An Audacious Goal
A collaboration to cure blindness with retinal cell transplants

Top Ten Animal Eyes
Featuring Puffins, Lionfish, and Tree Frogs.

Seeing Better To Play Better
Berkeley’s Sports Vision Clinic helps top athletes and weekend warriors improve performance.

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Dr. Teresa Puthussery in her lab on the UC Berkeley campus.
Understanding Vision
The Intersection Between Neuroscience, Machine Learning and Perception
A CONVERSATION WITH PROFESSOR JACOB YATES
BY REEM ALMAGATI, OD, MS

Dr. Jacob Yates joined the faculty of the school of Optometry & Vision Science in July of this year. Dr. Yates did his PhD in neuroscience at the University of Texas, Austin (with Alex Huk and Jonathan Pillow) and his postdoctoral work at the University of Rochester (with Jude Mitchell, Greg DeAngelis, and Michele Rucci) and the University of Maryland (with Dan Bluett).

His research focuses on how populations of neurons in the cortex encode the visual world. His lab uses statistical and machine learning models to understand neural activity and human perception.

You grew up here and did your undergraduate at Berkeley. How does it feel to be back?
Yeah, when I found out I was going to move back to what effectively is my home, I was pretty ecstatic. And so was my family. I never thought I was going to move back because everything is so competitive in the Bay Area. One thing about this line of work is that you don’t really have a lot of say in where you end up living.

Generally speaking, what areas of research are you interested in?
I guess broadly speaking, I’m interested in how the brain accomplishes vision. I mean, a lot of us are interested in that, but more specifically, I want to understand visual processing at the level of what we call the neural code. In other words, I want to know how the specific pattern of neural activities relates to perception and to the visual world. This means using math and computational models that fit directly to neural data.

Are you looking at neural activity at the level of the primary visual cortex, or are you also looking at other visual areas?
Yes, we’re working at multiple levels. The primary visual cortex is where most of the work we’re doing right now, but we also are working on pre-cortical vision, like at the level of the LGN and extrastriate areas, MT, V4, etc. Hopefully filling in the gaps between early vision and high-level vision.

Even at the level of the LGN, there are feedback connections, how are you planning to approach that problem in your models?
That’s a great question. One of the things my lab is focused on is building the best possible models of the visual processing part and subsequently testing the role of these other things. A lot of the experiments that study top-down effects are done in really impoverished conditions. They’ll have subjects fixate, and they’ll flash a bar or a grating, and then they’ll manipulate visual attention or some other kind of top-down signal and find small effects. My lab wants to push things into natural visual conditions, and to do that we need much better and more flexible models of the feed-forward processing. Then we can study the top-down influences. One way we’re looking at this integration right now is with eye movements.

Can you talk more about how you are planning to integrate eye movements?
Every time you move your eyes, there is this internal signal that says “make a saccade,” but there’s also the external signal of the world shifting across the retina. We are trying to see exactly how internal signals fit into our feed-forward nonlinear models of visual processing. From there, we can do things with collaborators like silencing a part of the cortex that has feedback connections, and see how that modifies processing.

And you are using animal data?
Yes, I’m using animal data from collaborators.

International students admitted to the UV program are typically direct admits, will your lab be offering direct admits?
At this stage, when the lab is so small, I think they have to be sponsored. I had a student reach out to me this year, and I was not able to take them because I think it’s so important to have a good fit between the mentor and the student, and you can’t really tell how good a fit it is until you work together. I really benefited from rotations when I was a graduate student. I rotated in a lab where the science was really exciting to me, but we weren’t a good personality match and it was really important for me to know that.

What type of students do you think will be a good fit for your lab?
Having solid programming experience is essential, but you don’t need to have specific knowledge or experience in machine learning or a heavy math background. At a minimum, feeling comfortable tackling programming problems is important. It may be a bit of what we do so. So students need to either have experience or be really confident in their ability to learn. That said, I don’t want to discourage people from approaching me. If it’s not a good fit right now, it could be in the future.

How do you envision your lab environment?
I’d like to have kind of a medium sized lab, and if I have enough expertise in my lab, then I would love to pair someone who’s an engineer with someone who has a more focused scientific or even clinical background. My lab is meant to be the Veni diaphragm between things and this is by design. I don’t want everybody working individually in the same room. Working with people makes it (science) fun, otherwise it’s too hard. My lab is the intersection between neuroscience, machine learning and perception. People will share projects and individuals will have their primary focus in each of those areas, but the result of their project is something at the intersection of that.

Do you have any helpful resources you would like to share?
Neuramath Academy. They offer courses in computational neuroscience and deep learning which are all online.

When you’re not doing research in the lab, how do you like to spend your free time?
Research in the lab often comes home with me, but when I have free time I like being out with friends and eat good food. My wife and I have a list of restaurants we’re exploring in the Bay Area. I also like to go on long bike rides around the bay area, go to concerts, and hang out at home with our dog.

QuickFacts
$52,227,502
Total Giving 2022
3,215
Alumni population
553
Total donors
391
Alumni donors
52
New donors
$720,768
Total endowment payout

A Century-Long Legacy
We have begun preparations for next year’s 100th anniversary centennial celebration, I have started to reflect on the 100 years of optometry and vision science at Berkeley. And what an astonishing 100 years it has been. The enormity of our impact cannot be overstated. From our start in physics, and an academic foundation in optics, our founders established a tradition of academic rigor, professional excellence, innovation and growth, that remains as important as ever in this era of contemporary optometry and vision research.

The content of this year’s magazine highlights the continuing breadth and depth of our success. In All The Eyes, you will read about vision science alumnus Dr. Billie Beckwith-Cohen, who holds a doctorate in veterinary medicine, and is saving sight in animals of all descriptions as a resident in the Department of Small Animal Clinical Sciences at Michigan State University. Our alumni have also dedicated their lives to advocacy and ensuring we can practice to the best of our abilities and truly make a difference in the world. Thank you, Dr. Redman! This year’s Alumni of the Year is the amazing Dr. Clyde Oden—we see his Q&A in last year’s magazine—who continues to work tirelessly to make this world a better place for others.

Our faculty pioneer new approaches to traumatic brain injury, rehabilitation, and performance enhancement through sports vision therapy. They provide extraordinary insight and discovery into the workings of our retina and how it might be regenerated when lost to injury or disease (read about Dr. Teresa Puthussery’s audacious goal), and stand proudly at the intersection between neuroscience, machine learning and visual perception. Wow! They make us all proud of our Berkeley heritage.

We will shortly be announcing a series of centennial events throughout 2023. I hope you will join us as many of them as you can. We will induct new members to our Hall of Fame, hold a conference to reflect on 100 Years of Vision Science at Berkeley, and celebrate the biggest alumni reunion weekend of all time, hopefully making up for missing the last one! We will launch the Berkeley Vision (https://visioninstitute.berkeley.edu) and our global program One School or a Time, whose mission is to ensure that all children have access to vision care and vision correction. We will create campus installations that recognize our community—past and present—and celebrate our staff, faculty, students, patients and alumni. We will make a difference if you will have us! Finally, we will host a Centennial Gala, co-chaired by Alumni Board President Kristine Eng and her father Weylin.

For 100 years, Berkeley Optometry & Vision Science has produced pioneers and innovators. Now, with a century-long legacy of groundbreaking research, clinical excellence, and unparalleled education in optometry and vision science, the Herbert Wertheim School of Optometry & Vision Science is poised to redefine the role of vision care, the impact of clinical and basic vision research, and the profession of optometry.

Propelled by the $50 million landmark commitment from the Wertheim Family Foundation, the school is embarking on an ambitious campaign to prepare the next generation of trail-blazing optometrists and vision scientists. Our Vision, Our Future is a fundraising campaign that will fulfill our bold vision for a transformation in pedagogy and the continual push against the boundaries of discovery and innovation. We have already raised $47 million. Our Vision, Our Future will ensure that the Herbert Wertheim School of Optometry & Vision Science will lead the academic future of our profession and drive the research that will ensure our future is bright.

Flar Lux and Go OptoBeat!
—John G Flanagan

DEAN’S MESSAGE
A Century-Long Legacy
E ach year, the Herbert Wertheim School of Optometry & Vision Science strives to receive a qualified and diverse cohort of students for admission to our three highly prestigious programs—optometry, vision science, and research. The fall season has marked a return to our recruitment efforts with a renewed commitment to in-person events, programming, and conferences while striving to maintain virtual offerings such as webinars and new student panels. Our 2022–2023 goals include: enhanced training and development for admission committee members, increasing the number of applications from underrepresented students in optometry and vision science, and enhancing our partnerships with local, state, and national organizations, and our strong Berkeley Optometry alumni base. We are also excited to welcome our new Assistant Director of Admissions, Ardi Samonte, who began his role on August 1.

A diverse student body has been cited to enrich the educational experience of students, improve communication and thought processing skills, challenge stereotypes, create empathy and better prepare students for the workforce (Brown, 2020). Additionally, as discussed at length in the literature, the underrepresentation of underrepresented optometrists is essential for long-term improvement in access to and quality healthcare of patients (Lacy et al., 2021; Marshall, 2018). When a patient shares a similar identity as a health care provider or believes they share a similar background and interest (referred to as concordance), patient care can be improved through trust in the provider, less delay in seeking care, increased use of health services, and a better understanding of and adherence to treatment protocols (Cooper, 2005). Therefore, optometry and vision science programs have an obligation to recruit diverse incoming student cohorts and ensure a sense of belonging in our programs. As the Assistant Dean of Admissions & Student Affairs (ADSA), I’ve implemented the following strategies to meet this demand.

Attend recruitment events with an intentional focus on diversifying health professional programs. These have included various national associations, recruitment fairs, and conferences, such as the National Association of Medical Minority Educators (NAMME) or the Minority in Health Education Conference hosted by the University of California, Berkeley. We are also expanding our reach to affinity-based student organizations, such as Black Students in Optometry and related campus groups. We also continue to work with local, state, and national organizations, and our strong Berkeley Optometry alumni base. We are also excited to welcome our new Assistant Director of Admissions, Ardi Samonte, who began his role on August 1.

Remove perceived and structural barriers. This past year, Admissions & Student Affairs underwent a critical review process of our application and prerequisite courses. We edited essay questions by utilizing strengths-based perspective(s) and encouraged the faculty to make the OAT an optional part of the admission process (approved in spring 2022). As cited in the literature, considerable controversy surrounds the use of standardized tests such as the OAT utilized to define success of certain racial and ethnic groups (Rosales & Walker, 2021). Additionally, the immunology prerequisite was removed as it was perceived to be a costly barrier to entry to our program especially since other optometry schools no longer require it. The Admissions & Student Affairs team has also been hard at work to increase information about our program and application process through website and social media updates, webinars, and recruitment materials.

Engage with current students and alumni. We recently selected a new group of Berkeley Optometry Ambassadors (BOAs), a group of students that assist us in recruiting efforts. This year, we were more intentional with selection, initiated a new application and interview process, and selected students who represent a wide variety of identities, backgrounds, and experiences. In 2022–2023, our Admissions & Student Affairs team intends to offer webinars for alumni to provide feedback on our admissions process. This will allow us to quickly disseminate information, increase mentorship opportunities and pair pre-optometry students with similar backgrounds and interests to successful doctors who graduated from our program. Utilizing these strategies, I am confident that we will continue to increase our applicant pool and enroll students with diverse identities who are underrepresented in optometry and vision science. As a leader in optometric education, we all must possess a moral and ethical obligation to correct ongoing health disparities in the United States.

The podcast is created and hosted by current PhD student, Reem Almagati, a previous student-led podcast, “The Young Vision Scientist,” is now the Assistant Director of the Alameda County Collaborative Alliance (ACCA-ACIP), a faith-based, person-centered, care navigation intervention serving predominantly, but not exclusively, African American adults with advanced illness and their caregivers in Alameda County, Contra Costa County, and San Francisco County.

Vision Science Podcast The Vision Science program is excited to announce the launch of their student-led podcast! The Young Vision Scientist podcast is for prospective students, vision scientists, enthusiasts, and anyone with an interest in vision science. Each episode will feature an interview with a current vision science PhD student or postdoctoral researcher. Listeners will learn about their most recent research questions and findings and hear conversational insights about cutting-edge research and new advances within the interdisciplinary study of vision science.

The podcast is created and hosted by current PhD student, Reem Almagati, OD, MS. The podcast is produced by Catherine McCleary, MA, instructional designer for the Herbert Wertheim School of Optometry & Vision Science. https://vision.berkeley.edu/vision-science-podcast/
Animal Eyes

Dr. Billie Beckwith-Cohen, vision science grad (’21), current comparative ophthalmology resident at Michigan State University, and overall retina nerd, sees a lot of animal eyes while in clinic at the MSU veterinary teaching hospital. For this year’s top ten, we tap into her expertise—and her love of all eyes—to get her list of top ten animal eyes (and retinas).

Read more about Billie’s current work in our feature article on page 18.

BY BILLIE BECKWITH-COHEN, DVM, MBA, PHD

1. **Shortfin Lionfish (Dendrochirus brachypterus)**

   Radiating linear stripes of corneal iridescence are seen in this fish. Corneal iridescence is common in shallow water fish, and may serve for camouflage.
   (Credit: Shutterstock)

2. **Scallop (Pectinidae)**

   Every time I visit an aquarium and find some rested scallops I like to take a moment to observe their exquisite tiny eyes, which vary in size.
   (Credit: Shutterstock)

3. **Goat (Capra hircus)**

   Ruminants have some of the most magnificent eyes. Their fundus has a beautiful blue shiny tapetum and gorgeous prominent blood vessels and optic nerve head. It is no surprise that systemic diseases can be diagnosed with this unhindered view to the brain and vasculature.
   (Credit: Image courtesy of UC Davis Comparative Ophthalmology)

4. **Sturgeon Caviar (Acipenseridae)**

   I think I have grossed out some friends while eating ikura at such restaurants and engaging in this conversation. Nonetheless, if one looks you cannot mistake the massive eyes on these fish eggs and I can’t resist pointing it out.
   (Credit: Bret A. Moore, DVM, PhD, DACVO)

5. **Tarsier (Tarsiidae)**

   These little primates have enormous immobile eyes that are larger than their brain! (See many birds!) Instead of moving their eyes, they can turn their head to look behind their backs.
   (Credit: Shutterstock)


   Some frogs have partially transparent false third eyelids that allow them to protect and camouflage their eyes without entirely obstructing vision.
   (Credit: Shutterstock)

7. **Tufted Puffin (Fratercula cirrhata)**

   This tufted critter has decorated his eyes with no less than a tufted pupillary ruff. A hypermature cataract may be spotted by the careful observer.
   (Credit: Bret A. Moore, DVM, PhD, DACVO)

8. **Choutengan Celestial Goldfish (Carassius auratus)**

   When my 5 year old saw this one his first question was “mommy, why is he looking up?” Sadly, though fascinating to look at these little fish have limited vision due to the positioning of the eyes. They still get around swimmingly!
   (Credit: Shutterstock)

9. **Crocodilefish (Cymbacephalus beauforti)**

   Fish have the most elaborate iris colors and morphology. This one presents with multifoliated appendages that look almost like miniature sea corals.
   (Credit: Shutterstock)

10. **Great Cormorant (Phalacrocorax carbo)**

    The iris of this fine creature illustrates the phenomenal palette seen in avian’s eyes. Credit Robert David Siegel MD, PhD, Stanford University

   (Credit: Shutterstock)
Experience the life and times of Berkeley Optometry students through their (smartphone) lens!

Through Our Eyes

Peter Ji | 2023

“Our family enjoys optics problems, and posing after we solve them.”

Isabel Groth | 2025

“Enjoying a class trip to Lake Tahoe after finals week.”

Amber Candelaria | 2024

“Celebrating our Warriors at the 2022 Championship Parade in SF! GO DUBS!”

Melissa Rezk | 2024

“Post finals trip to San Diego!”

Liliana Chavez | 2025

“Celebrating Dr. Wertheim’s donation.”

Samantha Chan | 2023

“I’m wine-ing down with friends in Napa before heading off to rotations.”

Melissa Rezk | 2024

“Celebrating Canada Day with all the Canadian optics.”

Monica Nguyen | 2023

“Exploring the great PNW during our fourth year summer rotation!”

Send your images to us at optweb@berkeley.edu
An Audacious Goal

A Collaboration to Cure Blindness with Retinal Cell Transplants

BY JANET WELLS

When Herbert Wertheim School of Optometry & Vision Science professor Teresa Puthussery, OD, PhD, was a newly-minted clinician two decades ago, a patient in his early 20s showed up at the low vision clinic where she worked in her native Australia.

“We were the same age. He was planning a trip to Nepal to see the Himalayas and I had just returned from working in an eye hospital there,” she says. “He wanted to make the trip soon so he was progressively losing his vision from retinitis pigmentosa, an incurable genetic disease that destroys the retinal photoreceptors, the light-sensing cells of the eye. Most patients at the clinic were elderly. But symptoms of retinitis pigmentosa (RP) usually start in childhood, leading to severe vision loss and blindness by age 40. “I thought, ‘What would it be like at my age to be going progressively blind, and there’s nothing we can do, not even any treatments in the next ten years?’” recalls Dr. Puthussery. “I wished I could say something hopeful about the outlook for his condition. I couldn’t. RP affects young people in the peak of their lives and we had no solutions.”

It was a crossroads moment, motivating Dr. Puthussery to return to school to study the biology and neurobiology of the eye, and fueling her ongoing quest for investigative and therapeutic breakthroughs.

Today, Dr. Puthussery would be able to have a different conversation with her Himalaya-bound patient, about a brighter future—one that she is helping to forge as part of a vision health “moonshot” funded through the prestigious Audacious Goals Initiative (AGI) for Regenerative Medicine.

The National Eye Institute (NEI) launched the AGI a decade ago with a prize competition that challenged scientists to imagine the greatest achievement for vision research during the next 10–15 years. The winner? Building a translational research pipeline to cure the most devastating and difficult-to-treat eye diseases through stem cell–derived regeneration of the retina.

Worldwide, about 285 million people are blind or visually impaired according to the NEI, a part of the National Institutes of Health (NIH). For many, vision loss results from degenerative retinal diseases such as RP, age-related macular degeneration (AMD), glaucoma, or diabetic retinopathy. If they’re available at all, current treatments for these diseases can only slow the process of degeneration. There are no cures.

The NEI’s audacious goal is to replace neurons of the retina that have been damaged by disease or injury and to restore their connections to the visual centers of the brain.

Dr. Puthussery, who studies the neural circuits of the retina and how they are altered by diseases such as RP and AMD, is part of a multidisciplinary AGI team recently awarded $3.7 million annually for five years. With Juliette McGregor, PhD, University of Rochester, and David Gamm, MD, PhD, University of Madison-Wisconsin, Dr. Puthussery is developing models that can gauge the survival and functional integration of transplanted light-sensing photoreceptors—the rods and cones—and retinal ganglion cells, which carry visual signals from the retina to the brain.

“I would never have imagined 20 years ago that this type of study would be possible. Back then we certainly didn’t have the scientific tools to approach the problem in this way. But it’s amazing what can happen when you have the right people and the right resources,” says Dr. Puthussery.

The team is particularly interested in regenerating the rods and cones because they are responsible for night vision and color vision, respectively. They are also the light-sensing cells that are first affected in RP. By replacing these cells, the researchers hope to restore some level of vision to people with the disease.

To achieve this goal, the team is using a variety of approaches, including transplantation of retinal precursors, which are cells that can differentiate into different types of retinal cells, and retinal progenitor cells, which are cells that can differentiate into photoreceptors.

“Regenerative medicine is still in its early stages, but we are making progress,” says Dr. Puthussery. “We are learning more about the biology of the retina and how to manipulate it to promote regeneration.”

The team’s ultimate goal is to develop a treatment for RP and other retinal diseases that can be tested in clinical trials. They hope their work will pave the way for the development of a cure for these devastating eye diseases.

“Regenerative medicine has the potential to transform the way we treat eye diseases,” says Dr. Puthussery. “We are excited to be part of this exciting field and to contribute to the development of new therapies for retinal diseases.”
cell biologists exploring retinal function in the living eye. Together they are leveraging imaging technology developed with prior AGI funding to locally ablate photoreceptors and evaluate restored retinal activity in vivo. Team leader Dr. McGregor, in collaboration with Dr. Gamm, transplants replacement photoreceptors from human-derived stem cells into damaged retinas using techniques designed to promote integration.

After transplantation, Dr. Puthussery’s lab receives tissue samples from her colleagues, and uses advanced high-resolution structural microscopy to evaluate the survival and integration of transplanted photoreceptors. In parallel studies, Dr. Puthussery’s lab studies how retinal function is altered by photoreceptor degenerations to understand what factors could limit the efficacy of the cell transplant approach.

“The retina is an amazing model system,” she says. “It can be isolated from the eye and kept alive and light responsive under a microscope so we can make highly sensitive recordings from individual cells.” Transplant tissue rejection was an early hurdle. “Of the large number of cells that you transplant, only a small fraction will survive. But there’s already evidence that at least some cells will survive in a host retina. Optimizing that is the challenge,” Dr. Puthussery says. “The next level is to ensure that photoreceptors not only survive, but that they can reach out and connect with the host retina.”

With AMD and RP the photoreceptors die, but the remaining neurons of the retina are still relatively intact, including the ganglion cells that send visual signals from the eye to the brain. “If you can put new photoreceptors in and have them connect, they in principle could restore signaling to the brain and hopefully generate useful vision,” she says. But in retinas where photoreceptors have died, the rest of the retina is not completely normal. Understanding those changes is the team’s next challenge.

Dr. Puthussery says: “The photoreceptors are first, detecting light stimuli before passing the baton to the next runner, the bipolar cells. They pass the baton off to the ganglion cells, which send the signal from eye to brain. When photoreceptors die, however, what happens is the second to second of rhythm. “What we know so far is that photoreceptors are not totally lost. The bipolar cells don’t die. They still have ‘arms,’ their arms are still outstretched, but they’ve lost the ‘glue’ in the tips of their dendrites to catch the baton,” she says. “This could be a real barrier to replacement therapy. We just don’t know yet. If the photoreceptors can hand off the baton, it’s possible bipolar cells will upregulate to produce the glue.”

Another unknown is whether the new photoreceptor cells can find the right bipolar cells—what Dr. Puthussery calls, “the ones on their relay team”—and be in the right place to connect. “The photoreceptors release a neurotransmitter, glutamate, but have to be close enough to the tip of the bipolar cell that has a receptor for transmission.”

RP Research: A Personal Connection

In the Puthussery Lab, undergraduate research assistant Kristal Cosio conducts image analyses on mouse models of RP, studying the function of ganglion cells after photoreceptor degeneration. For her, the work is far more than a job. A Berkeley senior majoring in microbial biology, Cosio spent much of her college life witnessing the progressive degradation of RP.

Her father, Jaime Cosio, noticed diminished night vision by the time he was a young teenager. But it wasn’t until he joined the army in the 1970s that his condition was diagnosed—due to his poor performance during night patrols. Having been shipped off to Vietnam, he was stationed at what is now Zuckerberg San Francisco General Hospital, working as a nursing assistant in the ear, nose, and throat clinic.

At Berkeley, where Jaime would go for eye exams, he was told there wasn’t anything that could be done for his condition. Cosio remembers her father losing a little more of his peripheral vision each year, his sightline gradually closing into a tunnel. By the time she was 12, Jaime was no longer able to drive or do many tasks at their home in El Centro, CA.

Blessed by her father after her parents separated when she was a toddler, Cosio became his main caretaker. Once he was no longer able to work, she held down two jobs in high school. When Jaime passed away in 2015, his field of vision was at less than 10 percent. The family’s X-chromosome-linked RP has also led to greatly diminished vision for Cosio’s uncle, Arthur, who is now nearing age 70. (With a second X chromosome, Kristal has a genetic counterbalance against the disease.) In summer 2021, Jaime Cosio attended a presentation by Dr. Puthussery as part of Berkeley’s NIH Bridges to Baccalaureate program, which offers exceptional transfer students from local community colleges a summer research fellowship.

“I emailed her right away that her research was personal to me,” recalls Cosio. “We talked about RP. She told me why she had decided to do this research, and we really connected on what it was like to be going through the stages of my dad losing his vision my whole life.”

“I feel really lucky. Not only do I get to do research on RP, but I’m in lab with Teresa specifically,” Cosio says. “She’s walked me through every step of the research. That I’ve been involved in and helped me become more comfortable and confident in wanting to pursue an MD-PhD. It’s made such a difference. I’d like to work directly with patients, but also be involved in the ways that we can change therapeutics.”

While Dr. Puthussery’s lab is located in the School of Optometry & Vision Science, she is well integrated into neuroscience exploration across campus. “We’re thrilled to have her state-of-the-art lab as part of the community,” says colleague Maria R. Feller, PhD, Paul Light Distiguished Professor of Biomedical Sciences in the Division of Neurobiology, the Department of Molecular and Cell Biology, and the Helen Wills Neuroscience Institute. “She is brilliant, exacting, and extremely insightful. She is also a dedicated educator.”

Dr. Puthussery’s role in the AGI effort is just one example of her technical prowess and collaborative acumen, adds Dr. Feller. “She has built some incredibly exciting microscopes that are going to let her do experiments never done before that will generate a deep understanding of how to integrate new neurons into existing retinal circuits. These insights are fundamental for developing successful treatments for degenerative and inherited vision diseases. I do think her most exciting accomplishments are yet to come.”

As for making sweeping predictions for AGI breakthroughs, Dr. Puthussery says: “It’s a huge deal to be involved in a project like this, a culmination of all my expertise to solve the most significant problem I can imagine.”

“A lot of what we do here is having the three teams share data and technology and funding awards in fall 2021. Baked into the AGI model is to ensure that photoreceptors not only survive, but that the next level is to ensure that photoreceptors not only survive, but that they can reach out and connect with the host retina.” Dr. Puthussery says. “The next level is to ensure that photoreceptors not only survive, but that they can reach out and connect with the host retina.”

While RP is relatively uncommon—about 100,000 Americans and 2.5 million people globally have the disease—AMD is the leading cause of vision loss for older adults, affecting nearly 200 million worldwide. People aged 55 and older are more likely to have AMD, when aging causes progressive damage to the macula—the part of the retina that mediates sharp, straight-ahead vision. AMD doesn’t cause complete blindness, but loss of central vision makes it harder to see faces, read, drive, or perform daily activities.

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Dubious but durable rumor has it that Ted “The Thumper” Williams, the legendary Red Sox batter, could see the individual stitches on a baseball as it hurtled toward his strike zone at 90 miles per hour. True or not, something like that experience does happen to athletes at the tops of their sports, says Jeremy Shumaker, OD, chief of Berkeley Optometry’s Sports Vision and Concussion Clinic. “If you’ve got a finely-tuned visual system that is flexible and reacts quickly, the image stream you perceive will slow down,” he says. On the other hand, if you’ve got inefficient control of your eyes, a pitch is going to look a lot faster. “For many athletes, the ideal is that feeling that action is unfolding in slow motion, with plenty of time to react,” Dr. Shumaker says.

To Paul Ramsey, Berkeley grad (’86) and a 63-year-old right fielder in the Men’s Senior Baseball League (MSBL), the problem wasn’t fastballs, though. It was changeups and knuckleballs, any pitch he had to watch carefully and adjust his swing to. When he returned to the sport after a five-year hiatus in his late 50s it was embarrassing. “I was swinging half-a-second early,” Ramsey says. “I’d always been a strong hitter, but I was striking out again and again. I couldn’t time my swing with what I thought I was seeing.”

In addition to missing easy pitches, Ramsey also started losing track of golf balls he hit off the tee. “I’d have to ask the guys I was playing with where my ball went,” he says. Something was up with his vision, he remembers thinking, so he turned to the web, which eventually led him to the Sports Vision and Concussion Clinic. Shumaker told Ramsey he could help.

The clinic was established in 2015 to investigate post-concussion eye movement dysfunction, but it now sees a diverse array of patients, including older amateurs like Ramsey, professional athletes from the Bay Area and beyond, Cal’s college athletes—some suffering from concussions and others not—and more and more players from other schools such as Saint Mary’s College. The clinic also sees patients referred in from the student health center and local physicians, including neurologists and sports medicine physicians at UCSF, Benioff Children’s Hospital, and Stanford.

Seeing Better to Play Better

Berkeley’s Sports Vision Clinic helps top athletes and weekend warriors improve performance

BY GORDY SLACK

The clinic’s patient base isn’t limited to athletes, however. “I think of it as a performance vision clinic, not just a sports clinic,” says Shumaker. It’s his conviction that most of us could use a little visual tuning to unlock our full potential, saying “A high-functioning visual system is key to so much of what we do, and inefficiencies and deficits can hold people back in all different areas of life.”

Take Rachel Beardsley, a former high school softball player. She’d loved math, but in her sophomore year of high school she hit geometry like a brick wall. Not only did she struggle, good student that she was, but she couldn’t understand what the questions even meant. It was a measure of Beardsley’s determination that she spent hours each night being tutored by her math-teacher mom, but it was to little avail. “I was failing pretty much every test and my teacher thought maybe I should see if there was something else going on,” Beardsley says.

And although she played softball for almost a decade, including her first two years of high school, Beardsley had an astonishingly hard time hitting a softball. “I just couldn’t tell where the ball was going,” she says.

She was referred to the clinic by human performance researcher Greg Appelbaum, PhD, currently at UC San Diego. “It turns out I’ve got a visual processing disorder,” says Beardsley. “But math, including geometry, is based on spatial concepts. And inefficiencies in the ways the eyes work—either with the basic stuff, how the eyes align, team together, focus, converge, or how you process visual information—these can impact math concept acquisition and performance. And the exercises we did with her improved her visual efficiency and visual processing, which makes it easier to grasp concepts in math. The neurological underpinnings responsible for processing spatial information were improved by the exercises.”

After four months visiting the clinic once a week, not only did Beardsley shift the majority of her geometry class into a different plane (she got 90% on her final and ended the class with an A), but she also adjusted her athletic career, switching to water polo for the second two years.
are you hoping to get out of this treatment?’”
Dublin’s goals were clear: he wanted to get his pre-concussion levels of energy back, to be able to work at his computer again without so quickly becoming exhausted, and to be able to bicycle and drive again.

At the clinic, once Shumaker had understood of a patient’s goals and symptoms, he and his team conduct a “complete and comprehensive assessment of the visual system, including all the functions that are ‘critical for the daily life activities that the patient is interested in doing,’” he says. “A patient may need glasses, or contacts, or their current lenses may be under-correcting vision or not correcting their vision fully accurately, several times a second,” says Shumaker.

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I’m a huge retina nerd,” says Dr. Billie Beckwith-Cohen. “It has a pure aesthetic magnificence, but there is also nowhere else where you have this uninterrupted view into a piece of the brain. I mean, I love the entire eye, I love so much about it, but the retina is just obviously the best thing in the world.” While anyone who has committed their life to the study of eyes probably feels a similar sense of wonder, Dr. Beckwith-Cohen has an appreciation and understanding of the retina that goes far beyond what most optometrists and ophthalmologists can claim. Because when it comes to studying vision and treating ailments of the eye, Beckwith-Cohen doesn’t just limit herself to humans. “Raptor eyes are gorgeous,” she says. “And cat and deer eyes shine at you when you flash a light at them because they have a tapetum lucidum, which is tissue that acts like a mirror, so it makes the back of the eye look very rich and beautiful. There’s just this aesthetic magnificence to animal retinas that I never get tired of.”

Dr. Beckwith-Cohen’s academic path has been an unusual one: not too many people receive a PhD from Berkeley’s School of Optometry and Vision Science after already having received a doctorate in veterinary medicine, which she completed at the Hebrew University of Jerusalem. As both a clinician and a researcher, her work is located under the broad umbrella of “comparative ophthalmology,” which she defines as “the ability to examine, evaluate, and potentially treat all species but one: humans.” Throughout the United States there are fewer than 500 board-certified veterinary ophthalmologists. An even smaller subset of that number have both a PhD in vision science and a degree in veterinary medicine.

Now in the third year of a residency in the Department of Small Animal Clinical Sciences at Michigan State University—which after completing (and passing the board’s) she’ll be able to officially call herself a comparative ophthalmologist—Dr. Beckwith-Cohen says that a big part of the appeal of her field wasn’t just her love of animals, but also the diversity of the animal kingdom and the freedom from limits and restrictions on what she could investigate. “I attended a glaucoma meeting,” she says, “and I put up a panel showing how ten different dogs can have retinas that look different from each other and yet are still, for each of them, completely normal.” While dogs and cats and horses are the most common animals that a veterinary ophthalmologist will interact with, many comparative ophthalmologists are associated with zoos and aquariums, where they can garner...
Comparing Eyes Across Species

“It is called ‘comparative’ because we’re supposed to know the differences between the species,” Beckwith-Cohen says. “While there are obviously similarities and basic structural similarities between all mammals species, there are also general ‘themes’ about how vision works in general that you can follow even all the way to insects.” While no clinician can expect to be an expert in treating every species, “you basically share the cumulative experience of everyone in the field and extrapolate it to the animal in front of you and go ahead with a compatible surgery or medical plan.” When describing the myriad challenges and opportunities in her field, Beckwith-Cohen mentions (with perhaps a small hint of envy) her colleagues in Florida, for example, who never know whether the next patient walking—or waddling, flying, slithering—through the door is going to be a crocodile or a canary. “But even that is going to be a crocodile or a canary. I don’t have a rod-dominated retina, whereas our retinas have a lot of cones. I am going to be a rod-dominated retina, whereas our retinas have a lot of cones in the center. But while the structure is fundamentally different, the cell types present are very comparable. And the physiological mechanisms that are involved in diseases tend to be similar if not exactly the same.”

“This is not always our work just for ophthalmologists,” says Kramer. Any animal with an eye can help researchers understand how the retina and visual system work. “It’s a matter of convenience. We can obtain tissues from different species and do gene therapy studies for restoring vision lost in a particular species. Canines, for example, are not able to see out of the single, treated eye. And so it was obvious we couldn’t go around in circles, evidence that they were now able to see. They were just not doing the surgery which eventually came to be known as Lentum—the researchers noticed their canine patients walking around in circles, evidence that they were now able to see out of the single, treated eye. And so it was that Lancelot the Briard shepherd (and his siblings) helped scientists develop the very first commercially available gene therapy of any kind for people. ‘A dog isn’t like a mouse,’ says Beckwith-Cohen, ‘and that little bit of additional closeness to humans helped the FDA trust the process enough to make the leap and approve.’ Gene therapy studies for restoring vision lost to a number of other retinal diseases are currently being conducted with dogs. While she was at Berkeley, one of the many projects Beckwith-Cohen and Kramer worked on involved attempts to measure visual functions in blind mice who had lost their rods and cones because of the types of mutations that are also present in retinitis pigmentosa, the leading cause of inherited blindness in humans. ‘When the rods and cones die,’ Kramer explains, ‘you have no front-end detector of light and the rest of the visual system is all dressed up with no place to go.’ Their study involved trying to put back a light-triggered signal downstream from the dead rods and cones. ‘The mouse eye is different than the human eye,’ says Kramer. “For one thing, they don’t have any rods. We have a rod-dominated retina, whereas our retinas have a lot of cones. In the center. But while the structure is fundamentally different, the cell types present are very comparable. And the physiological mechanisms that are involved in diseases tend to be similar if not exactly the same.”

“In our field it’s not uncommon to see publications of case reports of cataract surgery in penguins or eyelid surgery for snow leopards.”

From Bench To Bedside

This combination of pure and applied science is what Beckwith-Cohen refers to as “bench-to-bedside” work for the way that basic foundational discoveries trickle up to therapies for animals and, eventually, humans. Someone with a similarly intense course of training—four years of veterinary school, five years for a PhD, four more for residency, a fellowship or two along the way—could easily settle into a comfortably lucrative clinical practice performing cataract and corneal surgeries for beloved household pets. But, as Dr. Kramer describes his former student, Beckwith-Cohen has always wanted to “pursue the most modern, mechanistic, biomedical research that she can. There aren’t very many people like her who can combine hardcore science credibility with that kind of clinical veterinary skill.”

Beckwith-Cohen describes herself as a “clinical-scientist,” eager to lay her hands on actual patients but also thrilled at doing the research necessary to push vision science to new levels. “I will always be on a training continuum,” she says, learning new skills and perfecting new scientific techniques. At the end of the day, whether she’s performing microsurgery or working in a lab, what animates Beckwith-Cohen and drives her relentlessly forward is, as she describes it, “my absolute admiration for the beauty of eyes in the animal kingdom, and the amazing retina, which enables us to see.”
Stephen Lundquist, OD 2017, and Christyn Lundquist

Where are you living now? Salt Lake City, UT

What are you both doing now for work? Stephen: At the tail end of 2019 I opened Vis., a high-end retail studio + eye clinic + art space. We are a luxury store and multidisciplinary art gallery that happens to be a fully functioning design-driven eye clinic. We only carry eyewear from niche, independent designers and as we continue to drop insurance companies (we initially opened accepting all major insurances), we are able to allocate more time to be able to work in a beautiful space with inspiring products, develop relationships with great clients, and engage the art scene in SLC. I wear a lot of hats from seeing patients, developing hiring techniques and training modules, deep-diving into accounting and finance, overseeing creative projects, buying product, prepping art shows, etc. The diversity of work keeps things fresh and exciting.

Christyn: When I worked at Berkeley Optometry, I realized I loved planning reunion weekend and other alumni events. Now I am working as an Event Director at the University of Utah.

What is the web address for where you work? Stephen: https://visoptics.co/

Angie Godinez, PhD 2021

Where are you living now? I am living in Berlin, Germany

What are you doing now for work? I work as a Postdoctoral Research Scientist at the German Excellence Cluster Science of Intelligence in Berlin. Overall, the aim of my project is to advance our understanding of information processing for perception and action. In particular, I am interested in how we process and use 3D information. Our approach is to conduct psychophysical experiments in the human and a robotic model in order to compare, predict and generate new hypotheses. We hope that through this iterative process, experiments in the human and a robotic model in order to compare, predict and generate new hypotheses. It is totally normal and helps build on our current knowledge! Learning to become comfortable with unexpected results will help you become a stronger and more resilient researcher.

What is the web address for where you work? www.giegenfuertherlab.org

What bit of advice or wisdom would you have for students just starting their PhD program? (1) Learn as much as you can during this time because taking a lecture gets harder as you transition into the work force. (2) Make sure you are genuinely interested in the area/problem you will be working on during your PhD as you will need lots of motivation to get you through. (3) Make sure you surround yourself with good mentors/friends and a healthy environment. Science can be tough, but the people around you can be encouraging and loads of fun.

Avi Aizenman, PhD 2021

Where are you living now? I am living in Gießen, Germany (which is not too far from Frankfurt).

What are you doing now for work? I am an Alexander von Humboldt research fellow currently working as a postdoctoral researcher at Justus-Liebig-Universität Gießen. My research is focused on understanding vision and eye movements in virtual reality. I am working on a virtual reality task for one of my projects: By presenting users with unexpected events, such as a car door opening in front of them on the road, we can start to understand how vision is monitoring for unexpected and dangerous events. The benefit of using virtual reality to answer such questions is that we can design safe and immersive environments, which we have total control over. My other projects focus on understanding how the eye movements we make during visual judgments, like deciding which of two objects is the largest, supports those decisions. I also have a project that uses a virtual reality video game to understand how we categorize colors. These projects all build on skills and interests I developed during my time at UC Berkeley.

What is the web address for where you work? www.scienceofintelligence.de

What bit of advice or wisdom would you have for students just starting their PhD program? A big part of research is creating new knowledge. As a scientist, my research is often based on trying to explain unexpected results. Unexpected results will make your time at Berkeley truly special. Cherish the people that support you and surround you because they are what makes your time at Berkeley truly special.

Lauren Ogata, OD 2020

Where are you living now? Huntington Beach, CA

What are you doing now for work? I recently moved back to California and joined the practice that my mother started 30 years ago in Los Alamitos. The office provides primary care optometry with a focus on ocular disease and dry eye specialties. As I transitioned into the office, I am excited to learn more about the business side of optometric practice and to expand the myopia control program. Seeing the wonderful relationships that my mother has built with her longtime patients inspires me to begin building those connections at the practice as well.

What is the web address for where you work? www.losaloptometry.com

What bit of advice or wisdom would you have for students just starting their OD program? Your four years at Berkeley Optometry are sure to be filled with an immense amount of knowledge from some of the brightest minds and numerous opportunities to grow personally and professionally. Your four years at Berkeley will also fly by, so remember to stay present and enjoy the journey. This is your unique journey, yet none of it would be possible alone. Cherish the people that support you and surround you because they are what will make your time at Berkeley truly special.
Dr. Redman talks about advocacy efforts, what ODs can do to help expand the profession, and where he sees the practice of optometry in the next 20 years.

Dr. Redman is Vice President and CEO Chief Strategy Officer for FYidoctors.

Why did you choose optometry?

Q: I knew I wanted to do something in the medical field. I really like physics and especially optics. I spent some time doing research at the UC Irvine Ophthalmology Department studying corneal endothelium. Optometry was a natural extension of the combination of medical, physics, and patient care. On a personal note, I joined UC Eyes (at Irvine) and particularly enjoyed the friendly nature of the people who planned on going into optometry. They are all ODs now and many of us still keep in touch.

Q: What does being a Berkeley alum mean to you?

A: I love being a Cal alum! I was a commuter student during undergrad. Cal provided a better college experience and nearly all of my closest friends are graduates of the optometry program. I’ve been lucky to meet ODs from all over North America and many of them already know before I meet them that I am a Berkeley Optometry Graduate. I’m so proud to be a part of the history and prestige of this university as well as the forward view that Berkeley is well known for.

Q: You have given back to the profession quite a bit through your service in the COA and AOA. What motivates you to do so?

A: In recent years, it’s been the students and next generation of leaders. At our legislative day, I was so impressed by a Berkeley student who came with outstanding answers to hard questions and had the confidence to address the group and Assembly and did it as well as a seasoned doc! I can’t wait to be her colleague. When I graduated optometry school, we didn’t have therapeutic privileges and my colleagues and I couldn’t even “prescribe” over the counter drops. We had an excellent optometric education, but were deeply limited by the scope of practice in our state. I wanted to see advancements in our profession. I’ve been part of five successful scope of practice battles in our state. Each time we advance the profession, our patients benefit, and our doctors are able to grow professionally and provide better care for them. Optometrists are highly skilled and it’s very gratifying to work on behalf of our colleagues.

Q: What can practicing optometrists do to help protect and expand our profession?

A: As we recently learned from our vetoed scope of practice legislation AB 2369, advocacy is critical, even at the governor level. Optometrists can help protect and expand our profession by getting involved in advocacy. I realize that not everyone wants to be at the negotiation table, but everyone can do something. There are many ways to get involved such as becoming an AOA/State Association member, donating to PAC, attend a political fundraiser, writing letters and calling your representatives when asked to do so. These are just a few of the things we can do. If everyone would get to know their local legislator, it would help to expand the scope of our great profession. Use your voice in the way that’s comfortable for you and don’t forget to VOTE!

Q: Your advocacy efforts have largely surrounded scope of practice. Optometrists in California can have difficulty practicing to the highest scope due to access to plans. What can we do to increase access to health plans in California?

A: Gaining access to health plans in California requires similar voluntarism to that of legislative advocacy. I am always asked “what is the Association going to do about access?” The answer is we are doing what we can with the volunteers that we have. Our profession needs more people who are willing to advocate on behalf of our profession and our patients. For example, do you know an administrator from the health plan you want to join? This could be your neighbor or someone from your gym. Does your local group of optometrists belong to the local or regional business group on health? ODs need to meet with plan administrators who provide care for our patients and educate them on modern optometry. We need to look for creative ways to promote our profession. It’s not only good for the ODs but will allow us to provide our patients with more comprehensive care.

Q: Where do you see the practice of optometry in the next 20 years?

A: Our profession is changing rapidly with many economic pressures that affect our practices. We see low reimbursement rates from payers, we have limited scope of practice, experience technological disruptors, and consolidation in all parts of the medical field including optometry. To move towards a sustainable future, I joined a group of optometrists who saw the changes coming back in 2008. To remain competitive in a changing landscape, they annually merged 7 practices to form a larger group called FYidoctors, the largest provider of optometry led eyecare in Canada with 400 locations. I currently lead the US business unit, with the mission of excellent patient care, led and controlled by optometry. I also believe doctor success is imperative for positive patient outcomes. This can be measured by job satisfaction with a healthy work life balance and careers that are both lucrative and meaningful. The FYidoctors model is the best that I’ve seen to realize the future for US optometry. As doctors, we deal with expensive equipment costs, continual wage increases, and reimbursement rates that are stagnant or being reduced annually. The group model allows for controlled costs and increased doctor/patient time while minimizing the “brain drain” of daily business management.

Q: What do you enjoy most about your work?

A: I enjoy telling the FYidoctors story. I work with good people who always have the patient in mind. It is challenging and new which is a great reminder to stay curious. It’s like CE everyday!

Q: What is your fondest memory of optometry school?

A: My classmates in the class of 1991. They’re my best friends — and I’m not saying that because they’re going to invite me to their next barbecue. We have a very close-knit group of people who really care about each other, work hard, and have fun. Our class alone has 5 optometric association state presidents representing 4 states, and a nationally recognized optometric education speaker/author.

Q: Who was a professor that you remember as being critical in your education either in the classroom or clinic, and why?

A: There were many exceptional faculty in my memory. I can’t pick just one. As a young associate, Dr. Jorge Cuadros taught me most of what I know about informatics. I would recommend anyone take a class with him if you have the opportunity.

Q: How did your time at Berkeley prepare you for the work you are doing now?

A: Berkeley gave me a solid foundation of knowledge, with the desire to become a lifelong learner and the ability to think quickly on my feet.

Q: What was your go-to restaurant near campus when you were a student?

A: There are two. First is Top Dog, a Berkeley institution. The other was this out-of-the-way place called Jade Garden. Everyone loved the Human Beef. It was delicious and affordable.

Q: What are you most proud of?

A: I am most proud of the years I’ve dedicated to advancing and growing our profession. I am most grateful for the lifelong friendships that I made along the way thanks to optometry. I’ve put in a lot of hours advancing and growing our profession, but I continuously feel that I get more out of it than I put in. It’s been a really fun time.

Q: What is something most people don’t know about you?

A: I like adventure sports from skiing to motorcycling. Being outside recharges me.
1950
Gordon Shanks, BS ’57
Gordon A. Shanks passed away in 2021. Following eight years of private practice, Dr. Shanks joined Family Health Plan in 1966 and eventually established its national Optometric Division. In retirement, he was deeply involved in the local government of his hometown, Seal Beach CA, serving on various boards and commissions, including eight years on the city council and four years as mayor.

1960
1 | Sir Colin Blakemore, PhD ’68
Sir Colin Blakemore died on June 27, 2022 in Oxford, England at age 78. In the 100 years of Berkeley Optometry and 70 years of the Physiological Optics, now Vision Science, PhD program, no graduate has reached a higher standing in academic and scientific circles: Waynflete Professor of Physiology at Oxford University and head of the Medical Research Council, the UK equivalent of our NIH. Colin did his PhD research on what was then the second floor of Minor Hall, and his affiliation with Berkeley was confirmed by his election to the School of Optometry Hall of Fame in 2014 and being awarded the Berkeley Haas International Award by the Chancellor in 2015. The paper that arose from his dissertation “The Neural Basis of Stereopsis,” written with Horace Barlow and Jack Pettigrew, and instrumental in the election of all three to the Fellowship of the Royal Society (F.R.S.), is perhaps the single most prominent publication based on visual neurophysiological research in any optometry school, a precursor and harbinger of future developments enabled by Dr. Herbert Wertheim’s endowment of a chair in neuro-optometry at Berkeley.

2 | Janet Carter, OD ’79
Dr. Carter is now practicing part-time in Nevada, and lives the rest of the year in Santa Fe, New Mexico. She recently returned from a beautiful trip to the Galapagos and Quito, and looks forward to a lot more traveling, especially after her first granddaughter and third grandchild is born in Nagano, Japan later this year!

1970
Chris Cabrera, OD ’75
Despite most of his class being retired, Dr. Cabrera is still seeing patients one day per week in the vision clinic inside Folsom State Prison.

1980
1 | Sir Colin Blakemore, PhD ’68 (repeated)
2 | Janet Carter, OD ’79 (repeated)
3 | Bob & Rosie Melrose, OD ’82
After 40 years of practice, Drs. Bob and Rosie Melrose, have retired and relocated to Fort Collins, Colorado to live near their grandchildren. The Drs. Melrose have been partners in the group practice founded by Dr. Craig Hsia in Stockton CA since graduation. The practice grew to 14 doctors and became part of the VSP Ventures family in 2019. Bob and Rosie will keep busy in retirement with travel and as members of the Ventures Visionary Council, Rotary and the Berkeley Optometry Alumni Board. They are shown here outside Melrose Abbey, the Scottish ancestral home of Bob’s family.
4 | David Chan, BS ’81 & OD ’83
Dr. Chan has served on the Board of Directors for the Sacramento Valley Optometric Society (SVOS) over the past 5 years as a Director and Chairman of its Education Committee. Last year he was elected and served as President of SVOS. During his term in the leadership role for 2021-2022, his society was awarded the prestigious Society of the Year award by the California Optometric Association (COA). This award is presented annually to the best of the 25 such societies in California and recognizes the outstanding and significant accomplishments that Dr. Chan and his society had achieved over the past year, such as public service projects and activities to promote vision and eye care, and to improve the public awareness of proper vision and eye care.

1990
Howard Pflug, OD ’47, passed away on September 24, 2021, in Los Angeles, CA at age 95. He served proudly on the Board of Directors of the LA County Optometric Society for many years, and when the laws were changed to enable optometrists to perform more medical procedures, Howard went back to the classroom for a demanding period of advanced education and certification so that he could continue to provide his patients, many of whom he treated from childhood, with the most up-to-date care. In retirement, he volunteered through the UCLA Stein Eye Institute and found joy in providing free vision screenings to underserved children.

2000
Stephen David Kessler, OD ’80
Dr. Stephen Kessler passed away on December 9th, 2021 in Aurora, Colorado. Dr. Kessler was an Eagle Scout and Boy Scout Master for 20 years. He was also a member of the 1st Brigade Band and played trumpet with the St. Louis Symphony and the St. Louis Municipal Opera. He was an active volunteer for Meals on Wheels and loved the Dodgers. He is served by his wife Donna M. Anderson and his two daughters, Sarah and Hannah.
5 | Scott Yokoi, BS ’82 & OD ’86
Dr. Scott Yokoi is retiring from clinical practice at Rockridge Optometry in Oakland after 36 years of exemplary service to the community. Dr. Yokoi’s partners Dr. Larry Sarver ’80 and Dr. Cindy Sakai ’04, and his associate Dr. Jami Junge ’14 wish to congratulate him on his many years of service. Dr. Yokoi will be greatly missed by his colleagues, his many dedicated patients, and his outstanding staff at Rockridge Optometry.

1990
6 | Chris Wilmer, BS ’94 OD ’96
Dr. Wilmer celebrated her 25th reunion by backpacking the entire 250 mile John Muir Trail with her spouse Miesje and two sons Kai 16 and Rory 14. On the trail she came across a hiker unable to continue and in extreme eye pain. With a well stocked medical kit the hiker was started on treatment for a presumed corneal ulcer and evacuated out of the Sierra Mountains via helicopter. The next day word came via satellite communicator that the field diagnosis was correct and the hiker was on the way to recovery.

7 | Erik Zingler, OD ’96
Dr. Eric Zingler is conducting innovative readiness training mission trips with the Nebraska National Guard. He has assisted in regions in South Dakota, Puerto Rico, and Alaska. While on his mission trip in South Dakota at the Crow Creek Indian Reservation, he performed eye exams in the back of a trailer.

8 | Kristine Eng, OD ’98
Hanging out in Park City! Pickle ball, good food, great times!

2000
9 | Todd Erickson, OD ’01
Todd Lindsay Erickson passed away on April 21, 2022. In the course of gaining his doctorate degree, Todd met his wife of 19 years, Melissa Barnett Erickson, who survives him along with their sons Alex and Drew, mother Carolyn Tillman, father Dennis Erickson, and sister Monica McCoy. During his almost 21 years of practice, Todd loved including himself in his children’s sports endeavors where he became a swim official and a water polo coordinator. He was an adventurous, kind soul that went above and beyond when helping others.

2010
10 | Jennifer Fisher, BA ’10 OD ’14
Dr. Fisher was recently named California Optometric Association (COA) Young OD of the Year for her work on the Children’s Vision and Student Relations committees as well as serving as president for her local society. Dr. Fisher is an Assistant Clinical Professor at Berkeley in the Binocular Vision and Sports Vision and Concussion Clinics. She currently resides in Oakland with her husband and two young kids (Adeline, age 5 and Wyatt, age 2). She has not convinced her kids to be optometrists yet!

11 | Melanie Mason, OD ’11
Melanie has been enjoying life in Livermore with her kids (Claire 8, Levi 6) and husband, Dan. They spend lots of time camping and gardening and have successfully planted 14 fruit trees in every spot of dirt in their yard. She continues to work part-time in clinic at UC Berkeley and in private practice at Livermore Optometry Group. In 2021, Melanie Mason was awarded with the OD of the Year award by the Alamenda Contra Costa Counties Society. Since optometry school, she has developed a love for mountain biking and hopes to see you on the trails!

12 | Anne Tasaki, OD ’13
Dr. Tasaki recently gave birth to her first child, a boy. Although her and her husband are ecstatic about the new addition to their family, their dog Daisy misses their undivided attention.

13 | Chrystina Yu, BA ’15 & OD ’20
Chrystina joined Lamorinda Optometry in Lafayette in the beginning of 2021, joining owner Nathan Orr, OD ’07. She is a director of the Alameda Contra Costa Counties Optometric Society. Outside of work, she enjoys exploring food and boba spots, choreographed dancing, hiking, and pickleball!
Invest In Our Vision

The path to outstanding patient care and vision science research begins in our classrooms, labs, and clinics. Learn more and make your gift online.

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