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Using Virtual Reality Devices to Open New Frontiers in Stereo Vision Recovery

page 14

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Using Virtual Reality Devices to Open New Frontiers in Stereo Vision Recovery

FALL 2016

THE MAGAZINE OF THE SCHOOL OF OPTOMETRY AT THE UNIVERSITY OF CALIFORNIA, BERKELEY

River Blindness
Winning the fight against Onchocerciasis

Dynamic Duo
Taking on the hard cases in the neuro-optometry clinic

Virtual Reality
Discovering the world’s depth later in life

FALL 2016
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BY ANN GUY
The disease that once blinded half of the adult males in 11 West African countries is finally on the ropes.

Dean’s Message
Dean Flanagan on school awards, our collective achievements, and another record year for fundraising.

Top Eight List
We asked our faculty about new gadgets, techniques and innovations they’re most excited about. Here’s their list.

Through Our Eyes
Berkeley Optometry students work hard—but they also take time to build a wonderfully supportive community. Take a look at their world, as they see it.

Class of 2020
Being the class of 2020 is a lot to live up to, but we know this group can deliver! Here’s a quick look at their numbers.

Where Are They Now?
See what our young alums are up to in the real world.

Alumni Notes
Catch up on the latest doings of your former classmates.

Annual Giving
Our donors have contributed to yet another record-breaking year. We've gathered all the numbers.

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On the cover: Ellen Ong, 2nd year OD student—and member of the Levi Lab—explores a virtual world.
Winning the Fight Against River Blindness

BY ANN GUY

A statue of a boy leading a blind middle-aged man sits in front of the World Health Organization’s Geneva headquarters as a poignant reminder of African river blindness. At the disease’s peak in the 1970s, half of adult males in 11 West African countries were blind around the age of 40. The statue has a subtext: the boy in the lead already carries lesions that cloud the cornea, impairing vision. As the microfilariae migrate, a bacterium piggybacks along for the ride.

“Two things have been together for so long they’ve evolved into mutual systems,” Swartzberg says. That means that long-term application of an anti-worm drug together with antibiotics to kill the bacteria would shut down the disease completely. “The goal that we’re after is to eradicate onchocerciasis” he says.

Not surprisingly, the main obstacle is money. A similar boy-leading-blind man statue graces the grounds of the Carter Center in Atlanta, which helped several Latin American countries wipe out the disease, but persists in its sub-Saharan Africa stronghold, the world’s poorest region. By total eradication, Swartzberg is still optimistic.

“We’re going to see the number of cases of onchocerciasis drop and drop and drop.”

By continued effort, he says, “I think it’s very feasible to reduce vector numbers to a point where we’re going to see the number of cases of onchocerciasis drop and drop and drop.”

A worm-ridden fly bites a human, it injects larvae into the bloodstream as it takes a blood meal. The larvae grow into adults, who mate underneath the skin. The new-generation baby worms, or microfilariae, migrate throughout the host’s tissues, and cause intense itching as they die. As the microfilariae migrate, a bacterium piggybacks along for the ride.

“We’re parasitized by the worms, and the worms are parasitized by bacteria,” explains Berkeley Wellness Letter Editor John Swartzberg, a professor emeritus of public health who lectures for the School of Optometry’s systemic health who lectures for the School of Optometry’s systemic health. “It’s our immune response to both the presence of the worm and the bacterium that causes inflammation in the eye and tissue destruction,” he says. Over decades, inflammation from repeated larval migrations leads to lesions that cloud the cornea, impairing vision and ultimately causing blindness. Inflammation of the optic nerve can also lead to vision loss or blindness.

Meanwhile, untreated flies pick up the larvae not just from the river, but from biting infected humans, perpetuating the insidious parasitic cycle. To escape the flies, people abandon rich river valleys for less productive land, exacerbating hunger in the region. In the 1980s and 1990s, the African Onchocerciasis Programme, a unique U.N.-led collaboration between the World Health Organization (WHO), the World Bank, drug giant Merck, and the U.N. Food and Agriculture Organization, dispatched teams to the region to address the crisis. UC Berkeley insect biologist Vincent Resh, now a professor emeritus, led the attack on the vectors—the flies. He oversaw larvicidal applications to the rivers, ensuring the chemicals harmed neither the people nor their river-based fisheries. Resh says that working closely with locals and distributing Merck’s donation of the drug ivermectin, an anti-worm agent that is effective in killing both the microfilaria and the adults, were keys to what he calls “one of the most successful public health interventions ever.” By 2012, the cost-effective program had prevented 600,000 cases of blindness, eliminated blindness risk for 8 million children, and reclaimed 150,000 square miles of land for food production, according to WHO.

Despite these enormous successes, the worms are still the second largest infectious cause of blindness, second only to trachoma, according to the CDC. That’s because the parasite’s 10 to 14-year life cycle makes it intractable. But a recent twist opened up a new line of attack. Scientists found that killing the bacteria sterilizes the female worm. “These two things have been together for so long they’ve evolved into mutual systems,” Swartzberg says. That means that long-term application of an anti-worm drug together with antibiotics to kill the bacteria would shut down the disease completely. “The goal that we’re after is to eradicate onchocerciasis” he says.

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New Technology That We Like

Like the tech world, there is no end to new gadgets, techniques and innovations for optometrists—and their patients—to consider.

We’ve talked to Berkeley Optometry docs about what they’re most excited about. Here’s their list.

1. Algorithms for Image Processing

Our Digital Health Clinic, in conjunction with EyePAC, LLC, is beta testing algorithms—which have been generated using deep learning techniques—to grade photographs for detection of diabetic retinopathy. We’ve found that automated analysis of the images produces accurate results within seconds, and may facilitate the live clinician’s decision as to assessment and management. Eventually, our docs hope to use this process to analyze images to grade photographs for detection of diabetic retinopathy. We’ve found algorithms—which have been generated using deep learning techniques—to grade photographs for detection of diabetic retinopathy. We’ve found.

2. OCT for Angiography

While OCT technology has been around for years, the latest generation could have a far reaching impact on the way retinal and optic nerve disease is diagnosed and managed. The new machines have the ability to acquire more than 50,000 scans per second, allowing for a cross sectional view of the retina, which you can’t do with standard OCT. The scans are so powerful that individual red blood cells can be detected as they move through vessels. This new technology may replace fluorescein angiography, which is far more invasive since it requires a dye injected into the arm and takes about 40 minutes. OCT angiography takes 5-6 seconds.

3. Amniotic Membranes

Cut out in the shape of contact lenses, these future contact lenses can be used to treat various conditions. They are created from human amniotic membrane harvested from the innermost layer of the placenta and then placed over the eye to promote healing and reduce inflammation. They have been especially effective for extreme dry eye, or for staphylococcal abrasions that won’t heal. The Berkeley Optometry clinic is using them now.

4. SMILE

The FDA has just approved SMILE (small incision lenticule extraction)—a refractive surgery procedure that allows for extraction of the whole corneal lenticule without the need to create a flap. Avoiding the flap is a huge advantage. Normal laser surgery makes a hinge cut partway through the cornea to make a flap. While the flap does heal, it can more easily become dislodged or even severed, and the cutting of corneal sensory nerves can contribute to “dry eye” symptoms.

5. Enchroma Lenses

An estimated 300 million people have a color vision deficiency. Enchroma, a Berkeley technology company, has developed lenses that allow many of them—specifically those who have difficulty seeing reds and greens—to see more vividly. While OCT technology has been around for years, the latest generation could have a far reaching impact on the way retinal and optic nerve disease is diagnosed and managed. The new machines have the ability to acquire more than 50,000 scans per second, allowing for a cross sectional view of the retina, which you can’t do with standard OCT. The scans are so powerful that individual red blood cells can be detected as they move through vessels. This new technology may replace fluorescein angiography, which is far more invasive since it requires a dye injected into the arm and takes about 40 minutes. OCT angiography takes 5-6 seconds.

6. Smart Contact Lenses

Sensimed’s “triggerfish” disposable silicone contact lens has a tiny micro sensor that captures changes in strain as a surrogate measure of intraocular pressure over a 24-hour period. Elevated IOP is a leading risk factor for the development of glaucoma. An array of laser sensors—data collected from the sensor is a portable recorder worn by the patient. By observing peaks in a patient’s eye pressure, the type, dosage and timing of glaucoma medications may be optimized to better control IOP.

7. Surrogate Measures of Intracranial Pressure

In microgravity, fluids can move toward the upper body, causing increased intracranial pressure, which turns out to be one of NASA’s top human spaceflight risks, leading to vision impairment in crew members. Because lumen punctures are invasive and difficult to perform in orbit, NASA is researching non-invasive ways of measuring intracranial pressure through the eye, ear and head—techniques that could benefit astronauts in space and people on earth. One technique, called “tympanic membrane displacement,” measures pressure that is transferred from the brain to the inner ear. According to NASA, the non-invasive methods could provide options for determining if intracranial pressure is raised and how this may directly correlate to vision problems.

8. Vision Therapy with VR

Dennis Levi, professor of optometry and vision science here at UC Berkeley, has had success using the new generation of immersive virtual reality (VR) gaming technologies to help correct stereopsis in adults—a result that was thought to be impossible (see page 14 in this magazine for full story) only a short time ago. His lab is collaborating with developers to create VR training programs that can be used on commercially available VR sets such as the Oculus Rift or HTC Vive, with the potential to now exponentially the number of people treated for amblyopia, strabismus, and stereo deficits.
Through our Eyes

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

STUDENTS

Seija Roggeveen | CLASS OF 2019

Ece Turhal | CLASS OF 2018

Kenneth Tran | CLASS OF 2018

Kiana Saqr | CLASS OF 2019

BIO practice.

Go Bears!

Foreign Body Removal with gelatin eyes.

Cheering on the Bears!

We ride together, we dilate together. Bad optics for life.

Dream Team (care).

Gotta protect those eyes from harmful UV radiation!! And boast about my future profession!

Practicing our pirate skills while learning about dark adaptation.

See more of our good times on Instagram: @berkeleyoptometry
QuickFacts

Class of 2020

Applicants

- Students matriculated: 71
- Interviews: 118
- Applications: 266

Academics

- Overall GPA range: 4.00-2.62
- Undergraduate GPA: 3.53
- Average GPA in Bio, Chem & Physics: 3.43
- Academic Average on the OAT: 390-300

Student Experience

- 100%: When students start seeing real patients by the end of the first year
- 40%: Of grads go into coveted residency slots throughout the US
- 2,500: Individual patient encounters by graduation
- 440 HOURS: Preclinical Laboratory Training

Student Profile

- 56 Women
- 15 Men
- Age Range: 21-40
- 14 Out-of-State
- 2 from Canada
- 1 from China
- 1 from Korea

A look at the class of 2020, and what they will experience over the course of their four years at Berkeley Optometry.
When Gina Bartiromo began to slide off the edge of Half Dome in Yosemite, her eyesight was the last thing on her mind. Surprised by a June snowfall, Gina and her friends were working their way along the cables on the side of the granite cliff when they came upon a damaged section of the safety rail and she lost her grip. Cartwheeling down the face at thirty miles per hour, Gina was somehow stopped by a tiny lip of rock narrower than a hiking boot; had she traveled any further she would have tumbled a thousand feet to the rocks below.

After a dicey helicopter rescue and several semicomatose weeks, Gina regained consciousness and learned the extent of her injuries, which included a skull fracture, a brain injury, memory loss, and a spine that was broken in three places. In the midst of these catastrophic injuries, the fact that her vision was impaired seemed almost incidental. The doctors patched her eyes, switching between left and right daily, but without truly understanding that she had developed severe double vision.

Gina slowly relearned how to walk and regained her memory, but her vision problems persisted. Eventually an ophthalmologist told Gina that she’d injured her fourth cranial nerve, that her vision would be permanently doubled, and that the only options were glasses that would partially fix the problem, or surgery with no guarantees. “I was devastated,” Gina recalls. “Here I had a broken back, a broken skull, a brain injury, and memory loss and and this was the ringer for me.” Gina’s other injuries were expected to heal, but the prospect of permanent visual disturbance was too much to bear.

Gina never contemplated giving up—it’s not in her nature—but the future of her vision appeared grim. Then, in a yoga class, she met Dr. Michael Harris, clinical professor emeritus at the UC Berkeley School of Optometry. Between
While every course of therapy is unique, successful patients seem to have one thing in common: an appetite for incredibly hard work.

downward dogs and sun salutations, Bartiromo got to know Harris, who attributes his success at age 38 in optometry to the fact that he’s “too much of a people person to spend [my] life at a desk or in a lab.” When he discovered Bartiromo’s ongoing struggle, he referred her directly to Berkeley Optometry’s specialized clinic for neuropsychiatric rehabilitation. And it was there that Bartiromo’s journey to recovery, which started on a tinyMisophonia and the Odd Duality of Vision Impairment—A Doctor’s Tale

Bartiromo’s journey to recovery, which started on a tiny

cuts, even while struggling with convergence insufficiency or reduced visual processing speeds. (Indeed, 20/20 vision was part of Bartiromo’s “problem” and played a role in her difficulty getting her medical doctors to pay adequate attention to her vision issues.)

“Humans do a lot of things closer than an arm’s length,” Dr. Wu continues, describing convergence insufficiency. A brain injury can cause loss of binocular vision, so the eyes refuse to work together and nearby objects become doubled. This is devastating for people in the workforce, making it impossible to read, work on a computer, or manipulate small objects. Strokes or injuries to the brain can lead to the same kind of neuro-plasticity in the brain, making the connection stronger so the neurons get better at talking to each other.

While every course of therapy is unique, successful patients seem to have one thing in common: an appetite for incredibly hard work.

All that hard work carries the risk of boredom, so the clinicians and optometry students work to flesh out the routine. “We’ll add components,” says Dr. Wu. “When patients see that they can try to bounce from week to week.” There’s also an attempt to “gamify” exercises, repurposing time-wasters like Tetris into legitimate therapy exercises. Optometry students coach each other and patients often cite those interactions as integral to keeping the process lively. Caroline, who has an athlete’s wicked sense of competitive humor, says, “I thought it was pretty cool. Every three weeks they changed the students and I got a new person to harass.” When she’s in the midst of doing it all, she wonders how they would think of some new way to make me work.”

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The odd dichotomy of vision impairment is that the sufferer deals with it every waking moment and yet appears to onlookers to be without deficit. Among the masses of people moving and all the products on the shelves open that third week,” Maryann says. “She was relentless.”

So Caroline picked the string up and kept at it. “She cracked it open that third week, Maryann says. “She was relentless,” and she stood inside the doorway and said “where am I?” All the people moving and all the products on the shelves were companying around and she couldn’t process them.”

The goal of vision therapy—like physical therapy—is to help patients recover as much function as possible. And yet, while every middle-aged jager has a physical therapist on speed dial, comprehensive vision therapy is incredibly difficult to find, even for stroke and TBI patients. The entire field is still in its infancy, and Berkeley Optometry is one of just a handful of academic centers actively working with patients. This is not a standardized field,” says Dr. Debora Lee, one of Dr. Wu’s colleagues. “It’s not like having an ear infection and everybody puts in an antibiotic and that’s the end of it.” While there are 300 careers available, no two patients have identical problems, and so Berkeley’s clinicians ensure that no two patients get stuck with the same treatment. “Custom tailoring is the key,” says Lee. “This is all based on current clinical work, figuring out what works for each patient. The research literature hasn’t caught up to the strategies we’re using yet, but our patients can’t wait for the publications.”

Some of the exercises are decidedly low-tech, like the cards Gina Bartiromo carries around in a yellow pouch, with pictures of hockey players standing side by side. Her task is to make the images merge, re-training the eye muscles to work together. In another exercise a simple set of beads on a string becomes a powerful tool to help patients learn to bring close objects into focus. On the other end of the spectrum there are computer programs, even research into using Oculus Rift virtual reality technology. Convergence insufficiency results from innervation damage or trauma to the brain; repeatedly bringing pictures into alignment physically strengthens nearby muscles, helping the patient compensate. But delaying in processing in many cases is also teaching a new skill than getting strong by lifting weights. “How did you learn to ride a bike?” asks Dr. Wu. “The repetition of these exercises builds up that same kind of neuro-plasticity in the brain, making the connection stronger so the neurons get better at talking to each other.”

While every course of therapy is unique, successful patients seem to have one thing in common: an appetite for incredibly hard work.

All that hard work carries the risk of boredom, so the clinicians and optometry students work to flesh out the routine. “We’ll add components,” says Dr. Wu. “Give patients scores that they can try to bounce from week to week.” There’s also an attempt to “gamify” exercises, repurposing time-wasters like Tetris into legitimate therapy exercises. Optometry students coach each other and patients often cite those interactions as integral to keeping the process lively. Caroline, who has an athlete’s wicked sense of competitive humor, says, “I thought it was pretty cool. Every three weeks they changed the students and I got a new person to harass.” When she was stuck in the midst of doing it all, she wondered how they would think of some new way to make me work.”

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Discovering the World’s Depth Later in Life

The Levi Lab Explores Virtual Reality Devices to Open New Frontiers in Stereo Vision Recovery

BY GORDY SLACK

The full tsunami impact of Virtual Reality (VR) technology has been described by industry experts and futurists as “only five- to-ten years away” for at least three decades now. Several devices are available for less than $1,000 today: the Oculus Rift, Samsung Gear, PlayStation VR, and the HTC Vive. But for now they are restricted mostly to high-end game playing, battling ogres, mock warfare, and intergalactic travel. Who knows when in fact the virtual wave will disrupt the actual shore? But even before it does, the lab of UC Berkeley professor of optometry and vision science, Dennis Levi, is exploring a way to use the new generation of immersive VR devices, such as the HTC Vive, to help correct a notoriously difficult and widespread vision problem for millions of people around the world that do not perceive depth.

In a June 2016 study published in Philosophical Transactions, Levi’s team used an expensive and relatively elaborate virtual reality set-up (not the commercially available HTC device in their lab) to help boost the depth perception for six of their 11 adult test subjects who were stereo-blind or stereo-deficient. Given that depth perception was for decades considered untrainable in adults, these results have profound implications for the recovery of stereo vision late in life. “More broadly,” the study concludes, “our approach demonstrates the potential power offered by VR for perceptual training of all kinds.”

One such stereo-blind person was Eric Gillet, Berkeley financial analyst, circus performer, photographer, and the HTC Vive. But for now they are restricted mostly to high-end game playing, battling ogres, mock warfare, and intergalactic travel. Who knows when in fact the virtual wave will disrupt the actual shore? But even before it does, the lab of UC Berkeley professor of optometry and vision science, Dennis Levi, is exploring a way to use the new generation of immersive VR devices, such as the HTC Vive, to help correct a notoriously difficult and widespread vision problem for millions of people around the world that do not perceive depth.

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For Gillet, who was stereo-blind until his late 40s, the availability of 3D-vision training on portable VR headsets might have given him extra decades of stereo vision. Even today, he can’t believe that he can feel as if he is entering a world of higher immersion—“I am very much better, but I don’t think I’m one hundred percent yet,” he says. But he really doesn’t have any way to further train his eyes and brain.

“One of our aims is to have a number of different, highly engaging video games that are tailored specifically to the patient’s needs,” says Levi. “We would want to push someone like Eric to finer and finer stereo requirements—because the games are fun and engaging, he would want to play them.”

Furthermore, because the felt experience of depth in the VR environment is so close to that of experience in the real world, says Levi, stereopsis achieved with VR may be more likely “stick,” to survive the transition to reality once the device is removed. Like the 3D epiphany Gillet had watching Star Wars, VR may keep people in what it “feels” like to see depth, so their brains can more easily seek out that neurological sweet spot again.

For Gillet, it is still refining his gain of a new way of seeing. And he is also looking forward to one day soon when he might be able to use off-the-shelf VR devices to deepen further the stereo perception that he first gained in Levi’s lab and that he has come to value so much. And he is also looking forward to one day soon when he might be able to use off-the-shelf VR devices to deepen further the stereo perception that he first gained in Levi’s lab and that he has come to value so much.
Humphrey Instruments was formed to take advantage of a number of Louis’s optics patents, including one for a variable focus lens. The Alvarens lens, as it was named, consisted of two specially shaped pieces of plastic. When one plastic piece was set precisely atop the other, the lens was plano. If you slid the top piece of plastic to the left, lens power became increasingly negative. If you slid it to the right, you got increasingly positive sphere power. The assembly fit in your shirt pocket and that was where Luis always carried his very own Alvarens lens.

As soon as he received his new glasses—and it seemed like he needed new ones all the time—he would repack and redo and do an over-refraction with his Alvarens lens—to see if he had gotten the right answer. The problem was that Luis had no sense of the tolerances and uncertainties that are associated with refraction, as well as with the fabrication of any pair of glasses. The first time I gave him a pair of glasses, he went outside with his lens and immediately found that I had missed by a whole eighth of a diopter in one eye. Not being the most tolerant man I ever met, Louis demanded that I explain how I had made such a careless error! No discussion about the importance of optical tolerances and uncertainties was necessary, for Luis had mislaid the eyeglasses. The problem was that Luis always checked things far beyond what he was ever given. He was my mentor and friend, and I still miss him sorely—twenty-eight years after his death.

Q What did you learn working with such greats?
A True leaders—the greats if you will—care very little about the petty details of life. They just want to know that you know things that they don’t, that you can do things that they can’t, that you always do what you say you’re going to do and that your heart is in the right place. Having settled the basics above, they want you to lead, follow, or get out of the way, and as long as you promptly do one of those three things, it all turns out fine.

Q What did you learn about your profession?
A We have progressed so much in the years since I entered practice that what you once couldn’t do is now routine. The thing you should know about Luis is that the only way to know those things is to live the reality of clinical care every day. And the way you learn to do that is to make compromises: compromises you can make and which ones you cannot make. And that’s what I’ve been trying to express these years—how to make those compromises.

Q What do you think is the missing ingredient in the OD’s toolkit?
A When I was trained, a direct ophthalmoscope was considered high tech. Today, we have so much high technology that doctors—optometrists and ophthalmologists—are drowning in data. We need to integrate and combine all that data into simpler, more reliable and more understandable bits of actionable information—information that doctors can turn into better informed healthcare decisions.

Q What are you working on now?
A In perimetry, I have the privilege of working with Dean Flanagan and with Anders Heijl on next-generation testing strategies. We hope to cut perimetric testing time in half again, without giving up any diagnostic validity. In OCT, we are introducing OCT angiography, a method that produces high-resolution angiograms without dye injections.

Q What are your memories of Luis Alvarez?
A Berkeley Optometry prepared me to start professional life in the clinic. Of course, one can only learn part of what you need to know in school; the rest you have to learn on your own. In that sense, optometry is no different from any other profession. For example, I learned most of what I now know about glaucoma after leaving school. But my training at Berkeley taught me what I needed to know to get started, and that’s all you can ask of any school experience.

Q What are you most proud of?
A It’s the group who have made their own marks on this profession. Of course, I’m proud to have participated in that process. When I started practice, we all taught ourselves Goldmann tonometry, binocular indirect ophthalmoscopy, fundus photography, and gonioscopy. Now, I am trying to learn angiography. It never stops, and I like it that way.

Q What advice would you give to current optometry students?
A Don’t let your professional work become just work. Find some part of your profession that makes your blood pump and your heart sing, and pursue that part with your full energy. You will never regret it.
Looking Back

Berkeley Optometry; PhD student in Vision Science to power through.

Our young alums are doing big things! We’re so proud of them that we had to brag. Here are a few of their stories.

Optimizing for the Human Visual System

Christina Gambacorta, PhD ’16

WORK: Apple Inc.
HOME: San Francisco, CA
WEB: apple.com/about

At Apple Inc., Dr. Gambacorta conducts research that helps engineers make informed decisions when developing new products. Her main focus is display systems, and how these are developed with the capabilities of the human visual system in mind. Her favorite undergraduate course was sensation and perception; she loved learning about the different ways that scientists test our visual system. She later worked as a research assistant in Dr. Peli’s laboratory at Schepens Eye Research Institute in Boston, MA. It was here that she developed a passion for applied perception—running studies that helped develop assistive technology for people with low vision.

Dr. Gambacorta is a strong second year in the Vision Science PhD program after completing her optometry degree, she completed a residency in Low Vision and Cataract/Ocular Disease at Berkeley. She is interested in studying visual functions in children with cortical/cerebral visual impairment (CVI), and is currently working on a project related to crowding in children with CVI. Jazzi also serves as Education Director for the Alameda and Contra Costa Counties Optometric Society (ACCCOS). On the weekends, Jazzi works in private practice, most often at Conard Optometry in her spare time, she’s busy planning her upcoming wedding!

Advice for current students: “Make it a point to write down at least one good thing, big or small, that happened every week. Optometry school is tough, and sometimes reflecting on these memories is just what you need to provide that little bit of motivation, enthusiasm or a smile to power through.”

Jazzi Junge

BA ’09, OD ’14

WORK: PhD Student in Vision Science, private practice optometrist
HOME: Walnut Creeks, CA
WEB: vision.berkeley.edu, conardoptometry.com

Dr. Juge is a rising second year in the Vision Science PhD program after completing her optometry degree. She completed a residency in Low Vision and Cataract/Ocular Disease at Berkeley. She is interested in studying visual functions in children with cortical/cerebral visual impairment (CVI), and is currently working on a project related to crowding in children with CVI. Jazzi also serves as Education Director for the Alameda and Contra Costa Counties Optometric Society (ACCCOS). On the weekends, Jazzi works in private practice, most often at Conard Optometry.

Advice for current students: “Utilize all of your resources as a student. Your instructors are a wealth of knowledge, and when you are a student it is so important to absorb as much as you can. Don’t be afraid to ask why when things don’t make sense.”

Creating Content for Clinical Training Programs

David Murakami, MPH ’08, OD ’12

WORK: Manager of Clinical Education, Implementation and Training for TearScience
HOME: Southern California
WEB: tearscience.com

Dr. Murakami develops, maintains and provides the clinical content for clinical training programs for TearScience’s sales force and network of physician accounts, including optometrists, optometrists and their staff both domestically and internationally.

TearScience is a medical device company that focuses specifically on the diagnosis and treatment for Meibomian Gland Dysfunction. He regularly presents the latest research on MGD at various CE events and national conferences across the country.

Advice for current students: “I spent my time working and studying hard, but also taking advantage of being part of the Cal community and the amazing surroundings the Bay area offered. I made some of the most extraordinary connections with my classmates who I now consider family; together, we all struggled equally in our many finals just as much as the many grueling workouts we collectively took throughout the years at the RSP! I hope students currently, as well as those who have graduated, come to realize as much as they can while remembering to explore and make those lasting connections. I had to stop and pinch myself everyday when I walked through campus, to remind myself of the magic I was lucky enough to experience everyday.”

Forever Bears!
Sarah Kochik, BA ’10, OD ’14

WORK: Instructor, Myopia Control Clinic, Berkeley Optometry, PhD student in Vision Science
HOME: Berkeley, CA
WEB: vision.berkeley.edu

Dr. Kochik is a clinical instructor in the Myopia Control Clinic here at Berkeley, and is also working on her PhD in the Vision Science program, researching myopia. She is working on a mixture of both clinical and translational research in myopia and refractive error development. Sarah is also the President-Elect for the Alameda and Contra Costa Counties Optometric Society (ACCCOS). For the past two years, she’s served as the on-call OD for the Cal Football team, combining a love for optometry with her love for Cal sports! Go bears!

Advice for current students: “Don’t be afraid to ask why when things are important to absorb as much as you can. Your instructors are a wealth of knowledge, and when you are a student it is so important to absorb as much as you can. Don’t be afraid to ask why when things don’t make sense.”

Christie Jackson, OD ’14

OD for the Active Set

Christie Jackson, OD ’14

WORK: Owner of Truckee Family Eyecare
HOME: Truckee, CA (year Lake Tahoe)
WEB: truckeefamilyeyecare.com

Truckee Family Eyecare is a community focused practice with a unique selection of eyewear to fit the needs of the outdoor community. Dr. Jackson’s goal is to create an uplifting atmosphere and offer the highest standard of care so that her patients can see Tahoe Clearly!

Advice for current students: “If you have a dream location where you want to live and/or work, don’t be afraid to put yourself out there that it is okay to fail at first.”
LOOKING BACK

AlumniNotes

Our Alumni do amazing things—in and out of the clinic! Here’s a sampling of what they’re up to.

1959
Cora (Brabazon) Ruhr, BS ’58, OD ’59, retired in 1999. She had an Optometry practice in White Bear Lake, Minnesota for over 30 years. She is now joyously living in Sedona, AZ, and is an avid hiker. Her daughter and 2 grandchildren live in St Paul, Minnesota, where she spends time in the summer at her vacation home on the North Shore of Lake Superior.

1971
In addition to being proud supporters of Berkeley Optometry, Collin Chu, BS ’69, OD ’71, and family love to spend time together cruising the high seas. This year, they are doing an Alaskan cruise.

1974
Chris Iwata, BS ’72, OD ’74, and wife Pauline welcomed their third grandchild, a baby boy, Thanassi Hikaru Panos. The couple’s other two grandchildren are Amalia, 4 years old and Daphne, 2 years old. All three are children of Elias and Heather Panos. Heather is the director of admissions and student affairs at Berkeley Optometry. When not working in his practice, Dr. Iwata spends time fly fishing, salmon fishing and playing tennis. He was norcal tennis singles player of the year in the 60’s open age group in 2011, and again last year in the 65’s!!!

1975
The class of 1975 had a recent mini-reunion at the home of Chris Cabrera, OD ’75 in Sacramento. Most are retired, though several are still practicing full time. All are enjoying or searching for hobbies, which include travel, beekeeping, woodworking, wine making, hiking, skiing, music, and the most popular: grandchildren.

Richard Hom, BS ’73, OD ’75, has been elected Trustee of the California Optometric Association for the years 2015-2017. He is also a Candidate for a PhD in Biomedicine at Salus University.

1981
Julie Helmus joined the practice of Helmus + Baker Optometry in Davis, CA in July 2015. Her partners include both her parents, Mark Helmus, BS ’79, OD ’81, and Joann Helmus, BS ’84, OD ’86, and also Alex Baker, OD ’09. In addition to welcoming Julie as their new partner, Mark and Joann welcomed their first grandchild, Julie’s son Henry Nash Windsor, born December 2015.

1982
Karla Zadnik, BS ’80, OD ’82, PhD ’92, became the president of the Association of Schools and Colleges of Optometry in July of this year. Karla is also Dean and Glenn A. Fry Professor in Optometry and Physiological Optics at the The Ohio State University College of Optometry. Here she shows her O-H-I-O spirit.

1996
Suyu Yu, BS ’92, OD ’96 just completed a term as president of the Association of Regulatory Boards of Optometry. ABO’s membership consists of 66 regulatory boards throughout the United States, Canada, Australia, and New Zealand, and provides programs to accredit optometric continuing education courses.

1998
Kristine Eng, OD ’98 was awarded the Alameda and Contra Costa Counties Optometric Society (ACCCOS) OD of the year. Congrats Dr. Eng!

2008
Optometry family gathering in Danville, CA! From left to right: Joa Michelsen (child of Joy Aroonlap, OD ’06, and John Michelsen, OD ’08), Caren and Cora Hicks (children of Sarah and Dave Hicks, OD ’08, Mari Lum (child of Marlena Chu, OD ’08 and Ray Lum), and Mikaela and Collette Green (children of Shelley and Harry Green, OD ’08).
This year was full of record highs for Berkeley Optometry: the largest class of admitted students, the highest unrestricted giving, a 3rd place finish overall in the UC Berkeley Big Give. The numbers prove what we already know—our future looks bright!

LOOKING BACK

The Year in Numbers

Total Giving $1,444,453

Big Give

$482,718
raised in 24 hours
3rd place overall
at UC Berkeley

3107 Alumni Population

Total Unrestricted Giving

FY 2015 $472,293
FY 2016 $835,260

+ $361,116.03

Our donors are:

60% Alumni

17% Friends

11% Students, Faculty & Staff

8% Corporations, Foundations,
and Other Organizations

3% Parents

1% Trusts

What You Supported

57% Dean’s Initiatives (Annual Fund)

13% Research

23% Learning Environment (Facilities)

7% Student Scholarship (PSSF)

753 Number of Donors

153 New Donors

452 Alumni Donors

67 Student Donors

Total $ from New Donors: $104,325
Using Virtual Reality Devices to Open New Frontiers in Stereo Vision Recovery

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.

optometry.berkeley.edu/give