

# Berkeley Optometry

Magazine

## Deep Fakes

Pushing the limits of  
visual perception

Page 12

FALL 2019



# Berkeley Optometry Magazine

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

FALL 2019

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Berkeley  
UNIVERSITY OF CALIFORNIA



Michael Silver, Professor of Optometry and Vision Science and Neuroscience, in his lab on the Berkeley campus. The brains behind Dr. Silver are those of his two sons, Talyn and Gryphon. The artwork was made by his wife Jenny as lab-warming gift.

## Features



### 12 Deep Fakes

BY ZAC UNGER

Digitally altered photos and videos have already had devastating impacts around the globe. Detecting and exposing these fakes may well be essential to our democracy and our personal safety.



### 16 Alum Leads Change in Mexican Optometry Education

BY ANN BRODY GUY

Dr. Abraham Bromberg, '69, is part of a group of professionals working to change the way optometrists are trained in Mexico.



### 18 Q&A with Daphne Chan, '13

BY ERIC CRAYPO

Dr. Chan, Associate Chief of Optometry at UCSF Medical Center, talks about the benefits of a career in academia, favorite Berkeley Optometry memories, and Dolly Parton.

## IN VIEW

### 2 Opto Bears at the Helm!

Berkeley Optometry graduates are providing leadership at top optometry schools across North America.

### 3 Training Grant Champions

Berkeley Optometry's Vision Science Graduate Group has received NIH funding through the T-32 Training Grant program for 42 years and counting—an extraordinary achievement that is testament to the success and reputation of the Vision Science program.

### 3 Dean's Message

### 6 Top Ten Iconic Frames

We got to thinking about how some of our favorite actors, musicians, politicians and other public figures have brilliantly used spectacles to create a look that is synonymous with their fame. Here are our top ten.

## STUDENTS

### 8 The Eyes Have It

70 sets of eyes that will soon be focused on providing the best in eye care to their patients.

### 10 Class of 2023

Our newest class has arrived. Here are some quick stats to help you get to know them.

## LOOKING BACK

### 20 Where Are They Now?

See where our recent alums ended up.

### 22 Alumni Notes

Our alumni do amazing things—in and out of the clinic!

### 28 Six Years of Impact

A timeline that features some of our most notable accomplishments.

On the cover: Our cover illustration, by Lincoln Agnew, captures the overwhelming onslaught of photos and videos that each of us are bombarded with everyday.

## Berkeley Optometry Alums at the Helm!

We already knew that Berkeley Optometry alumni are exceptional doctors and healthcare providers, but they are also leading some of the most prestigious optometry programs in North America. We are so proud that members of our community are making such an important contribution to the education of optometrists—thank you for making Berkeley shine!



**Joseph A. Bonanno**  
Dean, Indiana University School of Optometry  
Berkeley Degrees: OD 1981, PhD 1987  
Appointed: 2010



**Lewis Reich**  
President, Southern College of Optometry  
Berkeley Degrees: BS 1986, OD 1988  
Appointed: 2016



**Karla Zadnic**  
Dean, College of Optometry, The Ohio State University  
Berkeley Degrees: BS 1980, OD 1982  
Appointed: 2014



**Stanley Woo**  
Director, School of Optometry & Vision Science, University of Waterloo  
Berkeley Degrees: BS 1992, OD 1994  
Appointed: 2017



**Kelly K. Nichols**  
Dean, University of Alabama at Birmingham  
Berkeley Degrees: BS 1993, OD 1995  
Appointed: 2014



**Michael Twa**  
Dean, College of Optometry, University of Houston  
Berkeley Degrees: BS 1988, OD 1990  
Appointed: 2019



## Training Grant Champions

42 and counting! That is the number of years that Berkeley Optometry's Vision Science Graduate Group has received NIH funding through the T-32 Training Grant program. It is an extraordinary record of continuous funding, and is a testament to the success and reputation of the Vision Science program at Berkeley.

The grant—the largest of the 37 awarded, and the only training grant in optometry—is used to support first and second year PhD students as they develop independent vision research. In 2018, the Vision Science Group received a five year renewal for \$2,693,035—an amount that is 3.4 times bigger than the median, and 50% bigger than the next highest recipient. It's also more than double what Stanford receives!

Reasons for the long record of training grant success? We graduate a lot of PhDs. Since 1950, when the Vision Science Group began, 226 students have received doctorate degrees in Vision Science. We also have success placing our graduates at the highest levels of industry and academia. Alumni are represented on the faculty of world-class universities—in medical schools, schools of optometry, and a wide range of disciplines spanning psychology, physiology, bioengineering, and ophthalmology. Others hold research positions in institutes and federally sponsored agencies such as the National Aeronautics and Space Administration (NASA) and the National Institutes of Health (NIH). Still others are to be found in the research and development divisions of industry, from Samsung and Adobe, to Novartis and Allergan.

Berkeley Optometry professor Gunilla Haegerstrom-Portnoy says, "the training grant is an absolutely essential component of the Vision Science Graduate program—it provides an opportunity for them to rotate through the labs, where they learn new experimental techniques, obtain experience in unique research laboratories, and ultimately to identify a lab in which to conduct dissertation research."

42

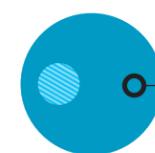
years of continuous funding

Current PI: Dr. Dennis Levi

50%

bigger than the next highest recipient

15 students supported



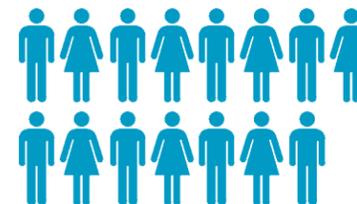
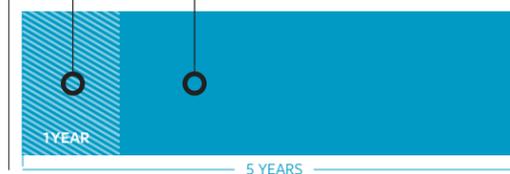
3.4x  
bigger than the median

2X what Stanford gets

\$538,607 for each year

\$2,680,770

over five years



### DEAN'S MESSAGE



One of the greatest pleasures of being dean is getting to know and deeply appreciate our extraordinary alumni. As you will see in our new magazine, our alumni lead the profession, both at home and abroad. No less than six alums are currently leading top optometry schools across North America, and another—Dr. Abraham Bromberg, OD '69—is part of a team of educators and

healthcare professionals in Mexico working to change the way optometrists are trained. Even closer to home, young alums such as Daphne Chan, OD '13, who is Associate Chief of Optometry at UCSF Medical Center, have successfully transitioned from optometry students to professionals that are having a profound impact on our profession.

So it is the alumni above all else that gives me a sense of optimism about the future of our caring and essential profession. I wake up every day, sure in the notion that optometry will continue to thrive. Why? Because our skills have never been more needed and marketable—the percentage of medical optometry billing continues to increase, artificial intelligence (AI) and deep learning will create extraordinary demands for primary eye care, and our alumni continue to lead, adapt and succeed.

Of course, we must not ignore the many challenges that we face. With respect to AI and its role in future diagnosis, we must take responsibility and demand that the applications work in the best interests of our patients, not just a way of inappropriately dispersing patients and increasing the profitability of insurance companies. We need to remain engaged in emerging technology and its proposed uses. Over the last year I have been involved in national and state initiatives on new technologies related to the profession. Applications as inevitable as automated diagnosis could generate many more referrals, but true patient-centric technology will ensure we have ways of guiding and educating our patients to receive the treatment and care they need. Most software developers are yet to be so enlightened. Together we can help them. It reminds me of the lessons learned by organizations such as the WHO, that for global health initiatives to succeed they need to incorporate cultural awareness to scale their success. One size does not fit all!

As we celebrate the accomplishments of our alums, we also need to be cognizant of the need to ensure a pipeline of future alumni. Next year I will become the President of the Association of Schools and Colleges of Optometry (ASCO), where I intend to continue to work on strategies for getting more young people to consider eye care as a career. For optometry to continue to thrive we must generate more interest in our profession. I am proud of the campaign ASCO has recently launched, *Optometry Gives Me Life*. Please visit the campaign's website (<https://futureeyedoc.org/>), and please use the resources to promote optometry in your community. Together we can double the size of the applicant pool—and importantly—increase diversity. We can do this; the very future of private practice, and our profession, depends on it. As together we look ahead to our special year, 2020, and Berkeley Optometry's centenary year in 2023, I am more optimistic than ever about Berkeley Optometry, and the future of our beloved profession.

—JOHN G. FLANAGAN

## Donor Impact

Total Giving 2019: **\$3,048,863**

Total Giving for the past 4 years\*



\*Including pledge payments

Total Endowment Payout: \$679,159 | Total Endowment Fiscal Year Close: \$19,186,932

## All About You

**271** optometry donors have given for 20 or more years

**344** optometry donors increased their annual giving this year

**164** optometry donors have increased their annual giving by 25% or more

## Leadership Circle

**164** Leadership Circle members joined the Dean to make a difference, fuel innovation, and provide financial support to the school this year

**35** new members were welcomed into the Leadership Circle in recognition of their generous support

## Your Gifts at Work:



Scholarships and Fellowships

**100%**

OD and VS students received scholarships or fellowships. This includes the inaugural **Alumnus of the Year Scholarship** which was presented to Kalina Grimm, Class of 2020. Kalina was awarded \$8,000 to help support her 4th year clinical rotations.



Berkeley Optometry Sports Vision Clinic

**\$80,000**

Our students now benefit from a memorial fund honoring the life and legacy of **Dr. Bill Harrison**, an acclaimed sports performance specialist and Berkeley alum, known by many to be "The Grandfather of Sports Vision."



Research Support

**\$339,383**

was given to support the **research and discovery efforts** of our world-class faculty, such as Dr. Maria Liu, who focuses on treatment and prevention-based research in the fight against myopia, and Dr. Suzanne Fleiszig, whose research aims to find novel treatment and prevention strategies for contact lens-related infections.

## Our Donors Are:



**61%**  
Alumni



**13%**  
Friends



**8%**  
Students



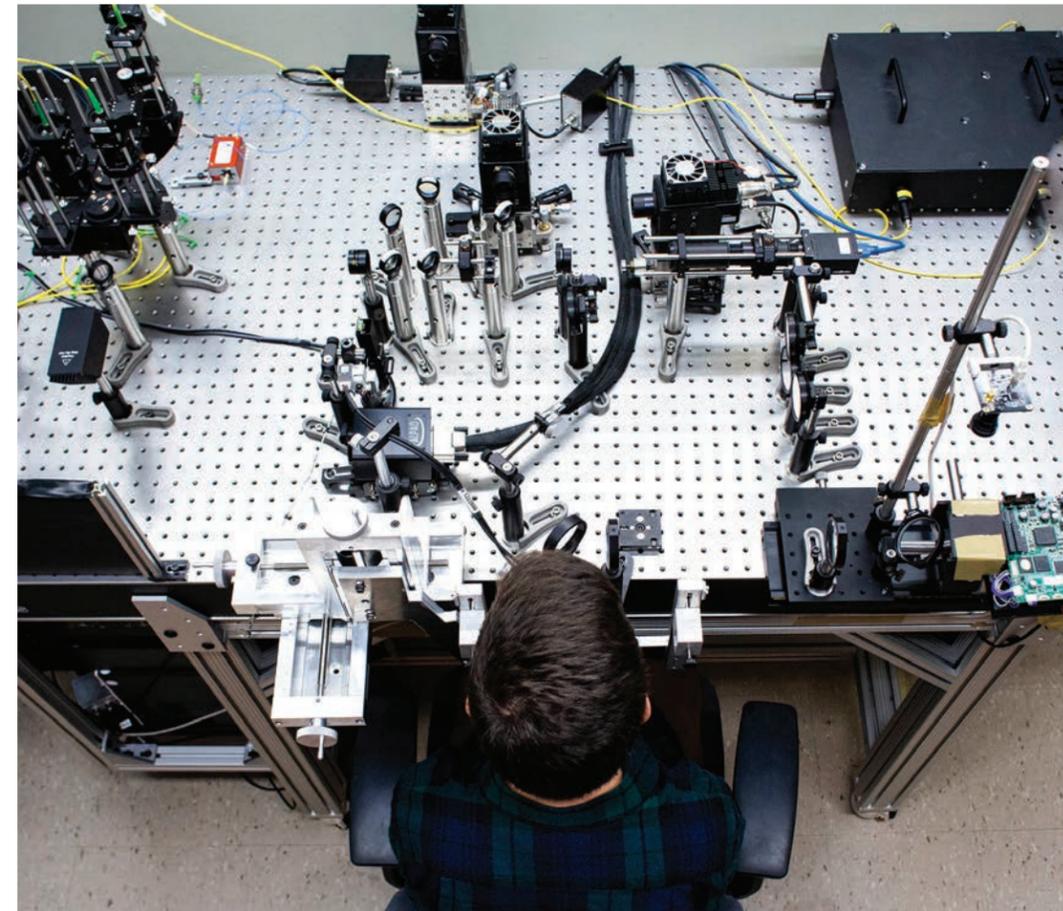
**5%**  
Faculty & Staff



**11%**  
Corporations, Foundations, Other Orgs



**2%**  
Parents



### >OVERHEARD

"I love the sharp optics of the new slit lamps, the satisfying clicking sounds of the phoropters, and the beautifully branded exam chairs. I feel more confident during practice after I observe the demos with the new teaching slit lamp, which is attached to two large high resolution screens that help us see the techniques our doctors are trying to teach us. Observing our instructors perform the techniques in real time is a valuable teaching tool..."

First year student **Jina Chong** on the re-designed pre-clinic, which has been almost completely refitted with top-of-the-line equipment, thanks to generous donations from our student association and from Haag-Streit USA.



## Introducing CIVO!

The Center for Innovation in Vision and Optics



Headed up by Berkeley Optometry professors Marty Banks and Austin Roorda, CIVO's mission is to promote the development, use, and dissemination of innovative optical, graphics, and display technology for the healthy and diseased eye.

CIVO faculty include some of the world's foremost experts in fields ranging from researchers who develop optical, graphics, and display technology to those who find innovative ways to translate them into applications for basic and clinical research. CIVO includes faculty from Optometry and Vision Science; Dennis Levi, Christine Wildsoet, Maria Liu, William Tuten, Emily Cooper, and Hany Farid and Engineering; Ren Ng and Laura Waller.

Operating on a membership model, the Center provides CIVO faculty and students the chance to interact with CIVO industry partners, offering new opportunities for applied research as well as opening the doors to post-graduate career options. Funds raised through CIVO are being used to support new students, postdocs, and visiting scholars who work on projects decided by CIVO faculty, but that are in the general interest of CIVO industry partners.

[civo.berkeley.edu](http://civo.berkeley.edu)

The adaptive optics scanning laser ophthalmoscope designed and built by Professor Roorda and his lab. The system is used to take pictures and measure retinal function in living eyes on a cellular scale.

## Welcomes

We are delighted to re-introduce **Dr. Nancy McNamara** as our new Associate Dean for Admissions and Student Affairs. Please also welcome Assistant Professor **Jorge Otero-Millan**, who is joining our Optometry faculty, and Professor **Hany Farid**, who has joined our Vision Science group and who also has appointments with Electrical Engineering & Computer Science and the School of Information. Our new clinic faculty are Drs. **Nancy Carteron, Patrick Clark, Joey Hsia and Nguyen Tran**.

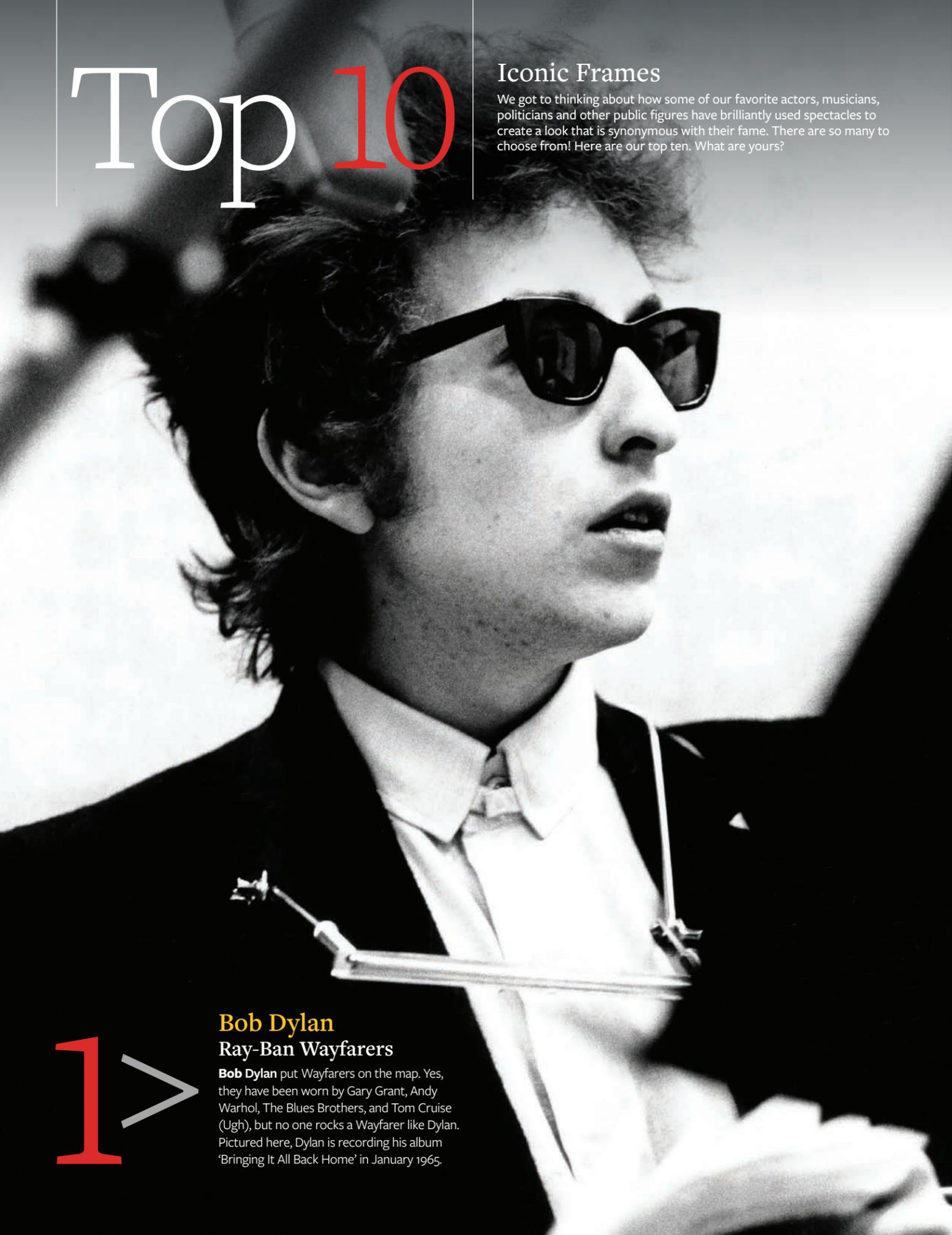
Development Associate **Goldie Negelev**, is our newest DARling, while new faces in the clinic include **Nathan Moy**, Healthcare Systems Analyst; **Peter Lo**, Business Technical Support Analyst; as well as **Gory Svean** and **Shirley Guinn**, our new Patient Services Supervisors.

**Welcome to the optometry family everyone—we are so happy you are here!**

# Top 10

## Iconic Frames

We got to thinking about how some of our favorite actors, musicians, politicians and other public figures have brilliantly used spectacles to create a look that is synonymous with their fame. There are so many to choose from! Here are our top ten. What are yours?



### Bob Dylan Ray-Ban Wayfarers

**Bob Dylan** put Wayfarers on the map. Yes, they have been worn by Gary Grant, Andy Warhol, The Blues Brothers, and Tom Cruise (Ugh), but no one rocks a Wayfarer like Dylan. Pictured here, Dylan is recording his album 'Bringing It All Back Home' in January 1965.

# 1



### 2 Audrey Hepburn Oliver Goldsmith Manhattan

As Holly Golightly in the classic 1961 movie *Breakfast at Tiffany's*, **Audrey Hepburn's** oversized shades hid her true feelings—and hangovers! They are the signature accessory that came to exemplify her glamour and elegance.

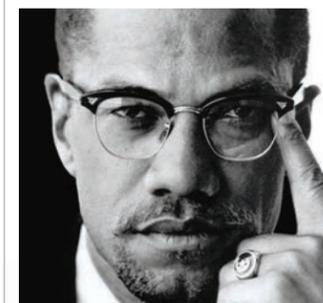


### 3 Harry Potter Savile Row Warwick

Rumor has it that the actor **Daniel Radcliffe** doesn't actually need glasses yet, but when that day comes, he intends to steer clear of the round glasses that made the adorably nerdy wizard famous. Speaking to MTV News, he said: "It's gonna be contacts or like triangular glasses or something just to really put some distance."

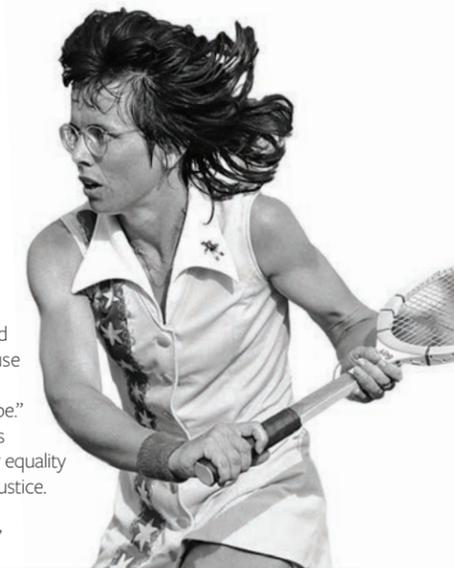
### 5 Malcolm X American Optical Sirmont

El-Hajj Malik el-Shabazz, better known to the world as **Malcolm X**, was one of the most prominent civil rights leaders of the 20th century. He also had an excellent eye for fashion. Many of us here would use any means necessary to get our hands on these hip specs.



### 4 Anna Wintour Chanel

The Vogue editor-in-chief and glitterati head-of-state **Anna Wintour** is rarely seen without her trademark sunglasses. One of the most famous people in the world of fashion, Wintour is seen sporting her heavy black frames to runway shows and other fabulous events. In an interview with *60 Minutes*, she revealed the real reason for wearing these iconic frames: "They are seriously useful. I can sit in a show and if I am bored out of my mind, nobody will notice ... At this point, they have become, really, armor."



### 6 Billie Jean King Too many to list!

Tennis legend **Billie Jean King**, who won 39 Grand Slam titles in her career (currently tied with Serena!), posted recently on Twitter, "As a child, I was told I could never be #1 in the world because I wore glasses. This fueled my fire to become the best tennis player I could be." King—founder of the Women's Tennis Association—is an advocate for gender equality and has long been a pioneer for social justice. *Sports Illustrated* called her "probably the most influential athlete of her time."



### 7 Elton John Cutler and Gross, Dolce & Gabbana, Oliver Peoples+others

Sir **Elton John** has sold more than 300 million records and has more than fifty Top 40 hits, making him one of the world's best-selling musicians. Never one to tread cautiously when it comes to fashion, he's also worn some of the most outrageously memorable glasses; featuring rhinestones, fur, and feathers. In a BBC Radio interview he claimed to own over 200,000 frames!

### Bootsy Collins Funkentelechy Placebo Syndrome

Parliament-Funkadelic bassist and lifelong funkateer **Bootsy Collins**, best known for his star glasses, is no stranger to higher education. In 2010 he launched Funk University ("Funk U"), an online-only bass guitar school in which he also serves as curator and lead professor. In 1997 Collins was inducted into the Rock and Roll Hall of Fame.



### 10 Dalai Lama Bartoli

"My religion is very simple. My religion is kindness." His Holiness the 14th **Dalai Lama**, one of the most beloved and recognized spiritual leaders in the world, has spent his life committed to benefiting humanity. In 1989, the Dalai Lama was awarded the Nobel Peace Prize for his nonviolent efforts for the liberation of Tibet and his concern for global environmental problems. The origin of his distinctive frames is a bit murky, but our best guess is that they are vintage Bartoli frames from the 1960s or 1970s.



### 8 Ali Wong Barton Perreira Valerie

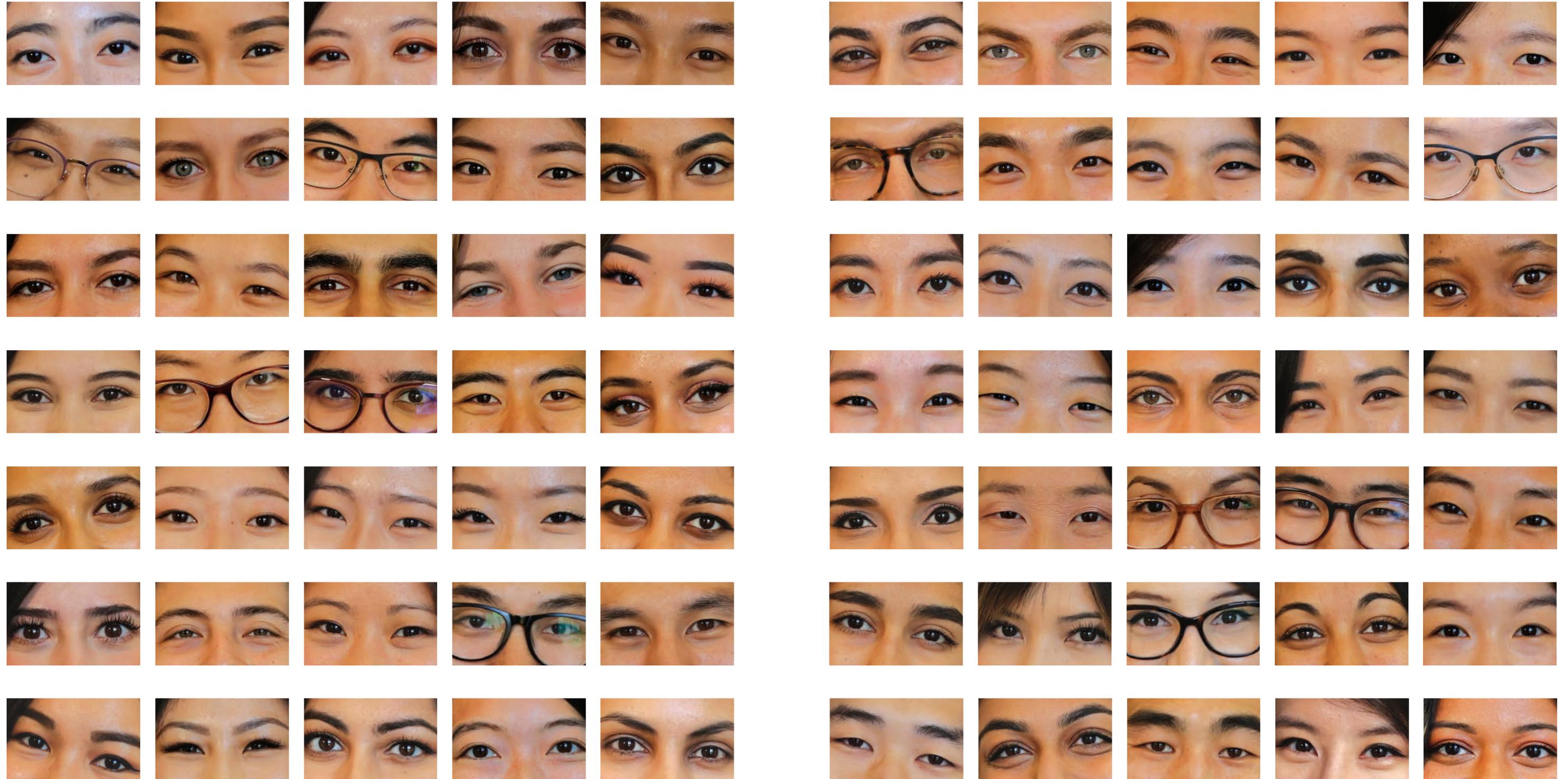
"No! I'm busy making an eyeball, O.K.?" That's how the pregnant stand-up comedian and actress **Ali Wong** described her response to a request from her hubs to pitch in more with the household chores. Her converted red sunnies—and her sassy delivery—have become her trademark and helped launch a burgeoning career that now includes television specials and appearances in sitcoms and movies. Sidebar: Ali is an SF native and spent a summer working at Cal's Lair of the Golden Bear alumni summer camp!



# Through **Our** Eyes

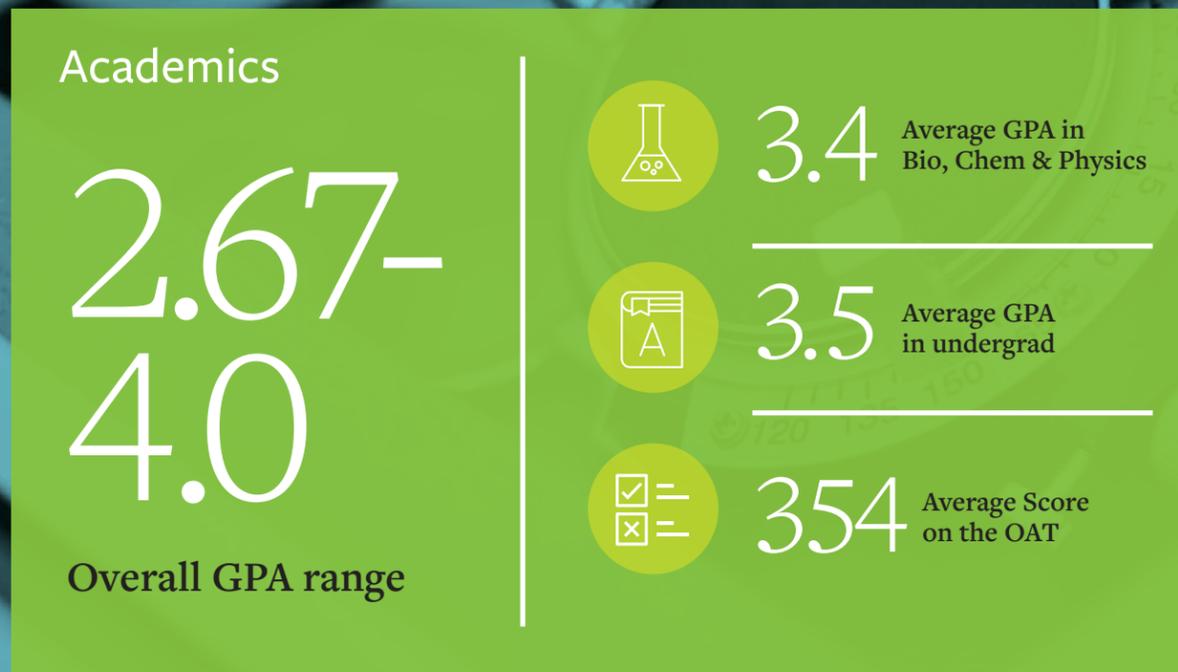
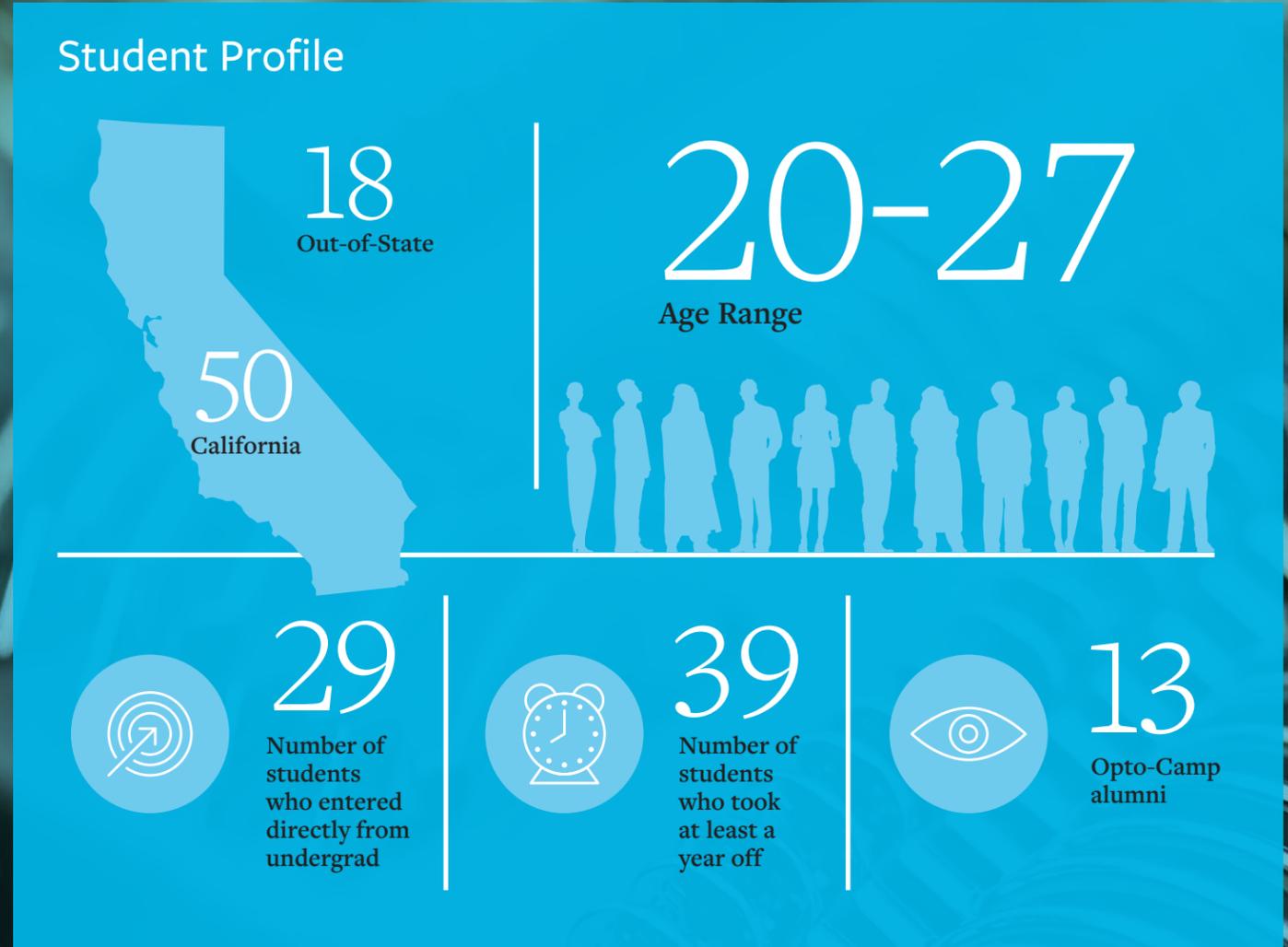
Introducing the class of 2023! 70 sets of eyes that will soon be focused on providing the best in eye care to their patients.

 Send your images to us at [optweb@berkeley.edu](mailto:optweb@berkeley.edu)



A look at the class of 2023: who they are, where they come from and how they got here.

## Class of 2023



- ### Undergraduate Institutions
- |  |  |  |
|--|--|--|
| CALIFORNIA STATE POLYTECHNIC UNIVERSITY - POMONA | UNIVERSITY OF BRITISH COLUMBIA         | UNIVERSITY OF CALIFORNIA - SANTA CRUZ                                  |
| CALIFORNIA STATE UNIVERSITY - LOS ANGELES        | UNIVERSITY OF CALGARY                  | UNIVERSITY OF HOUSTON - UNIVERSITY PARK                                |
| COLBY COLLEGE                                    | UNIVERSITY OF CALIFORNIA - BERKELEY    | UNIVERSITY OF MICHIGAN - ANN ARBOR                                     |
| FLORIDA INTERNATIONAL UNIVERSITY                 | UNIVERSITY OF CALIFORNIA - DAVIS       | UNIVERSITY OF THE PACIFIC  |
| SAN DIEGO STATE UNIVERSITY                       | UNIVERSITY OF CALIFORNIA - IRVINE      | UNIVERSITY OF VERMONT  |
| SAN FRANCISCO STATE UNIVERSITY                   | UNIVERSITY OF CALIFORNIA - LOS ANGELES | UNIVERSITY OF WASHINGTON - BOTHELL CAMPUS/SEATTLE CAMPUS/TACOMA CAMPUS |
| TEXAS A&M UNIVERSITY - COLLEGE STATION           | UNIVERSITY OF CALIFORNIA - MERCED      | WESTERN WASHINGTON UNIVERSITY  |
| TRUMAN STATE UNIVERSITY                          | UNIVERSITY OF CALIFORNIA - RIVERSIDE   | WINONA STATE UNIVERSITY  |
|  | UNIVERSITY OF CALIFORNIA - SAN DIEGO   |  |



# Deep Fakes

Pushing the limits of human visual perception, and what we can do about it

BY ZAC UNGER

“We used to go to libraries. That’s how old I am,” says Dr. Hany Farid, Professor of Vision Science at UC Berkeley’s School of Optometry, as he recounts the old-school way he became one of the world’s foremost experts in the ultra-modern field of digital forensics and image analysis. While waiting in the checkout line he picked up a book—a 500-page insomnia cure called *The Federal Rules of Evidence*—that was languishing on a return cart. He flipped through randomly, landing on a page entitled “Rules for Introducing Photographs Into Evidence.” Farid was studying photo imagery as a postdoc, so his curiosity was piqued. “It was almost a footnote,” he recalls. “And this was in 1997, so film still dominated, though digital cameras were just coming around. But the book said that for the purposes of the federal court system, they were treating a digital photograph and a 35 mm negative as exactly the same. And I thought, *huh...I’m not really good at predicting the future, but this is going to be a problem.*” With digital photography still in its infancy, Farid’s advisor was less than enthusiastic when Farid suggested that he dig into the question of how photos could be conclusively authenticated.

UC Berkeley professor Hany Farid is one of the world’s foremost experts in digital forensics and image analysis.



Dr. Farid teaching a course on the Introduction to Programming and Computation.

“But the idea kind of sat with me,” says Farid, who, in addition to his work at Berkeley Optometry, has joint appointments in Electrical Engineering & Computer Science and the School of Information. “And I had this tennis buddy at the time and he was always beating me, so I hated him.” Using an early version of Photoshop, Farid took an image of his friend and swapped in the face of a famous tennis pro. “And when I did that manipulation, I realized that it was going to leave behind an artifact that I could quantify and measure.” He remembered the vagueness he’d noted in the rules of evidence and realized that any photo manipulation would leave a specific statistical signature, a fingerprint that could bring photographic verification into the modern era.

Fast forward twenty years, and every person on earth is bombarded by thousands of photo and video images every day. Seeing is believing, as the adage goes, but what does that mean when anybody with a laptop can make hyper-realistic alterations that are undetectable to the casual internet user scrolling and swiping her way through the day’s news? “Stalin manipulated photographs,” Farid says. “Hitler did it. Mao did it. There’s power in visual imagery. You change images and you change history.” With people already shouting “fake news!” about anything they merely disagree with, the potential for governments (or basement-dwelling provocateurs) to produce compelling fake images is chilling. Digital forgeries are already in circulation and will inevitably become more convincing and widespread. Fake news won’t just be a rallying cry, but a conscious political or criminal technique with immense power.

The human eye and cognitive system are not particularly good at detecting fakes. And why should they be? A tree is a tree and a tiger is a tiger; there was no selective pressure on our prehistoric ancestors to guard against the natural world launching forgeries at them. “What do you actually care about, visually?” asks Marty Banks, Professor of Optometry and Vision Science at Berkeley Optometry. “You want to know where the door is so you can run out of it if you need to. And you want to know who I am when you’re sitting next to me. But you don’t care if the light is coming from overhead or outside.” Banks gestures towards a window and says “the light out there is probably a thousand times greater than it is in here, but to your eye it looks maybe twice as strong. And who cares? All you need to know is where the building is so you don’t accidentally run into it. You don’t care where the light is coming from or what the shadows are doing. Visual processes have evolved to be very good at *what* and *where* and then we just ignore these nuisance variables.”

“We don’t go around understanding the physics of light and shadows and reflections and perspective geometry,” Farid says, echoing Banks. “We get ourselves around the world in a safe way, but when it comes to analyzing images we have to ask questions like, ‘are the shadows consistent? Is the geometry consistent? Are the physics consistent?’” Farid’s research shows that people are pretty terrible at distinguishing the real from the fake. “A huge proportion of the human brain is dedicated to visual processing and from an early age we learn about the world through visual imagery,” he says. “Surely when we’re presented with a fake image, you’d think people would notice. But no. We add all kinds of inconsistencies to photos and people just can’t tell.” A forger doesn’t need to get every detail perfect; he just needs to make his fake grossly good enough to look momentarily convincing as it zooms through our social media feeds alongside cat videos and vacation pictures.

There are a few different categories of fakes, Farid explains, the easiest of which—a misattribution fake—requires no technical skill whatsoever. “This is where somebody takes a photo of a bombed-out building from Syria five years ago and captions it that this just happened in Afghanistan.” Misattribution fakes are widespread and have been used to substitute one border crossing for another, inflate or deflate crowd sizes at protests or political rallies, or even convince people that a photo of a natural disaster from one part of the world was actually taken thousands of miles away.

Moving up the scale of complexity is the kind of photo alteration easily done on Photoshop: replacing one person’s face with another, creating a composite of two people standing next to each other when in reality they’ve never met. This is great when you want to put Uncle Fred into the family reunion photo that he was late for, but takes a darker turn when used by political opportunists, like whoever altered a photo of a young Barack Obama to make him appear as a machine-gun toting member of the Black Panther Party. As far back as 2006, Reuters fired a photographer after he used Photoshop to enhance smoke effects, making a bombing in Beirut look worse than it was. More recently, somebody with just a modicum of technical skill took a video of House Majority Leader Nancy Pelosi, and slowed it down by 75%. The resulting clip of her, seemingly drunk and slurring her words, was shared on social media hundreds of thousands of times.

Which brings us to the future of digital forgery: deep fakes. With a deep fake—technically known as Artificial Intelligence Synthesized Content—the manipulator can create a realistic video likeness of a person and then make that facsimile say or do something that the real person never would. A widely-known politician such as Donald Trump or Hillary Clinton has thousands of hours of publicly available video and audio of how they look and speak; using those real images as a database, forgers build a library of facial movements, speech patterns, and hand gestures that can later be forced into service in the absence of the original human. “Let’s say I want to create a fake where I replace your face with my face,” Farid says. “A synthesizer algorithm generates the image and then a detector algorithm looks it over in what’s called a Generative Adversarial Network.” The detector tells the synthesizer if it can distinguish the fake image from the real images, forcing the synthesizer to create an increasingly more realistic image “really rapidly, to the tune of tens of millions of iterations and then finally the detector is satisfied and now you have highly realistic fake content.”

If your goal is to make a Hollywood blockbuster, then this technique is a goldmine. (To get an idea of the possibilities, just search out Nicolas Cage deep fakes on YouTube, and you’ll fall down a rabbit hole dug by the oddball community trying to put Cage into every movie role imaginable. He does a particularly good Indiana Jones and he’s unsettlingly decent as the Julie Andrews character in *Sound of Music*.)

But the negative consequences of deep fakes are potentially catastrophic. Imagine a presidential candidate digitally “confessing” to treason or a technologically savvy stock market short-seller releasing a video of Jeff Bezos announcing his surprise retirement from Amazon. On a more local scale, non-consensual pornography is already a reality, a nightmare version of Farid’s harmless prank with his tennis partner, in which an angry boyfriend swaps the face of a woman he knows onto an adult performer’s body, then terrorizes her by sending the resulting fake video clip to her parents or her employer.

Fake news clips have already had devastating impacts around the globe. After a real attack by militants in Sri Lanka, faked social media posts incited retaliatory violence against innocent people. A faked video on WhatsApp contributed to sectarian violence in India that led to the mob killings of sixty people. And, as Farid points out “whether you like him or not, 80,000 votes in three states was the difference between Trump and Clinton and we know that millions of people saw fake news from Russia. You don’t think that could have affected 80,000 votes?”

Detecting and exposing these fakes may well be essential to our democracy and our personal safety. “I like the idea of a Good Housekeeping Seal of Approval” for photos and videos, says Dr. Banks. “You go through the whole pipeline of how an image was captured, encoded, and processed. If we go through and check for landmarks, then we can stamp it authentic if the image obeys certain rules.” Banks ticks off a list of pitfalls for potential forgers: light reflecting off of eyes, geometry of shadow casting, compression of focal lengths, watermarks left behind when pixels in a JPEG are rearranged. In theory, internet users could be trained to trust only images that are verified by a reliable source, much the way we’ve come to look for the organic label on vegetables.

Which all sounds great, but “forensically examining a billion images a day is impossible,” Farid explains. “I can sit at my desk for a couple of hours and analyze a video and tell you if it’s real. But it doesn’t work at scale, when you’ve got milliseconds to do the analysis.” The problem is that nearly all pictures are altered—cropped, color-corrected, red-eye-reduced—so the issue is in pointing out whether the alteration is harmless or nefarious.

Moreover, every safeguard enacted by scholars like Farid and Banks will immediately be reverse-engineered and eclipsed by forgers. “I’m going to lose,” Farid says. “Because playing defense is always harder than playing offense.” Well-resourced government hackers in Russia and China will always be able to win the digital arms race, “and so my job,” Farid continues “is to make sure that it’s really a small number of people in the world who can do this well. Because when any knucklehead on Reddit can do this, then we really have a problem.”

In Farid’s opinion, the solution is for the corporate titans of the digital age—Google, Facebook, Apple, etc.—to take up the moral responsibility of becoming good global citizens. For example, the built-in cameras on cell phones could use “control capture systems,” in which every photo is stamped with a mathematical signature which would then be encrypted and uploaded to the blockchain, an immutable distributed ledger against which the photo

## With a deep fake the manipulator can create a realistic video likeness of a person and then make that facsimile say or do something that the real person never would.

could forever be verified. Facebook could, if they wanted, only promote material that is verified and authenticated, which would encourage people to post trusted content if they want their posts to be more visible on their follower’s feeds. But would Facebook agree to more accuracy if it caused content to become more boring, less clickable, less profitable? “The companies all say ‘well, this is a really hard problem,’” Farid says. “But you know what? They’ve solved a lot of hard problems over the years, so don’t tell me this is too hard.”

Twenty-plus years ago, when Hany Farid picked up an actual book from an actual shelf, it probably never crossed his mind that something titled *Federal Rules of Evidence* would be anything other than the genuine rules that govern evidence in federal courts. And why should he have been suspicious? But today, says Farid, “over half of the content you see online is either generated by bots or is simply not true.” In a world where everything has the potential to be fake, the entire notion of truth and trustworthiness goes out the window. While long-term solutions may be elusive, there are some immediate steps each of us can take to protect ourselves from the society’s forgery-inspired downfall: “Delete Facebook and Twitter immediately. It’s good for the world and you’ll also be a lot happier.” And, Farid says, half-jokingly, “stockpile food and water.”



# Alum Leads Change in Mexican Optometry Education

Berkeley is a model for new school and clinic

BY ANN BRODY GUY

Article 79 of Mexico’s Health Act regulates the training of physicians, dentists, nurses, and other health professionals. But, until recently, it didn’t include optometrists. The National Polytechnic Institute of Mexico, a prominent university, has trained optometrists since 1950. But in the marketplace, technicians who complete only a brief certificate program are the norm, and they are often trained by big chain stores that prioritize dispensing eyeglasses as cost-effectively as possible.

Given this systemic absence of regular eye-health examinations, it’s not surprising that vision problems are the second biggest form of disability in Mexico, second only to mobility disabilities. That translates to about 2.4 million people with low vision or blindness, according to Global Disability Rights Now—often resulting from treatable conditions including cataracts, glaucoma, and, like in the United States, epidemic-level rates of diabetes.

Dr. Abraham Bromberg, ’69, who spent 20 years on the National Polytechnic Institute faculty before going into private practice in Mexico City, could see that the trend to forego comprehensive exams contributed to the problem.

“It’s been shown that people have to be trained to conduct examinations and find eye disease in their patients,” Bromberg said. “Optometrists know this.” As head of the professional group pushing for more rigorous standards, Bromberg and his colleagues met with senators and influencers to lobby for change and they garnered support from the World Council of Optometry. After years of resistance from powerful groups invested in the status quo, the political climate changed in their favor. In 2015, by unanimous vote, the Health Act was amended to include optometrists.

With success came new demand. There are 4,500 licensed optometrists in Mexico, a country of 123 million people—roughly one optometrist for every 27,000 people.

“We need to graduate many thousands more to meet the need,” Bromberg said.

## New school, new clinic

To help fill that gap, Dr. Enrique Graue, head of The National Autonomous University of Mexico (UNAM), Mexico’s leading public research university, launched a new optometry school in León, an up-and-coming city of 2 million. León already had a UNAM branch with several professional schools and is centrally located in the large state of Guanajuato. Graue, himself an ophthalmologist, called on his old friend Bromberg to start the school, instructing him to model it after optometry colleges at Bromberg’s American alma maters, UC Berkeley and University of Houston, where he completed a master’s degree.

It wasn’t Bromberg’s first time shaping an academic program. Back at Polytechnic, he and his colleagues expanded the three-year program to four years and established a clinic. That change set Mexico’s training standard long before the official rule change, which, unlike in the U.S., is a four-year undergraduate program resulting in a “licensed optometrist” professional degree.

## Deconstructing Berkeley’s Clinic

Dean John Flanagan is proud that Berkeley Optometry was a model for the new school and that an alumnus is developing the profession in Mexico. “Dr Bromberg embraces clinical excellence, exemplary patient care, the highest academic standards, and an unflinching desire to make the world a better place,” he said. Today, the new UNAM-León optometry college already has third-year students who, this summer, began serving patients in a temporary clinic location while a new building is under construction. Getting the clinic up and running was paramount, Bromberg said.

“When you’re studying to be a physician you start with a year in school and then you practice in a hospital. For optometry and dentistry, you have to have a clinic in the school so professors can look at the way you treat patients and solve their problems,” he said.

To prepare for the opening, this spring he took a delegation to observe Berkeley’s clinic.

“We wanted to see how it works—the ratio of students to teachers and how many hours they spend with patients,” he said.

Ana María Morán Mora, a licensed optometrist who teaches in the new León campus, was on the Berkeley visit, along with Dr. Norma Hernandez, who worked closely with Bromberg to launch the school. The group toured the facilities, visited classes and patient-care centers, and talked to faculty. They learned much more than Mora had expected.

“The main objective was to see the infrastructure of the clinic. But the visit also helped us to understand how they integrate the students’ activities into the different patient-care centers,” Mora said. She observed how the faculty distribute their work, and “they explained the structure of consultation and follow-up in each case,” she said. The group took note of details like evaluating students on clinical procedures. She liked that student practice went beyond the campus. “The clinic’s satellite centers extend the experience that students gain on patient care,” she said.



Dr. Bromberg (top center) and Dr. Graue (top right) meet with students at the new Optometry school in León, Mexico.



Mora also noticed the students. “I was very impressed by their level of commitment,” she said. It makes sense, she adds, since in Mexico, students start the program at only 19 years old—straight out of high school; they can specialize by taking a related graduate degree later.

The new León program is already thriving, with 25 to 30 students in each year and recruitment that is on pace to double those numbers next year. Ultimately, the school is aiming for Berkeley’s standard of about 60 students per cohort. When the new clinic building opens for the next school year, it will accommodate up to 300 patients a day.

Those results make Bromberg’s task almost complete. It’s work he has performed pro bono, and happily so. “One of my dreams was for somebody to come and tell me, ‘Here’s the money. Make the ideal optometry school in Mexico,’” he said. “And that’s what happened.”

# Being Daphne

Daphne talks about early influences, favorite Berkeley Optometry memories, and Dolly Parton.

Associate Chief of Optometry at UCSF Medical Center, Dr. Chan works alongside ophthalmology specialists to care for diverse patients of all needs.



## Q What originally inspired you to come to optometry school?

**A** The people! My dad is an optometrist (Dr. Alan Chan, OD '74), so I originally wanted to do something different—teaching, social work, anything except optometry. However, I was “extremely undeclared” in undergrad and spent a lot of time attending different clubs and exploring different careers. I finally decided to give Foresight Pre-Optometry Club a chance and learned that optometry is way more than eyeballs and glasses. It’s about connecting with people; specializing in the visual system yet also having a powerful impact on overall health and well-being. What is more important than sight? In retrospect, I realize that the friends I had made in Foresight probably also influenced my decision. Pretty much everyone I have met in this profession since pre-optometry has been a kind, altruistic, and genuine soul. It’s hard not to be happy when you are surrounded by good people.

## Q Who were your early influences in life? Who inspired you?

**A** My parents for sure. My mom has always been my role model: smart, funny, and strong yet loving. She raised her children to have a strong work ethic (she is famous for saying that an A+ is not good enough!), and now that I am older I understand that this philosophy is not just about realizing the end result, but rather the sense of personal pride that one generates by challenging oneself and achieving goals through best efforts. As for my dad, I think I got my sense of humor and people skills from him! I remember him always telling me from an early age that the things we say can really affect others, and that we should always try to make other people feel good—not by overindulgent flattery, but rather by building people’s confidence, reassuring them when they are in doubt of themselves, recognizing everyone as an equal, and always making everyone feel included. Most importantly, my brother is one of my biggest heroes. He was born mentally and physically handicapped and constantly reminds me of the importance of the intangible: family, health, tolerance, and understanding. And might as well throw my big sister in there too—generous, hilarious, and brilliant.

## Q Why did you choose a career in academia? What are some of the unique benefits and opportunities?

**A** I had always loved teaching (my first job in 8th grade was as a tutor) because of the one-on-one connection you form with your counterparts. I still clearly remember my first Berkeley Optometry Fall Conference in college, where the panel of attendings had all exuded so much passion for optometry and for teaching that I had vowed to one day teach optometry as well, and feel so fortunate to have the job that I do. Academia is stimulating and forces you to stay sharp because young, impressionable learners are reliant on your knowledge and skill set. After I was appointed my role of teaching the UCSF ophthalmology interns in 2016, I worked longer hours but actually felt renewed and immensely gratified.

## Q What do you teach ophthalmology colleagues about optometry in your role at UCSF?

**A** Aside from direct skills transfer to the ophthalmology interns, I try my best to show my ophthalmology colleagues that optometrists, in addition to being experts in correcting refractive errors, are also well-trained and competent in the treatment and management of ocular disease. Fortunately at UCSF, the relationship between optometry and ophthalmology is very positive and we are quite comfortable co-managing cases such that patients get the best care possible. This attitude is in large part thanks to the stellar examples that Dr. Bernie Dolan and Dr. Andrew Mick at our sister hospital, SFVA, have set, and my optometric colleagues and I recognize that we must maintain a high standard of care for our patients to continue to sustain this reputation.

## Q You are already an Academy Fellow. What inspired you to take this accelerated approach?

**A** Pretty much all of my professors inspired me to obtain my FAAO from the start (especially Dr. Mick and Dr. Dolan, former Academy president). I had also wanted to achieve this professional goal because UCSF is considered one of the Top Ten hospitals in the US and I wanted to have a bit of distinction and do my part to help elevate the division of optometry. It’s been rewarding because Fellowship is a completely optional thing you do after completing all formal training; it is an entirely self-motivated challenge, and once achieved, feels even better than passing a graded exam, because you set your own goal and met it!

## Q What inspires you to give back your time, expertise, and philanthropic support to your alma mater?

**A** I have always been school-spirited, but Berkeley Optometry holds a special place in my heart because it is where I made my closest friends, and also developed the skills I utilize daily to earn a living! So the answer is both personal and practical. It seems quite logical that I should thank the institution that has helped build my career, and what better way to do that than by supporting future generations of optometrists. Optometry school is not cheap, and luckily Berkeley Optometry has a robust professional student support fund, from which I benefited each year in school. Now that I have the ability to earn an income, I am happy to support my school with time and philanthropy.

## Q What Berkeley Optometry faculty member would you most want to have dinner with, why would you choose them, and what’s on the menu?

**A** Oh man, this is a really tough choice! I have admired all my optometry professors that I’d want them all at a giant feast to hang out and thank them personally one more time. Perhaps I would choose Dr. Gunilla Haegerstrom-Portnoy—she probably does not remember me, but I would choose her because I would love to hear any stories about the challenges of being a female optometrist, presumably in an era of a more male-dominated optometric world. It would be fascinating to hear how she has balanced clinic responsibilities, didactic teaching, and all her administrative duties, so I can gain some insight on how to “work smarter” myself! As for what’s on the menu... well I love milkshakes, so we could chat over a cookies and cream milkshake! Dr. Kuni Kanai has been one of my greatest mentors too. I haven’t caught up with him in a while so I would also pick him, but he prefers beer!

## Q What is your favorite Berkeley Optometry memory?

**A** If I had to pick one, it would be giving the graduation speech along with my classmate, Mimi Phan. We brought up the memory of our infamous dance-dare skit from our second year, where I had distracted a very kind yet confused Dean Levi with some nonsensical conversation while my classmate Jannie Lee danced hilariously behind him, all on camera. Then Dean Levi got up and dance-dared us while we were at the podium! That was so much fun, and shows just how awesome and down-to-earth all our Berkeley Optometry faculty are.

## Q What are you most proud of?

**A** Professionally, it would be the team of bright, ambitious, and emotionally intelligent optometrists that we have built at UCSF over the years. We have grown to 13 now and are fortunate to have as our tirelessly dedicated Chief of Optometry Dr. Taras Litvin (OD '09, PhD '16), who was actually one of my most influential attendings while I was at school. I am so lucky to work amongst friends, who make even the roughest days laughable! And personally, I am proudest of my baby niece, who is just over two months old but already “sings” (croons along with you) and can grab toys by herself!

## Q You are a Skit Night legend, tell us about that experience.

**A** Aww, I would not be so bold as to call myself a Skit Night “legend,” but... Skit Night!! Our first year, the second years (Class of 2012) had pranked us and told us that our skits were to be 15 minutes max, and we naively believed them. We were shocked when their skit took probably an hour! It was also always hard to compete against the Classes of 2012 and 2014, both of whom always had excellent concepts and robust class participation. We finally won “best individual skit” one year with the aforementioned dance-dares, where members of the class of 2013 danced without being noticed behind unsuspecting faculty members. We got Dr. John Corzine, Dr. A. Lee Scaif, Dr. George Lee, Dr. Robert DiMartino, and Dean Dennis Levi, amongst others. I love that everyone at Berkeley Optometry is a great sport and can laugh at themselves. Without laughter, what is there?

## Q What’s something people do not know about you?

**A** Everyone already knows I am a total Harry Potter nerd, but what surprises most people and often requires some explanation is that I absolutely adore Dolly Parton! I personally don’t think she needed all the plastic surgery because she’s already naturally beautiful, but I respect that she is very open and honest about her image. She is a witty, positive, and smart businesswoman, and despite growing up poor, she knew she wanted to be a star and worked hard to make it happen. Songwriting seems very difficult but she is prolific at it (she wrote the song made famous by Whitney Houston, “I Will Always Love You”). I notice that in interviews she only says kind things about others, and when she performs she always gives credit to her backup singers and her band. Who wouldn’t love such a successful yet humble person? My sister gave me a t-shirt for my birthday that says “What Would Dolly Do?”—a good reminder to us all to be kind and generous to each other!

I have always been school-spirited, but Berkeley Optometry holds a special place in my heart because it is where I made my closest friends, and also developed the skills I utilize daily to earn a living!

# Where Are They Now

Our recent grads are out in the real world making a big impact. See where they ended up.



## Sloan Rajadhyksha, OD 2017

**Where are you living now?** New York City

**What are you doing now for work?** I work at the Center for Advanced Vision Care at ODA Primary Health Care Network. This is a community health care clinic where I specialize in Vision Therapy and Rehabilitation. My patient base ranges from

kids with strabismus to adults with acquired brain injury. It is the most rewarding experience to help a patient improve their visual function; their gratitude is priceless.

I also serve on the young professionals advisory board for the Vision Council. I continue to attend many conferences where I often participate in video panels for CovalentCareers and New Grad Optometry, some topics include contact lens management and specialties in optometry. Additionally, I continue to write clinical articles for ODsonFacebook.com to share what I have learned from the unique patients that I encounter every day.

**What is the web address for where you work?** Odahealth.org

**What bit of advice or wisdom would you have for students just beginning their degree program?** Immerse yourself in the profession as much as you can during optometry school. Join clubs to figure out which aspect of the profession most interests you—practice management, legislative, academic, etc. Attend conferences where you will meet like-minded, motivated people who will share your passion for eye care and encourage you to think differently. Be inquisitive and a proactive learner so you can provide better quality of care. Get excited about your future; the people you will meet in this profession will truly enrich your lives.



## Aleksandra Polosukhina, PhD 2013

**Where are you living now?** Paris, France

**What are you doing now for work?** I currently work at Ad Scientiam, a startup that develops smartphone applications for medical devices and at-home patient monitoring, as well as for phase II and III clinical trials. I work as a Scientific Advisor, where I help design digital tests that can monitor disease progression in real-time and predict disease evolution. These tests leverage smartphone sensors and enable patients to independently test their motor, cognitive, and visual functions. We currently focus on Multiple Sclerosis, depression, and a variety of other neurological diseases.

**What is the web address for where you work?** AdScientiam.com

**What bit of advice or wisdom would you have for students just beginning their degree program?** I think that the key to a successful PhD is not being afraid to ask for help. Research projects require continuous integration of new technologies and cross-functional expertise; thus, no one will expect you to do a PhD alone. Use the time at the beginning of your PhD to learn to ask questions, develop new skills during your rotations, and begin establishing your professional and personal network.



## Meredith Turner, OD 2016

**Where are you living now?** Redding, CA

**What are you doing now for work?** I'm the owner of Meredith L. Turner O.D., a solo private practice. I interviewed for the purchase of the practice from an OD who was retiring while on my final 4th year rotation at VA Palo Alto. Needless to say it was a stressful time! Then I spent my summer vacation after 4th year trying to get on the insurance panels so that I could start working in September. It is a general family practice, with an older demographic (mostly 60 and over). Mostly annual eye exams, with some glaucoma and AMD management, some refractive surgery co-management, and urgent care. I am as busy as I want to be, open Monday through Friday,

closing at 1pm on Friday, which allows me to be involved with my kids' activities. Volleyball season is starting so it's just about to get crazy. Private practice is great because I can adjust my schedule to make it to my girls' games.

**What is the web address for where you work?** Meredithturnerod.com

**What bit of advice or wisdom would you have for students just beginning their degree program?** It's never a good idea to miss a class, even to study. Get good sleep, be mentally present in every class, and ALWAYS ask questions when you don't understand. If you think you can figure it out on your own later, you may be disappointed, plus you will waste time! Also, find a good study partner/group. Having another perspective and approach toward a subject can be very helpful. Best of luck, you can do it!!



## Rebekah Lin, OD 2018

**Where are you living now?** New York City

**What are you doing now for work?** I am teaching at the SUNY College of Optometry along with some fellow Berkeley alums (Shelby Leach and Franklin Bui from the class of 2017). I work mainly in primary care precepting third years but have also started a head trauma clinic focusing on patients with visual field loss.

**What is the web address for where you work?** www.sunyopt.edu

**What bit of advice or wisdom would you have for students just beginning their degree program?** Your interests will change as you go through school and gain more experience both in clinic and outside. Keep an open mind and don't be afraid to leave your comfort zone!

# AlumniNotes

We've tracked down all of your favorite classmates. Here's what they're up to.

## 1940

1 | **Elaine Chinn Jang, OD '40**, celebrated her 100th birthday (Wow!) on October 14, 2018 with family and friends in San Francisco, CA. Dr. Jang, who was one of the first women—and one of the first Chinese-American students—enrolled at Berkeley Optometry, practiced in San Francisco and retired at the age of 65.

## 1944

**Gordon Duffy, OD '44**, celebrated his 95th birthday this year. He and his wife Jean have 10 children, 15 grandchildren, and 1 great-grandchild.

## 1968

2 | **Adi Adins, OD '68**, and wife Roberta have moved to a retirement community in Walnut Creek, CA, and recently traveled to South America.

**Gary Liberman, OD, '68, PhD '75**, retired from private practice and is enjoying living in Napa. His career included 45 years of mostly part-time practice, and 23 years teaching and research.

## 1972

**Barry Weissman, OD '72, PhD, '79**, reports he is teaching part time at SCCO, having retired from UCLA's Stein Institute faculty in 2012. His new favorite student is his grandson Noah, born in 2018.

## 1974

3 | **Stephen Chun, OD '74**, and his wife Doris Sze paddled for the Berkeley-based Dragonmax team at the last two IDBF Dragon Boat Club Crew World Championships held in Adelaide, Australia (2016) and Szeged, Hungary (2018). Paddling as a member of the Dragonmax men's crew that was entered in the Masters Small Boat Open Division at the 2016 World Championships, Stephen won a silver medal and a bronze medal in the 500 meter and 200 meter sprints.

## 1975

4 | This year **Lesli Handmacher, OD '75**, proudly celebrates her 40th year as a solo private practice doctor! Dr. Lesli is proud to announce that she found

just the right doctor to pass on North Berkeley's first and female-owned optometry practice to. **Nadia Samii, OD '10**, is excited to take on the mission of continuing this wonderful practice, newly named "Your Two Eyes Optometry."

## 1976

**Page Yarwood, OD '76**, was recently elected for a second term as the president of the COA's charitable organization, the California Vision Foundation. This year he also retired from his "retirement jobs" as the Legislative Director for the ACCCOS, and as the President of the Oakland Museum of California's Docent Council.

## 1979

**Greg Boomer, OD '79**, is closing his 75-year old practice in Susanville, CA in 2020. In preparing for his retirement he is "giving away" his practice to the right OD. Please contact [gregboomerod@gmail.com](mailto:gregboomerod@gmail.com) if you are interested in living where the deer and the antelope play.

## 1980

**Caroline Guerrero Cauchi, OD '80**, was invited to speak at Vision Expo East 2019 on "The economics of myopia." In May she was honored with the Outstanding Achievement Award presented by the American Academy of Orthokeratology and Myopia control, in recognition of contributions to the specialty contact lens industry and the advancement of Orthokeratology and Myopia control.

## 1982

5 | This past June, **Curt Simmons, OD '82**, and a group of nine Berkeley Optometry students joined the 8th annual medical mission to Jamaica organized by AOJAH (the Alliance of Jamaican & American Humanitarians). Consisting of close to 100 volunteers from many different health care disciplines, the mission team provided free medical care, surgeries, eye exams, glasses, and medications to over 2000 people!

6 | **Bob & Rosie Melrose, both OD '82**, want to introduce everyone to their first grandchild, Cassius "Cash" Melrose born on July 2, 2019.

**Elaine Chinn Jang, OD '40, celebrated her 100th birthday (Wow!) on October 14, 2018 with family and friends in San Francisco, CA. Dr. Jang, who was one of the first women—and one of the first Chinese-American students—enrolled at Berkeley Optometry, practiced in San Francisco and retired at the age of 65.**





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### 1983

7 | **Nancy Shoji, OD '83, George Patton, OD '82, Leigh Owyang, OD '83, and Mark Bowman, OD '83** are now Opto-in-laws! George and Nancy's daughter, Ariel Patton (Cal '13), married Mark and Leigh's son Daniel Bowman (Cal '13) at the Paeo Lavender Farm in Turlock, California. Contrary to popular speculation, the parents had nothing to do with putting the newlyweds together. Daniel and Ariel met on the Berkeley campus nearly 30 years after their parents met in optometry school.

### 1984

**Ed Nuccio, OD '84**, is thrilled to welcome **Steven Perry, OD '18**, as an associate to Stanislaus Optometric Center, Inc. in Modesto, CA. Steven also practices with Berkeley Optometry alumni at Livermore Optometry Group.

### 1986

8 | The Optometric Physicians of Washington named **Paul Jensen, OD '86**, the 2019 Doctor of the Year at their OPW Annual Meeting in June, 2019. His wife Kathy and two children are thriving—son Erik is at Harvard Law and daughter Alison is a current AOSA Board Member and will graduate from Berkeley Optometry in 2020.

9 | Celebrated eyewear designer and CFDA member, **Blake Kuwahara, OD '86**, was awarded Best Fashion Frame and Best Sunglass Frame honors for his designs, "Larrabee" and "Moore," respectively, by the LOFT x The Eyewear Forum (TEF) Magazine at the Spring LOFT show in New York.

### 1987

Congratulations to **Deanna Alexander, OD '87**, named as the AOA Advocate of the Year for her many years of hard work advocating for optometry on the State Government Relations Committee and currently chairing the Alliance for Patient Safety.

### 1989

10 | **Judy Lee Tom, OD '89, and Richard Tom, OD '89** who are classmate-sweethearts from optometry school, share that their oldest daughter Jessica married Brendan Henry on October 13, 2018. Her maids of honor were her younger sisters, Natalie and Bethany.

### 1990

11 | **Phuong Thai** from Texas and **William "WJ" Hyatt, OD '90**, got married at Lover's Point in Pacific Grove California on February 3, 2019. There was a break in the rain and a rainbow made for a picture perfect wedding!

### 1992

After 24 years in private practice in Healdsburg, **Anthony "Tony" Soria, OD '92**, retired two years ago and now serves the community at Santa Rosa Community Health Center. In July, he will celebrate his 26th wedding anniversary to his college sweetheart, June, a kindergarten teacher with the Santa Rosa Archdiocese. Their eldest son is entering his senior year at UC Davis majoring in Economics and Political Science. Their younger son is entering his senior year at high school with hopes of attending UC Berkeley in engineering.

### 1994

**Michelle Hoff, OD '94**, has been on the Berkeley Optometry faculty since 1990. She is passionate about community service, Berkeley Optometry Alumni Board, Project Homeless Connect, and the Mindful Eyes Foundation where she is executive director and founder. She and husband Chris celebrated their 25th wedding anniversary and have three children: Annalisa (Cal graduate and chef in San Diego), Tori (Seattle University graduate), and Andrew (current University of Colorado, Boulder student).

### 1996

As of January of this year, **Susy Yu, OD '96**, was appointed to the Board of Directors for the national board of examiners in optometry (NBEO).

### 1997

12 | Last year **Maxwell Cheng, OD '97**, received the David Lawrence Community Service Award for inspiring others to provide impoverished communities both locally and around the world with high-quality eye care. He recently took nine Berkeley Optometry students on a medical mission to Jamaica where they examined over 1700 patients and treated 200 people with glaucoma. Dr. Cheng gave these 2 patients (see photo) from the Andean mountains in Peru their first pair of glasses!



#### Hey Alumni!

Do you have a story to tell? About your career or your life? We'd love to hear from you! Send us pics and details. [optoalumni@berkeley.edu](mailto:optoalumni@berkeley.edu)

Please visit our website to see more updates from our alumni!

[optometry.berkeley.edu/alumni-notes](https://optometry.berkeley.edu/alumni-notes)

13 | **Dan Harvitt, PhD '97, OD '00**, was the student-elected Faculty Speaker for the 2019 Graduation. His epic speech will likely not be forgotten for some time.

**Ursula Moonsamy, OD '97**, and family published a book called "The 17th Suitcase: Vignettes from a South African Family," about the journey of a family navigating the system of Apartheid in South Africa, in a religiously diverse community, amidst racial tension and economic struggle. It is available on Amazon.

## 1998

14 | The Orinda Optometry Group of **Kristine Eng, OD '98, Weylin Eng, OD '66, and Kelly Shintani, OD '00**, just completed a remodel of their office! The Eng family also received an Oakland legacy award in May!

## 1999

**Tanya Gill, OD '99**, was one of 10 individuals honored in the inaugural #GameChangers issue of Eyecare Business magazine in December 2018. The list includes, "independent female optometrists and opticians who are breaking down barriers, ushering in positive change, and shaking things up in the industry for good."

## 2001

15 | **Melissa Barnett, OD '01**, educates with iTravel CE, a destination continuation education company. Shown here with husband **Todd Erikson OD, '01** at an elephant sanctuary in Chang Mai, Thailand on a recent excursion.

## 2003

**Nasir Khan, OD '03**, was elected President of the Alberta College of Optometrists (ACO) in October 2018 and has been on the ACO council since 2013. Along with Dr. Hensel, he is the co-chair of a new organization for creating specialties in Optometry in Canada, called the Royal Canadian College of Optometry (RCCO).

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**Athena Brasfield, OD '07**, is President and CEO of Coachella Valley Optometry. Her dedication to helping the undeserved recently earned her a spot in Palm Springs Life's "40 Under 40" list of the most exceptional leaders in the Coachella Valley. Athena opened Coachella Valley Optometry in 2016, and has grown it to a seven-doctor practice, including fellow Opto-Bears **Richard Phan, OD '18** and **Michelle Zaw, OD '19**

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## 2007

16 | **Athena Brasfield, OD '07**, is President and CEO of Coachella Valley Optometry. Her dedication to helping the undeserved recently earned her a spot in Palm Springs Life's "40 Under 40" list of the most exceptional leaders in the Coachella Valley. Athena opened Coachella Valley Optometry in 2016, and has grown it to a seven-doctor practice, including fellow Opto-Bears **Richard Phan, OD '18** and **Michelle Zaw, OD '19**.

17 | **Trevor Fogg, OD '07**, and **Chris Sween, OD '06**, played with PGA pro Cameron Tringale in the 2019 Golf for Kids Pro-Am Tournament to support the Boys & Girls Club of Monterey County.

## 2009

**Alex Baker, OD '09**, opened a new practice, Baker Optometry, in Davis CA in June 2019 with lots of support from his wife, Cara. His daughters, Cate and Violet, have been very enthusiastic about scrubbing the toilets in the office.

## 2013

After serving in the United States Air Force in Colorado, **Megan (Lee) Laine, OD '13**, moved to Seattle, Washington and helped open a small optometry office in Redmond, Washington. She will start a Master's program in Clinical Informatics and Patient Centered Technologies through the University of Washington in Fall 2019.

## 2017

18 | **Stephen Lundquist, OD '17**, and his wife Christyn welcomed baby boy Leo, and moved back to Salt Lake City to build a practice from scratch. The practice is called Vis, and is set to open Fall 2019. If you're ever in Utah, stop by 8th and 8th to check it out!

## 2019

19 | **Kristi Choy, OD '19**, and a group of 2019 graduates traveled to Bali after their graduation this spring!



# Six Years of Impact

In the hub bub of our busy lives, it's easy to forget the incredible success we have achieved over the last six years. This little timeline features some of our notable accomplishments. We're proud of these successes, and vow to build on them—with our community's unwavering support—over the next five years. Bravo everyone on a job well done!



## 2015

Austin Roorda's lab receives \$3.2 million Audacious Goals grant from the NIH

Meredith Morgan Eye Center hits milestone of 70,000 patient visits

New magazine launches; wins campus award

Opto-Camp celebrates its 10th year

The School of Optometry places 3rd among all schools and departments in UC Berkeley's annual online fundraising event, The Big Give. The school also won the campus prize for most student contributors!



## 2017

4th year internship with Stanford Ophthalmology begins

Dr. Suzanne Fleiszig's lab received a patent for a newly identified type of anti-microbial peptide that kills pathogens that cause infections

Professors Teresa Puthussery and Rowland Taylor join faculty

My Optometry Internship Abroad (MyOpIA) Research Exchange Program is piloted

Gronert and Flanagan labs discover potential new treatment for glaucoma

New optometry center opens in West Oakland Community Clinic

Student Innovation Award launched



## 2019

Marty Banks elected to the National Academy of Sciences

New check-in kiosks improve patient experience

Pre-Clinic equipped with new slit lamps, chairs, stands, stools, AV upgrades, and a demo lane via partnership with Haag-Streit

UCOSA donates phoropters to pre-clinic

Inaugural Alumni Student of the Year awarded

Gift aid to students reaches \$1.6 million; all students receive annual scholarships totaling at least \$19,000 over the four years of the program

Flannery lab develops gene therapy to restore sight to blind mice

## 2014

John Flanagan appointed Dean of the School of Optometry for a five-year term

Renovation of the ground floor of Old Minor Hall begins

The low vision residency is re-named the Ian L. Bailey Low Vision Residency in honor of Dr. Bailey's 38 years of distinguished service as a lecturer, researcher and clinician

Online appointments implemented for the Tang Eye Center

Renovation and modernization of clinic seminar rooms in contact lens clinic and teaching module C



## 2016

Berkeley Optometry wins NOA School of the Year award

Sports Vision Clinic opens to the public



Levi lab explores virtual reality devices to open new frontier in stereo vision recovery

Launch of the Private Practice Immersion Program

Berkeley Optometry launches new and improved website

## 2018

Launch of The Berkeley Outpatient Clinic in collaboration with UCSF and John Muir

Dr. Emily Cooper and Dr. Will Tuten join faculty

98.4% student pass rate on national board exam

Berkeley Optometry accredits over 22,000 hours of continuing education

Opening of the Dr. Pamela P. Fong Learning Commons and Interactive Classroom

Ten new assistant clinical professors join faculty

Vision Science Training Grant extended for an additional five years for over \$2M—not only the largest of the 37 awarded, but the only training grant in optometry



# Berkeley Optometry

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