

# enVISION

News From the UC Davis Eye Center

FALL / WINTER  
2015



WEBSITE



## Our Vision

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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.

## Our Mission

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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.

University of California, Davis

Mark Mannis

Fosse Endowed Chair  
in Vision Science Research



# From the Chair's Desk

## What's in a Chair?

This year, we inaugurate the first named chair at the Eye Center—the Fosse Endowed Chair in Vision Science Research. What is the significance of a named chair for an academic department?

Our tripartite mission at UC Davis includes patient care, teaching and research. Each of these missions, in its own right, is a time consuming and expensive undertaking. The clinical practice just sustains itself. But for faculty to teach and do creative work, time is taken away from seeing patients. This requires funding. Sources of funding may include federal grants, industry grants, and foundation or private support. Unfortunately, all of these sources are increasingly difficult to obtain. The result is that faculty are less able to take time to do meaningful research and creative teaching. The establishment of a named chair addresses this issue directly. A named chair is an investment in the academic enterprise that enables faculty to take the time from patient care to engage in meaningful research and teaching activities.

Natalie Fosse was a very grateful patient—a retired operating room nurse, who for many years, received her vision care here at UC Davis. She underwent sight restoring transplant surgery here. Before she passed away, Mrs. Fosse designated the largest portion of her estate to the Eye Center to be used for vision research. Over the years, this funding has helped several of our faculty with supplemental or bridge funding for their research. The placement of these funds into the endowment of a named chair now both enables faculty to use time to engage in research without financial penalty and supports the costs of those research activities.

And so, Natalie Fosse continues—years after her passing—to sustain creative work that will benefit generations of patients. Her name will now perpetually be associated with scientific discovery geared to the restoration of sight.

The Fosse Endowed Chair is an investment; the primary dividend of which is vision restoration.



Mark J. Mannis, M.D., F.A.C.S.  
Fosse Endowed Chair in Vision  
Science Research  
Professor and Chairman  
Department of Ophthalmology &  
Vision Science  
University of California Davis, Eye Center



is published by the UC Davis Eye Center. For more information about ophthalmology services and vision research at UC Davis, visit our website at: [www.ucdmc.ucdavis.edu/eyecenter](http://www.ucdmc.ucdavis.edu/eyecenter) or call (916) 734-6435.

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## CONTENTS

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- 04** From the Chair's Desk
- 07** Ophthalmic Pathology Services
- 08** A View of UC Davis: Richard A. Lewis, M.D.
- 11** Sierra Donor Services Eye Bank
- 12** Orbis: Vietnam
- 16** VRMagic Indirect Ophthalmoscopy Simulator
- 18** Intraoperative OCT
- 22** UC Davis Eye Center Residency Program Director
- 23** Volunteer Clinical Faculty
- 24** Cataract Uncorked
- 31** 4<sup>th</sup> Annual Resident & Alumni Research Symposium
- 35** UC Davis Eye Center Executive Advisory Council
- 36** Society For The Blind
- 38** 2015 Verriest Medal
- 39** Barbara Arnold, M.D.
- 41** UC Davis Eye Center Development Update
- 42** UC Davis Eye Center Honor Roll
- 48** Faculty

**UC DAVIS**  
**EYE CENTER**

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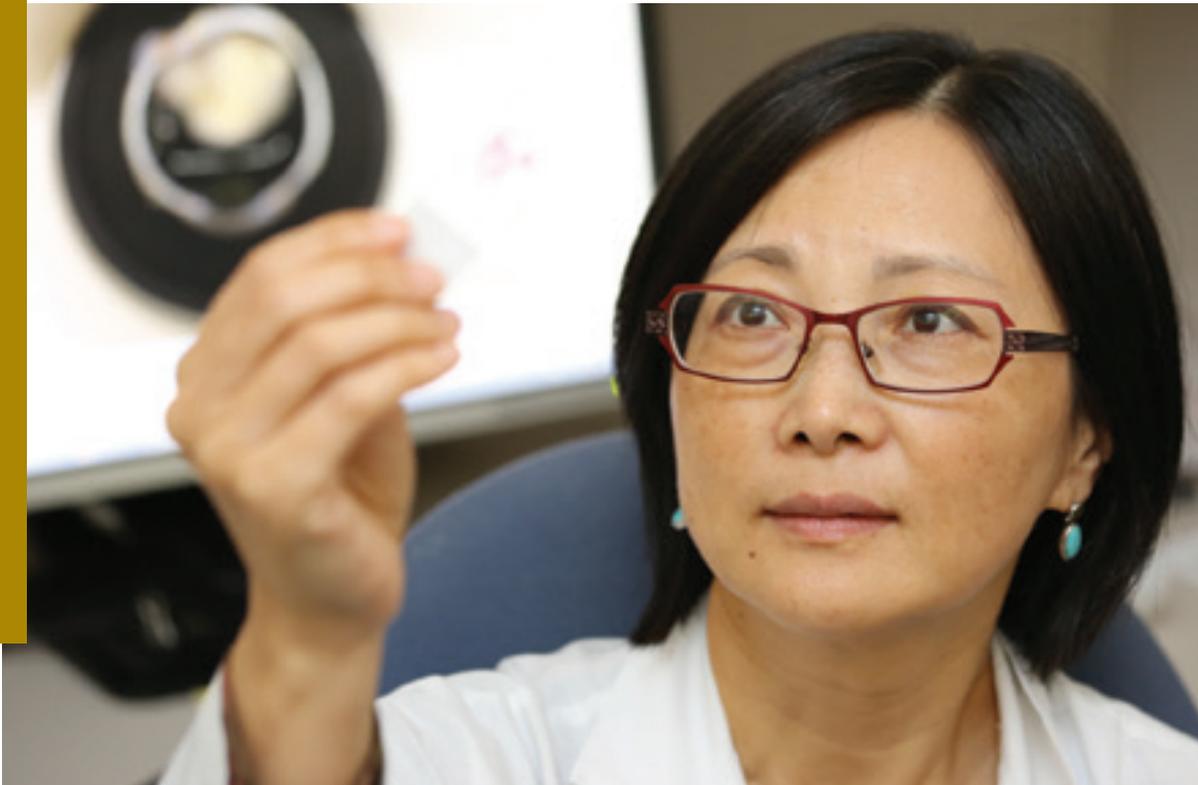
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# UC Davis Eye Center

## Ophthalmic Pathology Services



The UC Davis Eye Center is pleased to announce the availability of Ophthalmic Pathology Services.

Dr. Esther Kim has returned from a year long Ophthalmic Pathology Fellowship at UC San Francisco, where she studied with Dr. Brooks Crawford and Dr. Michele Bloomer. She is now trained in diseases of the eyelid, globe, and orbital tissues with emphasis on degenerative, inflammatory, infectious and malignant conditions.

In conjunction with the Department of Pathology and Laboratory Medicine, we are now available to receive and process a wide range of tissues encountered in ophthalmic practice. Consultation and submission of tissue for ophthalmic pathology can be arranged by contacting the Outreach Manager, UC Davis Department of Pathology and Laboratory Medicine at (916) 734-2793 or the UC Davis Eye Center at (916) 734-6967.

The UC Davis Department of Pathology and Laboratory Medicine offers the following services to our community.

- 24/7 Customer Service
- Courier Services
- E-Connectivity Solution
- Reference Lab Testing
- Specialty Testing Services

We look forward to providing our region with thorough and timely pathology reports.



## **Richard A. Lewis, M.D.**

Resident, faculty member, community practitioner  
and patient

# A View of UC Davis

Richard Lewis has experienced the UC Davis Health System rather uniquely, from almost every vantage point.

A native of San Francisco, Lewis grew up in a family with two older siblings and was the only member of the family to pursue a career in medicine. While an undergraduate at Berkeley, he made the decision to go to medical school. Just before graduating Berkeley, he married his wife, Robin, and together they set out for the School of Medicine at Northwestern University in Chicago. Lewis, nearsighted from childhood, had always been very impressed with his ophthalmologist and with the feeling he had when he got his first pair of glasses. While in medical school, he realized that he relished the opportunity to be a surgeon as well as a primary provider for patients with chronic disease—a combination uniquely possible in ophthalmology. After finishing medical school training, Lewis completed his internship at Northwestern and then returned to California to join the ophthalmology residency at UC Davis—his first encounter with UCD.

The young UC Davis Department of Ophthalmology was barely 10 years old and had limited faculty when Rick joined the program. Housed on the first floor of the North wing of the hospital, the small department had already made a national impact under the leadership of John Keltner. Keltner saw the need for glaucoma expertise at the University and offered to send Lewis away for fellowship training to become a specialist and then return to the faculty. Lewis and his wife, with two kids in tow, moved to Iowa City—one of the great academic centers of American ophthalmology where, under the tutelage of Chuck Phelps, he became a specialist in the diagnosis and treatment of glaucoma. For the next five years (1983-1988), he remained on the faculty at UCD, engaging in clinical research and teaching in the residency program—his second encounter with UCD.

In 1988, Lewis saw the opportunity to explore another aspect of medical care in the private sector and decided to leave the University. He joined Richard Grutzmacher in practice and developed his role in the community as a specialist in the diagnosis and treatment of glaucoma. But he did not abandon his interest in scientific investigation nor the drive to find new and innovative ways of treating chronic diseases both medically and surgically. He forged a career that blended specialty care delivery and the investigation of new treatments. He continued to conduct clinical trials in his private practice. His research focused on diagnosis and treatment of glaucoma, including work on early diagnosis of visual field loss in glaucoma, the first successful topical carbonic anhydrase inhibitors and surgical studies on innovative approaches to the canal. He was the first in the nation to implant the I-Stent™ in its inaugural clinical trial (one of the new microsurgical devices for the control of intraocular pressure).

Lewis' interest in new devices and novel medical treatments increased his involvement with industry, where he saw genuine opportunities to collaborate for innovation. He became a consultant, medical monitor or investigator for several companies including Alcon, Allergan, Merck, Glaukos, Aquesys and Santen among others.

In organized ophthalmology, Lewis became active in the American Glaucoma Society (AGS) and served as a board member for more than a decade. He was president of the AGS from 2000-02. He also ascended the ranks of the American Society of Cataract and Refractive Surgery (ASCRS) and emphasized the importance of glaucoma as an anterior segment disease. He became president of ASCRS in April 2014, leading the second largest ophthalmic organization in the world.



Then on April 17, 2014, while coming off the American River bike path on his bicycle, Rick was struck by a car, bringing him to his third encounter with UC Davis—this time as a patient. Having sustained a potentially devastating injury which might have left him paralyzed, Lewis was brought to the UC Davis Emergency Department, and over the ensuing days, experienced firsthand the expertise of the team at UCD. A year later, he is back in practice and is fully re-engaged in clinical studies and national leadership roles. His brush with potentially debilitating trauma and the expertise that helped to bring him back to the personal and professional life he created have given him a new perspective on what is valuable in life. Furthermore, it has helped him understand the important role that UCD has in our community. Sacramento can boast of very high quality medical care but Rick Lewis understands the very key role played by the UCD Health System in our region.

When asked about his thoughts on the residency training program of 2015—vastly different from the small program at UCD in which he trained as a resident—Lewis points



out that he would like to see the residents come out of the program as individuals who will “push the envelope.” “Ophthalmology lends itself to innovation,” says Lewis, and he would like to see residents serve as clinician researchers either in the university setting or in the private sector. His own career is a testimony to the ability of creative collaboration with industry to discover and develop new treatments for our patients. “Residents should be driven to engage in this kind of research when they complete their training, regardless of the practice venue,” says Lewis.

When not thinking about patient care and clinical innovation, Rick continues to enjoy swimming and golf and is now a very proud grandfather.

As a resident, UCD faculty, community practitioner and now grateful UCD patient, Dr. Lewis sees the world in a new way. He has never looked back or regretted his career choices for a moment. He still finds ophthalmology a haven for the innovator as well as the caregiver.



*“Residents should be driven to engage in this kind of research when they complete their training, regardless of the practice venue.”*

# Sierra Donor Services Eye Bank

## Providing the Gift of Sight to the UC Davis Community

by Jennifer Li, M.D.

# EYE BANK

Worldwide, there are 10 million individuals who are blind from corneal diseases. The cornea is the outermost layer of the eye that can become cloudy or scarred from a variety of infections and diseases. Corneal transplantation surgeries can often successfully restore vision for these patients. In the United States, the process of corneal transplantation is made possible through an extensive network of eye banks. Eye banks are nonprofit organizations that obtain, evaluate and distribute eyes donated by generous individuals.

Sierra Donor Services Eye Bank (SDSEB) is the local eye bank providing ocular tissue for patients at the UC Davis Eye Center. For over thirty years, SDSEB has been giving the gift of sight to our local community and beyond.

SDSEB helps to coordinate the recovery of eye tissue in California, Nevada, Tennessee and Virginia. Through the kindness of donors, SDSEB provides corneal tissue to restore vision for over 1,300 patients a year. SDSEB also provides over 250 research tissues a year to researchers, advancing our understanding of and ability to treat corneal diseases. Finally, in addition to the work that SDSEB does for our local community, SDSEB's efforts to fight preventable blindness have extended around the globe to countries in Latin America, the Middle East, Africa and Asia.

For more information on Sierra Donor Services Eye Bank or how you can be a donor and help provide the gift of sight, please visit [www.SierraEyeBank.dcid.org](http://www.SierraEyeBank.dcid.org).

DCI Donor Services  
an extraordinary commitment to science, health and hope



# Orbis

## Vietnam

*by James D. Brandt, M.D.*

In June 2015, a team of physicians and nurses from the UC Davis Health System & Eye Center traveled to Vietnam with Orbis International ([www.orbis.org](http://www.orbis.org)) for four weeks of volunteer patient care and training of local health care personnel. Orbis is an international non-governmental organization (NGO) dedicated to eradication of preventable blindness worldwide through education and capacity-building. In 2014, Orbis and the UC Davis School of Medicine established a long-term memorandum of cooperation to bring the expertise of UC Davis faculty and staff to Orbis' global mission.

An estimated 1.5 million Vietnamese are blind or visually impaired, with only 509 practicing ophthalmologists across a growing country of nearly 90 million. UC Davis Eye Center faculty have traveled to Vietnam many times with Orbis and other NGOs over the last two decades to deliver eye care and training.

Orbis first began working in Vietnam in the mid-1990s; The Orbis Flying Eye Hospital (FEH) is a DC-10 widebody aircraft modified to serve as a mobile teaching hospital for ophthalmic care. This was the FEH's sixth visit to Vietnam and the first to both the historic ancient capital, Hue, and the modern capital city, Hanoi.



Photo 9

The Orbis logo features a stylized blue 'O' composed of two curved lines, followed by the word 'rbis' in a dark blue, lowercase, sans-serif font.

# Orbis





Photo 1

**Photo 1:**  
James D. Brandt, M.D.

**Photo 2:**  
After surgery on the Orbis Jet

**Photo 3:**  
Mark J. Mannis, M.D.

**Photo 4:**  
Krissy Paul, RN, BSN, CNOR

**Photo 5:**  
Ahmed Gomaa, M.D.  
*Medical Director Flying  
Eye Hospital*

## A Nurse's Perspective

"Traveling to Vietnam as a VF for Orbis was very exciting but also very scary. I have never been out of the US except for beach vacations in Mexico and the Caribbean, so this was a trip that would take me very far from home. Once in Vietnam, I had no worries as Orbis was very organized on every count. There were some roadblocks but everyone involved, including the Orbis staff and the VFs, came together to figure out the best way to continue moving forward to reach our goal, which included teaching the specific eye surgeries to surgeons and nurses while keeping patient safety at the forefront.

The euphoric feeling that comes with helping people that would otherwise go blind can become addictive. It was a wonderful experience and I am hoping to be a part of another trip in the future."

*Krissy Paul, RN, BSN, CNOR*

Orbis' focus is on pediatric eye disease and corneal disease. This June's program included Mary O'Hara, M.D., Chief of the Eye Center's Pediatric Ophthalmology & Strabismus Service; Mark Mannis, M.D., Chair; and James Brandt, M.D., Chief of the Eye Center's Glaucoma Service, who has a particular interest in glaucoma in children.

Peter Moore, M.D., Ph.D., Professor and Chair of Anesthesiology at UC Davis served as a faculty anesthesiologist on the four week program in both cities. Dr. Moore's specialty is in anesthesia education and safety. Dr. O'Hara taught pediatric surgical techniques in Hue; her efforts there were profiled on the Public Broadcasting System "News Hour"; see:



A first-time Orbis volunteer from UC Davis was Kristine Paul, R.N., the lead ophthalmology nurse in the UC Davis award-winning Same Day Surgery Center. Orbis takes a holistic approach to training, involving nurses, technicians, ophthalmologists, anesthesiologists and other healthcare workers. Ms. Paul spent her time teaching modern operating room techniques to the eager nursing students in Hue at both the Hue Central Hospital and the Hue Eye Hospital.

At the Vietnam National Institute of Ophthalmology in Hanoi, Dr. Brandt focused on pediatric glaucoma, teaching new techniques of glaucoma surgery, and left behind donated devices that his trainees will continue to use into the future. Dr. Mannis performed a record number of corneal transplants and even placed one of Vietnam's first artificial corneas in a patient who had lost vision from a chemical injury years ago.

It is now possible for the UC Davis faculty to stay in touch with their hands-on trainees in Hue and Hanoi by email and by video chat. The trainees report that the patients operated on are doing well, but more importantly, the doctors are starting to use the techniques they learned during the program on their own patients.



Photo 2



Photo 3



Photo 4



Photo 5

# VRMagic Indirect Ophthalmoscopy Simulator

by Nandini Gandhi, M.D.



Any ophthalmology resident will attest to the steepness of the learning curve when residency training begins. The ophthalmic examination seems like a complicated and intricate dance using new techniques, new language and most of all, new gadgets.

One of the most difficult parts of the ophthalmic exam is mastering the art of “indirect ophthalmoscopy.” During this portion of the examination, the examiner uses a head-mounted light, aligned perfectly with a condensing lens, to view the entire retina. The virtual image, magnified threefold, is a three-dimensional view of parts of the eye that cannot be viewed in any other way. This technique is essential for diagnosing and treating such vision threatening processes as retinal tears and retinal detachments.

A generous gift from the Lanie Albrecht Foundation is the way that UC Davis ophthalmology residents master this challenging technique. The Albrecht Foundation has gifted the residency training program the VRMagic Indirect Ophthalmoscopy Simulator, a first-of-its-kind virtual simulator that allows trainees to practice indirect ophthalmoscopy on a simulated patient. The simulator consists of a workstation with a touch screen, and a headset equipped with video capabilities. The mannequin can be programmed to display certain types of pathology, and the trainee can then practice finding and correctly identifying these lesions.

The VRMagic Indirect Ophthalmoscopy Simulator will significantly impact resident education. For the first time, residents will be able to practice their techniques in indirect ophthalmoscopy in a virtual environment, affording them more comfort and confidence when they begin their patient encounters. This will also allow an opportunity for instructors to observe the trainees as they perform their virtual exams, helping refine their technique in a low-pressure, purely teaching environment.

We are extremely grateful to the Lanie Albrecht Foundation for this gift, and for keeping UC Davis at the cutting edge of education.



# Intraoperative OCT:

State-of-the-art Visualization in  
Eye Surgery

*by Glenn Yiu, M.D., Ph.D.*

A team of retinal surgeons at UC Davis is among the first in the nation to employ real-time integrated OCT technology in eye surgeries.

As eye surgeons, we make important decisions based on what we see during surgery. Retinal surgeons operate at the micron level inside the eye. Each precise maneuver relies on the surgeon's ability to visualize the delicate ocular structures being manipulated. While current microscope optics provide impressive clarity and magnification, ocular tissues are often transparent and the view through the microscope is only two-dimensional. Intraoperative optical coherence tomography (OCT) is an emerging imaging technology that provides unprecedented real-time 3D views of retinal tissues during ocular surgery. It promises to improve the quality, safety and outcomes for eye surgeries at UC Davis.

## History of Intraoperative OCT

OCT is an imaging modality similar to ultrasound, but uses light waves rather than sound waves to create an interference pattern, which is then processed to generate a cross-sectional image of the retina. OCT technology has already revolutionized eye care in the clinic, where microscopic pathologic changes in patients with macular degeneration or diabetic eye disease can be detected and used to guide medical therapy. Early reports of using OCT in the operating room came from surgeons at Duke University, who used a handheld OCT device to obtain images during retinal surgery.<sup>1</sup> By using a handheld OCT device during surgery, the team at Duke was able to show anatomic changes that helped guide intraoperative decisions. **Glenn Yiu, M.D., Ph.D.**, a retinal surgeon and Assistant Professor at UC Davis, participated in these early studies during his surgical fellowship at Duke. **Justin Migacz, M.S.**, now working with **Jack Werner, Ph.D.** at the UC Davis Vision Science and Advanced Retinal Imaging laboratory, was also one of the lead engineers on the development team there. They noted that the handheld device was awkward to use, and surgery had to be interrupted to obtain a static image in between steps of the surgery. In

order to provide real-time surgeon feedback, the OCT device had to be integrated into the surgical microscope.

## OCT Inside a Microscope

The Rescan 700 system is the first FDA-approved microscope-integrated OCT device, launched by Carl Zeiss Meditec this spring. The imaging system provides the surgeon with both planar and cross-sectional views of the retina simultaneously in real time. Key functions of the system can be controlled using the microscope's foot pedal, allowing the surgeon to take videos or still images without stopping the surgery. Importantly, the OCT image is displayed inside the surgeon's eyepiece of the microscope via a heads-up display (HUD), allowing him or her to focus on the surgery without needing to look away. This is similar to the HUD technology used by aircraft pilots to provide real-time flight information in the operator's field of view. In this way, the surgeon can readily see microscopic anatomic changes of the retina intraoperatively, especially during epiretinal membrane or retinal detachment surgeries. Dr. Yiu, along with the team of retinal surgeons at UC Davis (including **Lawrence Morse, M.D., Ph.D.**, **Susanna Park, M.D., Ph.D.**, and **Ala Moshiri, M.D., Ph.D.**) will be among the first in the country to use this innovative imaging system in the clinical setting.

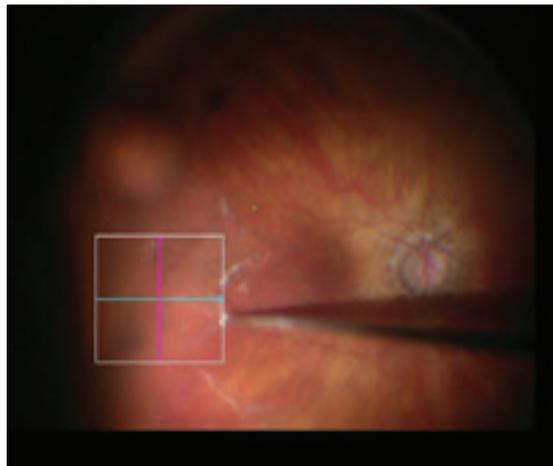
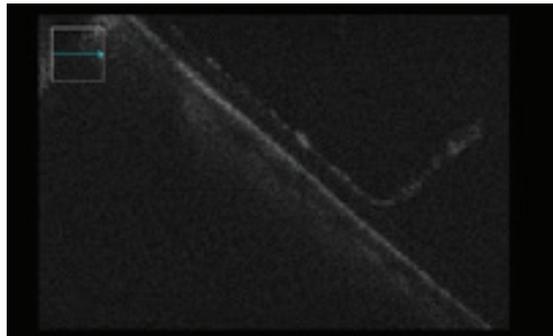
## How Intraoperative OCT Will Help Patients

In a recent study from the Cleveland Clinic, intraoperative OCT informed surgical decision-making in a large proportion of cases.<sup>2</sup> In some cases, retinal surgeons who thought they had completed membrane removal noticed residual tissue on OCT that required additional peeling. In other cases, surgeons who thought they had more membranes to peel found that the membrane had already been completely removed on OCT. Thus, intraoperative OCT has the potential to improve both patient safety and surgical outcomes after eye surgery, and the ability to visualize retinal diseases.

*Dr. Yiu is currently leading several projects to evaluate the advantages and impact of the new device on surgical decision making and patient outcomes. Intraoperative OCT represents both an evolution and revolution in modern retinal surgery, and UC Davis will be at the forefront of this groundbreaking technology.*

1. Hahn P, Migacz J, O'Donnell R, et al. "Preclinical evaluation and intraoperative human retinal imaging with a high-resolution microscope-integrated spectral domain optical coherence tomography device." *Retina*. Jul-Aug 2013;33(7):1328-1337.
2. Ehlers JP, Goshe J, Dupps WJ, et al. "Determination of Feasibility and Utility of Microscope-Integrated Optical Coherence Tomography During Ophthalmic Surgery: The DISCOVER Study RESCAN Results." *JAMA Ophthalmology*. July 30, 2015.

*"Intraoperative OCT images help the surgeon accurately peel a membrane from the surface of the retina in real time."*





*“Dr. Glenn Yiu uses the intraoperative OCT images to guide his surgical maneuvers during vitrectomy surgery.”*

# Jeffrey J. Caspar, M.D.

UC Davis Eye Center Residency Program Director

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The training of young ophthalmologists is a critical mission for any university eye center. Residents, having just completed medical school a year earlier, enter residency training with vigor and enthusiasm but little to no knowledge about eye disease or surgery. With the increasing incidence of eye disease in the U.S., this mission is critical to the future health of our nation. The leader of this mission at UC Davis is Dr. Jeffrey Caspar, Professor and Director of Residency Education.

After graduating in Chemical Engineering from UC Berkeley, Dr. Caspar completed his medical school training at UC Davis. He continued his residency training with the UC Davis Eye Center. Within six months after graduating, he began serving as the Assistant Director and within one year, had taken over as Director of the Residency Program. His first task was a complete redesign of the residency training curriculum.

Having served as director since 1998, Dr. Caspar is one of the longest serving Residency Directors in the country. During this period, the residency program has become a national leader in surgical training, pioneering earlier surgical exposure and a stepwise approach to attaining surgical skills. This has been assisted by the acquisition of an EyeSi virtual reality surgical simulator for cataract surgery two years ago. In 2014, the surgical training got an additional boost with the building of the Lanie Albrecht Microsurgical Training Laboratory, whose funding was obtained through a proposal written by Dr. Caspar. Through funding provided by a grateful patient, Dr. Caspar was able to design a state-of-the-art seven-station surgical lab used not only by UC Davis Eye Center residents, but also by the UC Davis Veterinary Eye residents. With the recent addition of Laser Cataract Surgery, UC Davis has become one of the few programs in the country offering this training to its residents.

Dr. Caspar also introduced two international opportunities for UC Davis residents. The first was through the Ispahani Islamia Eye Hospital in Dhaka, Bangladesh, which Dr. Caspar first visited in January of 2010, and the second was through involvement with Liga International to provide cataract surgery to the poor in San Blas, Sinaloa, Mexico.

Dr. Caspar's efforts have not gone unnoticed by the residents. He has received several clinical teaching awards, most recently in 2015 for Best Clinical Teacher.

"I find training our future ophthalmologists both challenging and invigorating. It is a delicate balance maintaining a busy clinical practice and teaching. Thankfully, education is greatly valued by the Eye Center. Working with these young, curious minds forces me to remain on the cutting edge of knowledge and technology, which not only improves the education of our residents, but also improves my patient care," says Caspar.



## Annual Volunteer Clinical Faculty (VCF) Meeting

The Eye Center's educational program is very fortunate, indeed, to benefit from the volunteer services of 22 ophthalmologists who lend their expertise and energies to the training of the UC Davis residents. These physicians in various private practice specialties gather annually to review important developments and plans for the next year's training program. The VCF assembled on August 20, 2015 and reviewed new additions to this year's training program: resident training in femtosecond laser cataract surgery (LenSx™ laser); new international training opportunities; the recently acquired EyeSi™ indirect ophthalmology simulator; and the microsurgical course curriculum participated in by both our residents and the veterinary ophthalmology residents in our state-of-the-art Lanie Albrecht Foundation Microsurgical Training Laboratory. We extend our deepest appreciation for the time and talents volunteered by these outstanding clinicians for the training of our residents and medical students.

### 2015-16 UC Davis Eye Center VCF

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Barbara Arnold, M.D.  
Craig Berris, M.D.  
John Canzano, M.D.  
David Chu, M.D.  
Ronald Cole, M.D.  
Tyrone Glover, M.D.  
Daniel King, M.D.  
David Kira, M.D.

Vivian Lien, M.D.  
Daniel Lee, M.D.  
Jennifer Long, M.D.  
Linda Margulies, M.D.  
Robert Miller, M.D.  
Jonathan Perlman, M.D.  
James Ruben, M.D.  
Bradley Sandler, M.D.

Denise Satterfield, M.D.  
Frank Sousa, M.D.  
Ernest Tark, M.D.  
David Telander, M.D., Ph.D.  
Tiffany Wong, M.D.  
John Zeiter, M.D.

# 38th Annual UC Davis Eye Center Symposium – Cataract Uncorked

For more than three and half decades, the Eye Center has produced a top-flight clinical meeting that is now nationally recognized for destination and quality content. This year's event in Napa was no exception, attracting participants from all over the country. Keynote speaker, Douglas D. Koch, M.D., prestigious professor and cataract specialist from Cullen Eye Institute, lectured on "Managing Astigmatism During Cataract Surgery." The meeting provided a unique opportunity for participants from around the region and the country to meet and interact with UC Davis faculty members.

The 39th Annual Symposium will take place May 13-15, 2016 at the Napa Valley Marriott Hotel.



Gregory Rabin, M.D.  
John Keltner, M.D.  
George Watson, M.D.



John Zeiter, M.D.  
John Canzano, M.D.  
Mark Mannis, M.D.



George Watson, M.D.  
Linda Margulies, M.D.  
Cheri Leng, M.D.



JP Perlman, M.D.  
Sonia Rivera  
Robert Miller, M.D.  
Denise Satterfield, M.D.  
Bradley Sandler, M.D.



Jeffrey Willis, M.D., Ph.D.  
Annamieka Leary, M.D.  
David Chu, M.D.  
Linda Margulies, M.D.  
Shabnam Taylor, M.D.  
Peter Wu, M.D.



Khizer Khaderi, M.D.,  
M.P.H.  
Nathaniel Gebhard, M.D.



Rory Allar, M.D.  
Paramdeep Mand, M.D.



Ala Moshiri, M.D., Ph.D.  
Glenn Yiu, M.D., Ph.D.



Bonnie Quiroz, M.D.  
Gregory Rabin, M.D.

Douglas Koch, M.D.  
Mark Mannis, M.D.



Michele Lim, M.D.  
James Brandt, M.D.  
J. Edie DeNiro, M.D.  
Annie Baik, M.D.



Shelley Schermer  
Michael Schermer, M.D.



S

K



Annie Baik, M.D.  
Jennifer Li, M.D.  
Nandini Gandhi, M.D.

K

T

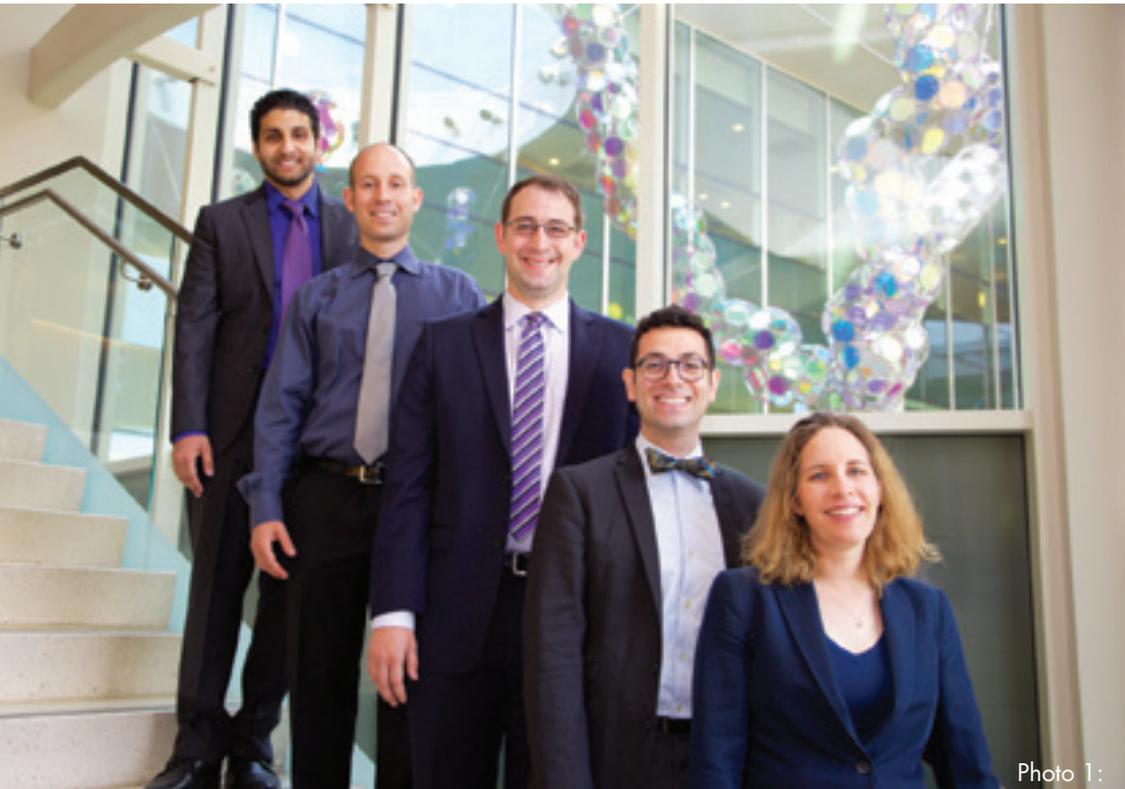




# 4<sup>TH</sup> Annual Resident & Alumni Research Symposium

The 4th Annual Resident & Alumni Research Symposium took place on Saturday, June 20, 2015. The day, celebrating the research efforts by our residents and fellows, was highlighted by two special presentations—the Byron Demorest Memorial Lectureship and the Alumnus of the Year Lecture. The Demorest Lecture, established to commemorate the leadership of the department's first chair, was delivered by David Parke II, M.D., renowned ophthalmologist and chief executive officer of the American Academy of Ophthalmology. Cynthia Toth, M.D., retinal specialist at Duke University and graduate of the UC Davis Residency program, was honored with the Alumnus of the Year Award.

The residents and fellows presented their research projects, which were ably discussed by members of the Sacramento and Davis practice communities. Celebrating the academic achievements of our residents, fellows and our ophthalmic community was at the center of the day's activities and was a source of pride for the Eye Center.



**Photo 1:**

Sumeer Thinda, M.D.  
Elad Moisseiev, M.D.  
Senad Osmanovic, M.D.  
Mazen Y. Choulakian, M.D.  
J. Edie DeNiro, M.D.

**Photo 2:**

Kingsley Okafor, M.D.  
Jeffrey Willis, M.D., Ph.D.  
Nathaniel Gebhard, M.D.  
Peter Wu, M.D.  
Rachel Simpson, M.D.  
Annamieka Leary, M.D.  
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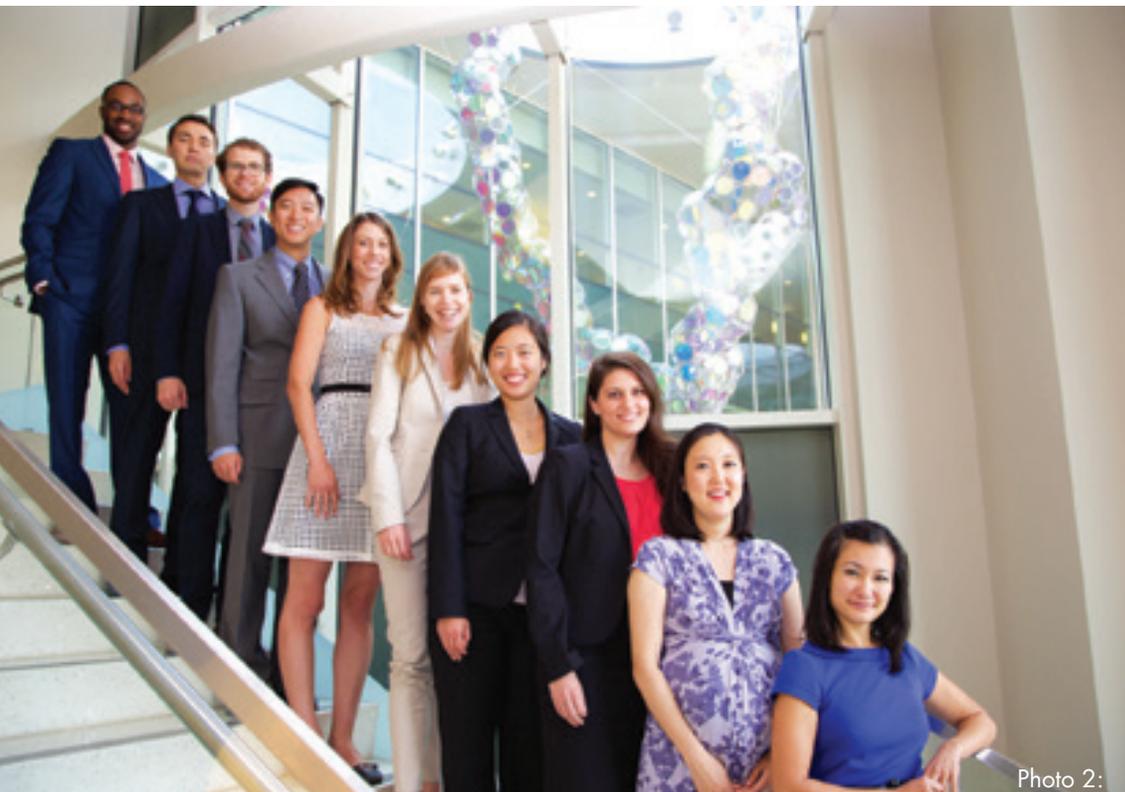




Photo 3:

**Photo 3:**  
UC Davis Eye Center Alumni



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**Council Vice Chair**  
David Motes, CPA

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Derek Ledda

Barbara Fingerut  
Susan Prudler  
Robert Miller, M.D.  
Mark Mannis, M.D.

# The UC Davis Eye Center Executive Advisory Council

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The success of a thriving regional eye center is the product not only of its faculty and staff but also of its professional and lay community support. The UC Davis Eye Center is no exception to this.

The UC Davis Eye Center Executive Advisory Council is composed of a group of dedicated individuals who have both understood the mission and vision of the Eye Center and also, to some extent, have helped to define that mission. Comprised of local physicians, alumni of the training program, grateful patients, and community and organizational representatives, this dedicated group of individuals meets quarterly to guide and advise the leadership of the Eye Center in building its future. In addition to personal financial commitments to the Eye Center, members of the Advisory Council dedicate time to meet and to support the programs of the department.

The Council has been instrumental in producing three informational videos to promote the mission of the department with the public and have been hosts at both "Meet the Researcher" events on campus as well as fundraising events here at the Med Center.

We owe a debt of gratitude to these individuals who give of their time to support our tripartite mission of high-quality patient care, research and teaching. Individuals who might be interested in serving on the Advisory Council should contact Holland Adams at 916-734-6435 or [hradams@ucdavis.edu](mailto:hradams@ucdavis.edu).

## Expanding the Vision

*By Liz Culp*

Dr. Mary O'Hara remembers the crushed look on parents' faces when she referred their children with vision challenges to a Bay Area clinic. Many families did not have the means to travel there from Sacramento.

O'Hara, a pediatric ophthalmologist with UC Davis Eye Center, was relieved when Society for the Blind expanded its services this year, allowing its low-vision clinic services to include vision rehabilitation with an occupational therapist. Pediatric eye care is also offered and a second office has been opened in Roseville. Expanded pediatric services include parent support groups and children's Braille classes.

"Society for the Blind is a wonderful resource," says O'Hara. "Families are an important part of treatment and support. If parents feel empowered, they will help children feel empowered."

UC Davis Eye Center and Society for the Blind also plan to conduct clinics together to provide full examinations of children and assess families' needs in one location. Dr. Mark Mannis, chair of UC Davis Eye Center and board member at Society for the Blind, hopes to one day have an office for Society for the Blind in the new Eye Center currently under development.

"We take care of people with the severest vision problems in the region, so we see Society for the Blind as a great partner, because it brings together optometric services with visual rehabilitation services," says Mannis.

Society for the Blind hosted an open house for the expanded clinic on Sept. 26, 2015 during its yearlong 60th anniversary celebration. It continues to create innovative ways to empower 6,000 youth, adults and seniors living with low vision or blindness to discover, develop and achieve their full potential. The nonprofit is nationally recognized and the only rehabilitative teaching center for a 26-county region of northern California. For more information or to make a donation, visit [www.societyfortheblind.org](http://www.societyfortheblind.org).



# John S. Werner Receives the 2015 Verriest Medal



The International Colour Vision Society (ICVS) presented the 2015 Verriest Medal to Professor John S. Werner at the 23<sup>rd</sup> Biennial ICVS

Symposium held in Sendai, Japan, July 3-7, 2015. This award was established in 1991 in memory of the founding member of the Society, Dr. Guy Verriest, and honors outstanding contributions in the field of color vision.

Professor Werner received his Ph.D. from Brown University and conducted postdoctoral research in the Netherlands. He was a member of the Psychology faculty at the University of Colorado, Boulder and is presently a Distinguished Professor of Ophthalmology at the University of California, Davis where he also holds appointments in the Department of Ophthalmology & Vision Science, and in Neurobiology, Physiology and Behavior.

Dr. Werner has made important contributions to our knowledge of the development of color mechanisms using psychophysical techniques and more recently, optical imaging techniques, OCT and adaptive optics—a field in which he is recognized as a world expert. He has contributed to our understanding of the processes of aging in perception particularly as they relate to plasticity and potential clinical applications. Throughout his career he has maintained an active interest in opponent color mechanisms, color in art and color illusions.

A generation of vision scientists has enjoyed the benefits of reading the many books he has coedited. These include: "Visual Perception: The Neurophysiological Foundations"; "Color Vision: Perspectives from Different Disciplines"; "The Visual Neurosciences"; and "The New Visual Neurosciences," which, like Professor Werner's own research, have brought together discoveries from anatomy, physiology and psychophysics to illuminate fundamental mechanisms underlying human perception.



## **Barbara Arnold, M.D.**

### Recognized by the California Medical Association



Barbara Arnold, M.D., a prominent community ophthalmologist and a long-time member of the UC Davis Eye Center Volunteer Clinical Faculty, is the recipient of the Compassionate Service Award, which will be presented on Saturday afternoon, Oct 17, 2015 at the California Medical Association (CMA) House of Delegates meeting in Anaheim. A talented artist in her own right, Dr. Arnold has conducted classes in painting for individuals with visual limitations since 2012. Dr. Arnold has used her talents as an ophthalmologist, as a painter, and as a teacher to bring joy to patients by enabling them to make creative use of what vision they have left. Dr. Arnold has worked tirelessly to combat the depression and helplessness that can easily threaten those with profound vision loss. "Picking up what limited visual pieces remain is uplifting both to students and to the instructor," says Arnold.

Dr. Arnold served in the Air Force and then opened her private practice in Sacramento on November 2, 1981. Later that year, she became a member of the volunteer clinical faculty at UCD and has continued volunteer work both at the University teaching program as well as in the community. She was previously the recipient of a Service Award from Women in Ophthalmology, an organization in which she has been a key player.

Dr. Arnold has been active in the department for over 30 years and complements her busy clinical practice by sharing her creative talents with the visually impaired. Our congratulations to her!



# Erin Bauer

Director of Development  
UC Davis Eye Center

---

Erin Bauer joins the UC Davis Health Sciences development team as Director of Development for the UC Davis Eye Center. With more than 13 years of experience in philanthropy, Bauer has held development leadership positions with universities and human service organizations in Chicago, IL, raising funds for scholarships, capital projects and a variety of community programs and services. Bauer comes to the UC Davis Eye Center from Northwestern University Feinberg School of Medicine where she focused on major, principle, and planned giving to support the advancement of medical education, research and clinical care.

Prior to joining Feinberg's development team, Bauer spent five years as a major gift officer at Illinois Institute of Technology, where she was instrumental in raising funds for the College of Architecture as well as IIT Chicago-Kent College of Law. As director of development for the Eye Center, Bauer is responsible for developing and implementing a comprehensive fundraising program for current and future funding needs. In conjunction with the development staff, Bauer will institute a coordinated approach to institutional advancement, supporting the department's strategic priorities.

Bauer holds a Bachelor of Arts degree from DePauw University as well as a Master of Public Affairs from Indiana University Bloomington's School of Public and Environmental Affairs.

# UC Davis Eye Center Honor Roll

*We are grateful for the support the UC Davis Eye Center receives from our donors for research, education, patient care and outreach activities.*

## Lifetime Donors

*With gratitude to the following donors who have provided sustaining support to the UC Davis Eye Center since inception.*

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Reynaldo C. Espanol  
Thomas Hammer  
Barbara Roth  
Lois Warren

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**Mark J. Mannis, M.D., F.A.C.S.**  
Fosse Endowed Chair in Vision  
Science Research  
Professor and Chairman,  
Cornea and External  
Disease  
Research Interests:  
Corneal transplant technology,  
eye and skin diseases, and  
artificial corneas



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



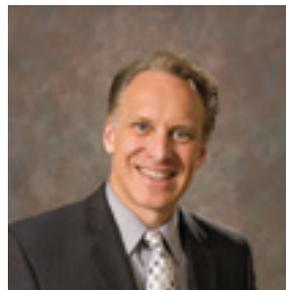
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Vice Chair of International  
Programs and New Technology  
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Research Interests:  
Nanotechnology for innovation  
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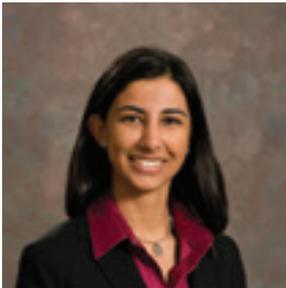
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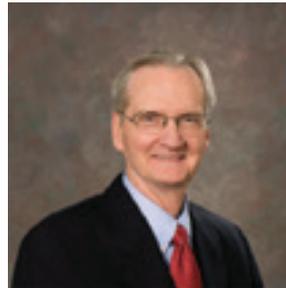
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Glaucoma  
Veterans  
Administration Mather  
Research Interests:  
Emerging glaucoma  
surgical techniques,  
patient education



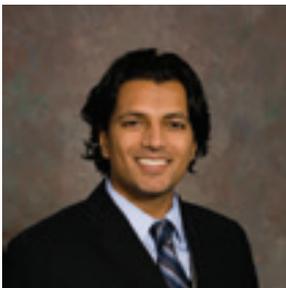
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Professor, Comprehensive  
Ophthalmology and Refractive  
Surgery  
Research Interests:  
Cataract surgery after refractive  
surgery and new techniques for  
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**Nandini Gandhi, M.D.**  
Associate Director,  
Residency Program  
Assistant Professor,  
Pediatric Ophthalmology and  
Strabismus  
Research Interests:  
International ophthalmology  
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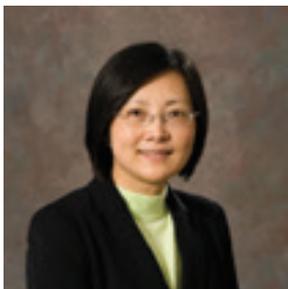


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Chair Emeritus  
Research Director  
Distinguished Professor,  
Neuro-Ophthalmology  
Research Interests:  
The effects of multiple sclerosis  
and cancer on vision



**Syed Khizer Khaderi, M.D.,  
MPH**  
Assistant Professor, Neuro-  
Ophthalmology  
Research Interests:  
Retinal ganglion cell  
function; Sports vision and  
Traumatic Brain Injuries;  
Wearable technologies;  
Visual psychophysics

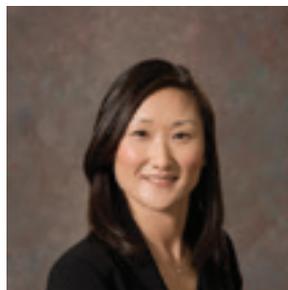
**Esther S. Kim, M.D.**  
Director, Comprehensive and  
Optometric Services  
Professor, Comprehensive  
Ophthalmology and  
Ophthalmic Pathology  
Research Interests:  
Improvement of technology in  
cataract surgery



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



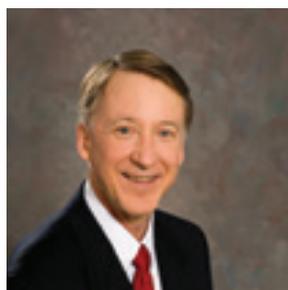
**Lily Koo Lin, M.D.**  
Associate Professor,  
Oculoplastic Surgery  
Research Interests:  
Improvement of aging eyelids  
and the relationship between  
the orbital globe and traum



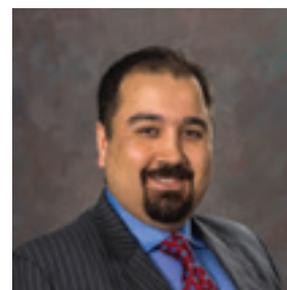
**Linda J. Margulies, M.D.**  
Professor,  
Vitreoretinal Disease Veterans  
Administration Martinez  
Research Interests:  
New treatments for  
age-related macular  
degeneration



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



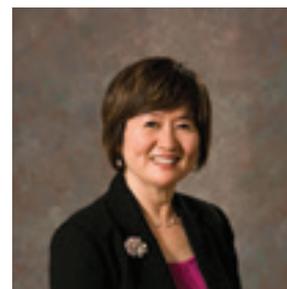
**Ala Moshiri, M.D., Ph.D.**  
Assistant Professor,  
Vitreoretinal Surgery  
Research Interests:  
Genetic diseases



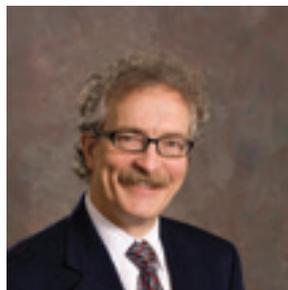
**Mary A. O'Hara, M.D., F.A.C.S.,  
F.C.A.P.**  
Director and Professor  
Pediatric Ophthalmology and  
Strabismus Service  
Research Interests:  
Development of new technology  
in pediatric strabismus



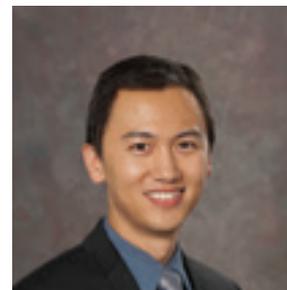
**Susanna S. Park, M.D., Ph.D.**  
Professor,  
Vitreoretinal Surgery  
Research Interests:  
Age-related macular  
degeneration, proton  
beam treatments, and  
stem cell therapies



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



**Glenn C. Yiu, M.D., Ph.D.**  
Assistant Professor,  
Vitreoretinal Surgery  
Research Interests:  
Neuro-regeneration, retinal cell  
biology, ocular imaging



## OPTOMETRISTS

---



Thomas B. Barnes, O.D., M.S.,  
F.A.A.O.  
Principal Optometrist



Melissa Barnett Erickson, O.D.,  
F.A.A.O.  
Principal Optometrist



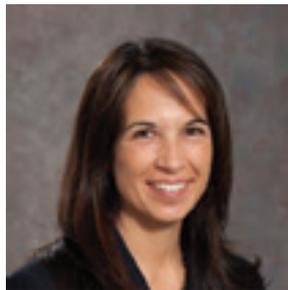
Brooke S. Chang, O.D.  
Senior Optometrist



Larisa Johnson-Tong, O.D.,  
F.A.A.O.  
Senior Optometrist



Hai Tong, O.D.  
Senior Optometrist



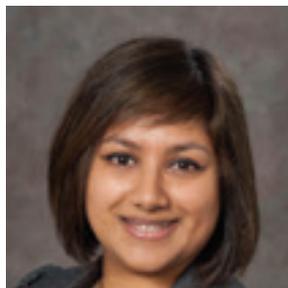
Marcia Nearing, O.D., F.A.A.O.  
Senior Optometrist



Kaaryn Pederson-Vanbuskirk,  
O.D., F.A.A.O.  
Senior Optometrist

## ORTHOPTIST

---



Tania Hashmi, B.Med.Sci.  
Orthoptics

# VISION SCIENCES

---



**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 Vision  
Sciences  
Research Interests:  
The role of intermediate  
filaments in the biology  
of the ocular lenses of the  
retina



**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



**Zeljka Smit-McBride, Ph.D.**  
Research Scientist  
Vitreoretinal Research Lab  
Research Interests:  
Genomics and epigenetics  
of aging and age-related eye  
diseases, age-related macular  
degeneration and diabetic  
retinopathy



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



**Gary D. Novack, Ph.D.**  
Visiting Professor  
Pharmacology and  
Ophthalmology  
Research Interests:  
Development of new  
therapeutics, Patient adherence  
and performance, Regulatory  
Affairs



**Edward N. Pugh, Jr., Ph.D.**  
Professor, Cell Biology and  
Human Anatomy Physiology &  
Membrane Biology  
Ophthalmology  
Research Interests:  
Retinal photoreceptors and  
color vision



**Vivek J. Srinivasan, Ph.D.**  
Assistant Professor,  
Biomedical Engineering  
Research Interests: Retinal  
and Optic Nerve Imaging,  
Blood Flow and Metabolism

## VISION SCIENCES CONTINUED

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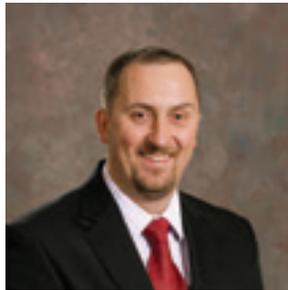
**Charles E. Thirkill, Ph.D.**  
Adjunct Professor Emeritus,  
Immunology & Biology  
Research Interests:  
Ocular immunology, retinal  
and optic nerve imaging  
techniques



**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.**  
Associate Researcher,  
High Resolution  
Retinal Imaging  
Research Interests:  
Retinal and optic nerve  
imaging techniques



**Min Zhao, M.D., Ph.D.**  
Professor, Dermatology and  
Ophthalmology  
Institute for Regenerative Cures  
Research Interests:  
Electrically stimulating cell  
migration in corneal wound  
healing and neuron  
regeneration



## FELLOWS

---



**Mausam Damani, M.D.**  
Clinical Cornea Fellow



**Elad Moisseiev, M.D.**  
Clinical Retina Fellow



**Senad Osmanovic, M.D.**  
Clinical Retina Fellow



**Youjia Shen, M.D.**  
Clinical Glaucoma Fellow



**Jeffrey Willis, M.D., Ph.D.**  
Clinical Retina Fellow



**Sophia Wong, M.D.**  
Clinical Retina Fellow

# RESIDENTS

---



Nathaniel Gebhard, M.D.  
Third Year Resident



Kimberly Gokoffski,  
M.D., Ph.D.  
Third Year Resident



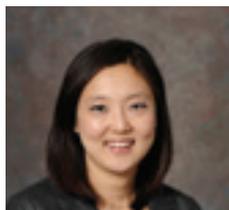
Natasha Kye, M.D.  
Third Year Resident



Kingsley Okafor, M.D.  
Third Year Resident



Sam Abbassi, M.D.  
Second Year Resident



Jolene Rudell, M.D., Ph.D.  
Second Year Resident



Rachel Simpson, M.D.  
Second Year Resident



Ilana Traynis, M.D.  
Second Year Resident



Sophia Fang, M.D.  
First Year Resident



Jennifer Ling, M.D.  
First Year Resident



Jonathan Martin, M.D.  
First Year Resident



Tyson Olson, M.D.  
First Year Resident



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June 18, 2016  
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# UC Davis Eye Center Honor Roll

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