abroad and, at the same time, brought him great personal and professional satisfaction.

Dr. Denise Satterfield, alumna and prominent Sacramento pediatric ophthalmologist, was honored as the first annual Byron Demorest Lecturer. Mrs. Phyllis Demorest, who presented the award to Dr. Satterfield, attended this lectureship, established in memory of her husband, Dr. Demorest. Dr. Satterfield spoke on the diagnosis and treatment of migraine headaches.

The symposium was well attended by both alumni and members of the ophthalmic practice community.

LEADERSHIP

Mark J. Mannis, M.D., F.A.C.S.
Professor, Cornea, External Disease, Chair
Research Interests: Corneal transplant technology, eye & skin diseases, and artificial corneas.

Michele C. Lim, M.D.
Professor, Glaucoma
Vice-Chair, Medical Director
Research Interests: Glaucoma patient compliance focusing on medication adherence and drug delivery.

COMPREHENSIVE OPHTHALMOLOGY

Jeffrey J. Caspar, M.D.
Clinical Professor, Comprehensive Ophthalmology and Refractive Surgery
Director, Residency Program
Research Interests: Cataract surgery after refractive surgery and new techniques for cataract extraction.

Esther S. Kim, M.D.
Clinical Professor, Comprehensive Ophthalmology
Director, Optometric Services
Research Interests: Improvement of technology in cataract surgery.

CORNEA, EXTERNAL DISEASE AND UVEITIS

Ivan R. Schwab, M.D., F.A.C.S.
Professor Emeritus, Cornea, External Disease and Uveitis
Director, Cornea, External Disease Service
Research Interests: Limbal stem cell transplants and comparative anatomy.

Francisco J. Garcia-Ferrer, M.D.
Associate Clinical Professor, Cornea, External Disease and Refractive Surgery, Veterans Administration, Mather
Research Interests: New technology for refractive surgery.

Jennifer Li, M.D.
Assistant Professor, Cornea, External Disease and Refractive Surgery
Research Interests: Endothelial keratoplasty and keratoprosthesis surgery.

Mark J. Mannis, M.D., F.A.C.S.
Professor, Cornea, External Disease, Chair
Research Interests: Corneal transplant technology, eye & skin diseases, and artificial corneas.

GLAUCOMA

James D. Brandt, M.D.
Professor, Glaucoma
Director, Glaucoma Service
Research Interests: Nanotechnology for innovation in glaucoma treatments.

Annie K. Baik, M.D.
Assistant Clinical Professor, Glaucoma, Veterans Administration, Mather
Research Interests: Emerging glaucoma surgical techniques, patient education.

Michele C. Lim, M.D.
Professor, Glaucoma
Vice-Chair, Medical Director
Research Interests: Glaucoma patient compliance focusing on medication adherence and drug delivery.

ACTUAL PATIENT QUOTE

"The service at this facility has always been efficient, friendly, and professional."

REFRACTIVE

Jeffrey J. Caspar, M.D.
Clinical Professor, Comprehensive Ophthalmology and Refractive Surgery
Director, Residency Program
Research Interests: Cataract surgery after refractive surgery and new techniques for cataract extraction.

Francisco J. Garcia-Ferrer, M.D.
Associate Clinical Professor, Cornea, External Disease and Refractive Surgery, Veterans Administration, Mather
Research Interests: New technology for refractive surgery.

Jennifer Li, M.D.
Assistant Professor, Cornea, External Disease and Refractive Surgery
Research Interests: Endothelial keratoplasty and keratoprosthesis surgery.

ACTUAL PATIENT QUOTE

"The staff at the front desk are great – friendly and knowledgeable."

NEURO-OPHTHALMOLOGY

John L. Keltner, M.D.
Distinguished Professor, Chair Emeritus, Neuro-Ophthalmology Research Director
Research Interests: The effects of multiple sclerosis (MS) and cancer on vision.

Syed Khizer Khaderi, M.D., M.P.H.
Assistant Professor, Neuro-Ophthalmology
Research Interests: Genetic diseases of the optic nerve and visual psychophysics.

OPHTHALMIC PLASTIC AND ORBITAL SURGERY

Lily Koo Lin, M.D.
Assistant Professor,
Oculoplastic Surgery
Research Interests:
Improvement of aging eyelids and the relationship between the orbital globe and trauma.

ACTUAL PATIENT QUOTE

"Good staff – good people – good doctors."

PEDIATRIC OPHTHALMOLOGY AND ADULT STRABISMUS

Mary A. O'Hara, M.D., F.A.C.S., F.C.A.P.
Professor, Director, Pediatric Ophthalmology and Strabismus Service
Research Interests:
Development of new technology in pediatric strabismus.

Nandini Gandhi, M.D.
Assistant Professor, Pediatric Ophthalmology and Strabismus
Research Interests:
International ophthalmology and curriculum development abroad.

VITREO-RETINA

Lawrence S. Morse, M.D., Ph.D.
Professor, Vitreo-retinal Surgery and Uveitis
Director, Retina Service
Research Interests: Treatments for diabetic retinopathy, age-related macular degeneration and retinal degeneration.

Linda J. Margulies, M.D.
Clinical Professor, Vitreo-retinal Disease, Veterans Administration, Martinez
Research Interests: New treatments for age-related macular degeneration.

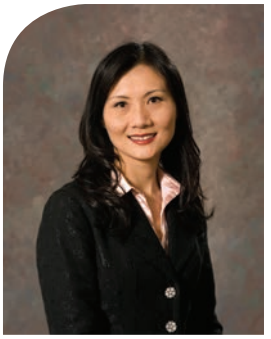
Ala Moshiri, M.D., Ph.D.
Assistant Professor, Vitreo-retinal Surgery
Research Interests: Genetic diseases of the retina.

Susanna S. Park, M.D., Ph.D.
Professor, Vitreo-retinal Surgery
Research Interests: Age-related macular degeneration Proton beam treatments, and stem cell therapies.

OPTOMETRISTS

Thomas B. Barnes, O.D., M.S., F.A.A.O.
UC Berkeley School of Optometry
Senior Optometrist

Melissa Barnett Erickson, O.D., F.A.A.O.
UC Berkeley School of Optometry
Principal Optometrist



Brooke S. Chang,O.D.
UC Berkeley School of Optometry
Senior Optometrist

Larisa Johnson-Tong, O.D., F.A.A.O.
UC Berkeley School of Optometry
Senior Optometrist

Hai Tong, O.D.
University of Missouri, St. Louis
School of Optometry
Senior Optometrist

Kaaryn Pederson-Vanbuskirk, O.D., F.A.A.O.
UC Berkeley School of Optometry
Senior Optometrist

VISION SCIENTISTS

Marie E. Burns, Ph.D.
Professor, Retinal Physiology
Research Interests: Photo transduction, photoreceptor adaptation, and protein movement.

Paul FitzGerald, Ph.D.
Professor, Cell Biology and Human Anatomy
Director, Center for Visual Sciences
Research Interests: The role of intermediate filaments in the biology of the ocular lens.

Mark S. Goldman, Ph.D.
Associate Professor, Neuroscience
Research Interests: Computer models of eye movement.

Leonard Hjelmeland, Ph.D.
Professor, Molecular & Cellular Biology; Ophthalmology
Research Interests: Senescence of retinal pigment epithelium.

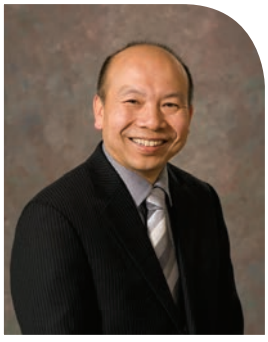
Andrew T. Ishida, Ph.D.
Professor, Neurobiology, Physiology, & Behavior
Research Interests: Modulation of retinal ganglion cell excitability.

Christopher J. Murphy, D.V.M., Ph.D.
Professor, Comparative Ophthalmology
Research Interests: Bio-physical cueing and modulation of cell behaviors.

Charles E. Thirkill, Ph.D.
Adjunct Professor Emeritus, Immunology & Biology.
Research Interests: Ocular immunology, retinal and optic nerve imaging techniques.

John S. Werner, Ph.D.
Distinguished Professor, Visual Psychophysics.
Research Interests: Color and spatial vision, normal aging and age-related disease, retinal and optic nerve imaging.

Robert J. Zawadzki, Ph.D.
Assistant Researcher, High Resolution Retinal Imaging.
Research Interests: Retinal and optic nerve imaging techniques.



Min Zhao, M.D., Ph.D.
Professor, Regenerative Cures.
Research Interests: The role of endogenous electric fields to stimulate cell migration, corneal wound healing and regeneration.

RESIDENTS AND FELLOWS

Michael C. Chen, M.D.
Clinical Cornea Fellow

Allan A. Hunter, III, M.D.
Clinical Retina Fellow

Yao Liu, M.D.
Clinical Glaucoma Fellow

Amar P. Patel, M.D.
Clinical Retina Fellow

Eric Chin, M.D.
Third Year Resident

Bobeck Modjtahedi, M.D.
Third Year Resident

Alena Reznik, M.D.
Third Year Resident

Jennifer Rizzo, M.D.
Third Year Resident

Harinderpal Chahal, M.D.
Second Year Resident

Vivian Lien, M.D.
Second Year Resident

Roma Patel, M.D.
Second Year Resident

Judith Sabah, M.D.
Second Year Resident

Annamieka Leary, M.D.
First Year Resident

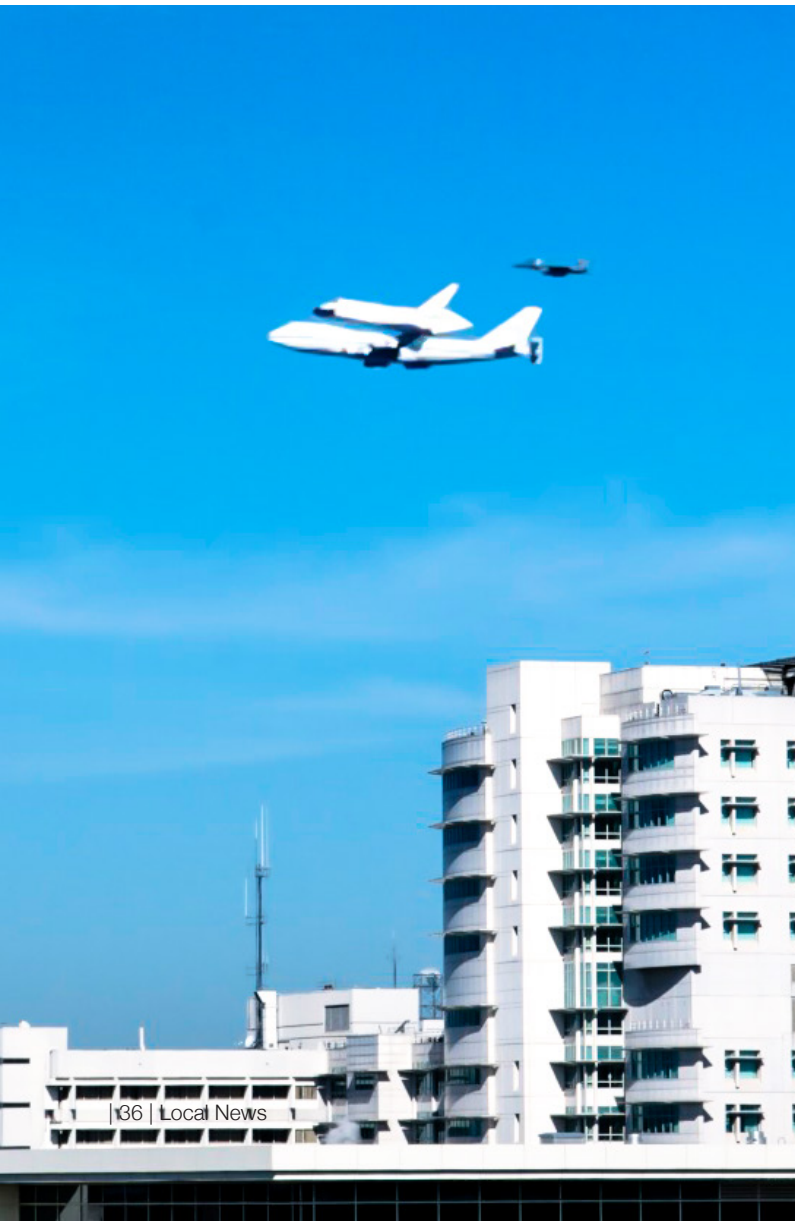
Shabnam Taylor, M.D.
First Year Resident

Jeffrey Willis, M.D.
First Year Resident

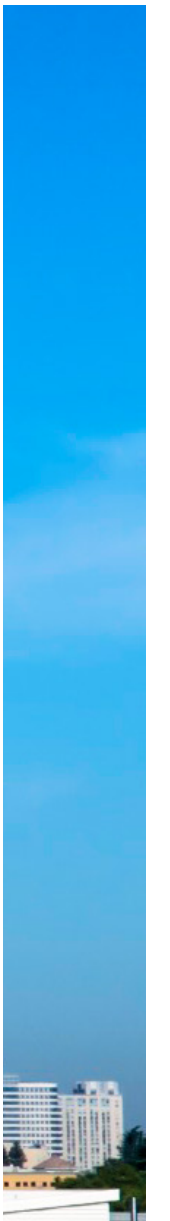
Peter Wu, M.D.
Third Year Resident

ENDEAVOUR FLY OVER

Photograph by: Thomas Moralez



The beautiful sky was clear and blue; the crowd was full of anticipation and excitement as hundreds of people gathered on the grounds of the State Capitol to watch the historic final journey of the space shuttle, Endeavour. On September 21, 2012, at approximately 9:50am, the Endeavour flew over the State Capitol in Sacramento en route to its final home at the California Science Center in Los Angeles, CA. Mounted to a NASA Shuttle Carrier Aircraft at the Edwards Air Force Base in Southern California, the SCA-Endeavour combo departed for its California tour around 8:17am. The Endeavour made numerous low-level flyovers over cities and regional landmarks, including San Francisco, Palmdale, Disneyland, the Mohave Desert, and the Monterey Bay Aquarium. In finality, this remarkable feat of engineering was paraded through city streets on October 12-13 to the Endeavour's permanent home at the California Science Center in Los Angeles, CA.



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Upcoming Events

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UC Davis Education Building
Sacramento, CA

May 17-19, 2013
36th Annual UC Davis Eye Center Symposium
Ophthalmology 2013: Are you at the top of your game?
Napa Valley Marriott Hotel & Spa
Napa, California

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