UCI Academic Senate

2023-24

DISTINGUISHED FACULTY AWARDS

MARCH 6, 2024
NEWKIRK ALUMNI CENTER

PROGRAM

WELCOME REMARKS

ACADEMIC SENATE CHAIR ARVIND RAJARAMAN

OPENING REMARKS

PROVOST AND EXECUTIVE VICE CHANCELLOR HAL S. STERN

AWARD PRESENTATION

ACADEMIC SENATE – BETTER WORLD AWARD
DISTINGUISHED PROFESSOR FRANK LAFERLA

ACADEMIC SENATE – BETTER WORLD AWARD
PROFESSOR IN RESIDENCE PHILIP FELGNER

DISTINGUISHED FACULTY AWARD FOR MENTORSHIP
PROFESSOR MICHAEL YASSA

DISTINGUISHED MID-CAREER FACULTY AWARD FOR SERVICE
PROFESSOR STEPHANIE REICH

DANIEL G. ALDRICH, JR. DISTINGUISHED UNIVERSITY SERVICE AWARD
DISTINGUISHED PROFESSOR JULIA REINHARD LUPTON

DISTINGUISHED EARLY-CAREER FACULTY AWARD FOR TEACHING
ASSOCIATE PROFESSOR OF TEACHING JOEL LANNING

DISTINGUISHED FACULTY AWARD FOR TEACHING
PROFESSOR JAYNE LEWIS

DISTINGUISHED EARLY-CAREER FACULTY AWARD FOR RESEARCH
ASSOCIATE PROFESSOR STEPHANIE SALLUM

DISTINGUISHED MID-CAREER FACULTY AWARD FOR RESEARCH
PROFESSOR KRISTIN TURNEY

DISTINGUISHED SENIOR FACULTY AWARD FOR RESEARCH
DISTINGUISHED PROFESSOR KRZYSZTOF PALCZEWSKI

PRESENTATION

PRECISE GENOME EDITING IN THE EYE: CURING BLINDNESS IS NOW WITHIN SIGHT

DISTINGUISHED PROFESSOR KRZYSZTOF PALCZEWSKI

CLOSING REMARKS

ACADEMIC SENATE CHAIR ARVIND RAJARAMAN

RECEPTION

2022-23 COMMITTEE ON SCHOLARLY HONORS AND AWARDS

MEMBERS

PETER KRAPP, CHAIR	HUMANITIES
TRYPHON GEORGIOU	ENGINEERING
JOHN LOWENGRUB	PHYSICAL SCIENCES
CANDICE ODGERS	SOCIAL ECOLOGY

FRANK LAFERLA

DR. LIONEL AND FAY NG DEAN
SCHOOL OF BIOLOGICAL SCIENCES
DISTINGUISHED PROFESSOR
DEPARTMENT OF NEUROBIOLOGY AND BEHAVIOR

ACADEMIC SENATE BETTER WORLD AWARD

During my professional journey, I have been passionate about raising awareness around the challenges presented by Alzheimer's disease and related dementias. The essence of our humanity is intricately woven into our memories, and their erosion can lead to profound devastation not only for the affected individuals but also their families and society as a whole. I have actively worked to engage with the community by collaborating with local organizations, aiming to educate community members about the biology of dementia and the extensive resources offered by UCI MIND in terms of diagnosis, treatment, and opportunities to participate in clinical research. As an academic, there is no greater privilege than sharing our mission with the community, serving their needs, and acting as a beacon of hope and a reliable source for addressing their questions and concerns.

I currently serve as the Dr. Lionel and Fay Ng Dean of Biological Sciences and a Distinguished Professor in the Department of Neurobiology and Behavior. Besides my service as dean, I also co-direct the NIH-funded Alzheimer's Disease Research Center (ADRC) and MODEL-AD. Previously, I served as the chair of Neurobiology and Behavior (2011-2013) and Director of the Institute for Memory Impairments and Neurological Disorders (UCI MIND) from 2008-2018.

Throughout my tenure at UCI, I have maintained a vibrant research program and have been continuously funded by NIH. I have also received considerable funding from many foundations, pharmaceutical companies, and biotech startups. The main thrust of my research centers around developing mouse models of Alzheimer's disease. Some of the models I have generated have been distributed to over 150+ researchers in more than 20 countries. My lab has published over 250 original peer-reviewed articles and I have been listed among the top 1% cited researchers in my field. I have been recognized with multiple awards for my research accomplishments including the Ruth Salta Junior Investigator Achievement Award from the American Health Assistance Foundation, Zenith Fellows Award from the Alzheimer's Association, Promising

Work Award from the Metropolitan Life Foundation for Medical Research, the Ellis Island Medal of Honor, and was elected as a Fellow to the American Association for the Advancement of Science and the American Neurological Association.

FUN FACT

I am an avid tennis player and play 5-6 times a week.

PHILIP FELGNER
PROFESSOR IN RESIDENCE
DEPARTMENT OF PHYSIOLOGY AND BIOPHYSICS

ACADEMIC SENATE
BETTER WORLD AWARD

I'm honored and grateful to the UCI Academic Senate to receive this prestigious Better World Award, for the opportunity to remember the twists and turns leading to discovery and development of vaccine technology so important to the world today, and to reflect on the influences leading to my decision to choose this career path as a scientist.

I was born in 1950 in Frankenmuth, Michigan, a small farming community established by German immigrants a century earlier. This self-sufficient community boasted fertile farms and two local breweries. Musical heritage was rich here; my grandfather played the harmonica and mandolin, and my father played piano. The town had one church everyone attended on Sunday, with its splendid stained-glass windows, resounding bells that chimed every Sunday, a grand pipe organ, and a magnificent choir filling the air in each service.

It was a fascinating time. All roads started in Detroit, and Michigan was the center of the global economy. My parents took me to Greenfield Village where Henry Ford moved the workshop of his friend Thomas Edison so we could see the actual place where the first practical electric light bulb was invented. We went to the planetarium to learn about stars and there was a stunning colorful painting of Albert Einstein illuminated in the darkened entry way. Transistor radios replaced the vacuum tube, and we experienced black and white and color televisions. We had a record player that could play vinyl records in stereophonic sound. Then we went to the moon. The 'wonders of science' were evident everywhere, the media celebrating scientists, and inspiring young people like me to pursue a career in science.

I got my Ph.D. from Michigan State University in Biochemistry and Neurosciences and my post doctorate from the University of Virginia studying the biophysical properties and functions of membranes that surround cells. Biophysics is a discipline that teaches to ask the simplest questions in order to get the clearest possible answers. This training helped me when in 1982 I joined a pharmaceutical company, Syntex Research, to practice the very complicated process of drug discovery and development. There I used my biophysics

experience to reduce complicated problems to a series of simpler questions that produce clear unambiguous answers.

The 1980s were another exciting period of translational science. Microsoft and Apple were developing the microelectronics industry, while the first genetic engineering company, Genentech, emerged. My wife Jiin was among the early employees at Genentech. We would take our two boys with us to the Friday afternoon 'hoho' parties and experience the energy and enthusiasm that comes with introducing new technology into the world for the first time.

Gene therapy was a prominent topic, often referred to as the holy grail of medicine due to its potential to treat a wide range of human diseases. While at Syntex, I made a pivotal discovery: Lipofectin, a novel reagent that simplifies the process of introducing genes into tissue culture cells to modify and control gene expression. This innovative laboratory tool was the first in its category, spearheading an annual market niche now valued at $1.5 billion. Lipofection reagents enable cell reprogramming, transforming a process once limited to the gradual pace of natural evolution into a convenient overnight procedure, and greatly advancing the capabilities of laboratory scientists.

The initial findings were presented to the management at Syntex, where the discoveries had been made, to seek approval for conducting animal testing with Lipofectin formulations for in vivo gene delivery and expression. However, the management declined the proposal, prophetically stating that 'gene therapy is for the year 2020.' Faced with this disappointment, I collaborated with faculty members from UC San Diego to conduct the in vivo DNA and mRNA gene therapy experiment. Remarkably, it was successful on the first attempt. Then using the same approach, we could induce an immune response against an influenza antigen and the animals were protected from an infectious influenza virus challenge. All of this foreshadowed what we are experiencing today, the nucleic acid vaccine that spared the world from consequences of COVID-19.

In 2020 my lab was using a diagnostic platform we developed to measure exposure to nine respiratory viruses, including the common corona viruses. Within days after the sequence was published, we started monitoring antibody mediated herd immunity levels against SARS-CoV-2 as it was occurring very gradually then in our Orange County environment. Then in December 2020 our hospital acquired 6,000 doses of the approved mRNA lipid nanoparticle vaccine and within two weeks everyone working in the hospital was vaccinated. Our serodiagnostic assay platform dramatically showed powerful acquisition of vaccine induced protective immunity one month later confirming the spectacular efficacy of the COVID mRNA lipid nanoparticle vaccines.

So we wonder, if this technology was originally developed 30 years ago, why did it take so long to finally save the world today? The answer is in the knowledge that progress in science doesn't just take one remarkable isolated discovery on its own, it takes a movement to get acceptance from the scientific community and from the public, and that takes years and hundreds, even thousands of people working for decades, filling scientific, translational and political gaps. I'm grateful to have been a part of this journey and honored to be recognized by the UCI Academic Senate with the Better World Award.

FUN FACT

Our televisions don't work. If I'm not working, I spend my evenings playing Spanish guitar, kind of like my grandfather. On weekends, I enjoy golfing with Jiin, and we cherish our time playing with our two wonderful and energetic grandchildren, Sophia and Grayson.

MICHAEL A. YASSA
PROFESSOR
DEPARTMENT OF
NEUROBIOLOGY AND BEHAVIOR

DISTINGUISHED FACULTY AWARD FOR MENTORSHIP

My passion for mentoring comes from recognizing the profound impact it can have on shaping lives. As I receive this distinguished honor, I reflect on the legacy of those who shaped me—giants whose shoulders I proudly stand upon, eager to extend a hand to those who follow.

My scientific journey can be characterized as a jagged, meandering, nontraditional path, immensely shaped by the impact of mentorship. Growing up, I did not give much thought to being a scientist. I knew I wanted to help people somehow, but that only meant one thing for my family and my community. I needed to become a doctor so I could take care of sick patients and make them better. I went to college at Johns Hopkins University in Baltimore, and quickly realized that I had massively underestimated the magnitude of the transition from high school. After a rocky first year and failing two classes, I found myself on academic probation. Two professors threw me a lifeline, offering a chance to retake their courses, salvaging my all-important premed GPA. They continued to mentor and support me throughout my degree and beyond.

Dabbling in biomedical research for pragmatic reasons (I needed the money) and the allure of a med school application boost, I stumbled upon neuroscience even before the birth of the neuroscience major at my institution. I was captivated by the mysteries of the brain and how little we knew about it. I devoured neuroscience classes, one after the other, attempting to learn everything I could about this magical three pounds of jelly that sits in our skull. I reached out to any faculty willing to lend an ear. Several took an interest in me and helped me find my path. Those mentors I held near and dear to my heart for a long time. Some have passed away since, and some are still connected with me to this day. I am privileged that I was able to work alongside some of them as colleagues when I joined the Hopkins faculty early in my career.

I vividly recall as an undergraduate sitting down with one of the field's luminaries, the late Vernon Mountcastle, to pick his brain about the future of brain science. He convinced me that neuroimaging offered a window into the functioning brain that no other technology at the time could offer. I held off on

med school applications and accepted a full-time position in the Division of Psychiatric Neuroimaging at Hopkins after graduation. There, I learned from some of the top people in the field about psychiatric illness and how using brain imaging can help us identify and understand brain pathologies that can be targeted with treatment.

After three years, I hit a wall. I was doing interesting work, but I had so many of my own questions to ask and no way to answer them without leading the science myself. I needed to find a path to independence, a path to intellectual freedom. My undergraduate mentor met with me and convinced me to pursue a Ph.D. My graduate mentor, Craig Stark, not only supported my work but kept me on the path to completion despite many trials and tribulations and my repeated attempts to drop out of the program. He saw something in me that I did not see in myself at that time. His sponsorship and support over the years allowed me not only to launch my career at Johns Hopkins but to also transition it successfully to UC Irvine in 2014 to be his colleague in the Department of Neurobiology and Behavior.

Over the last fourteen years since I began my independent research career, I have had no shortage of mentors around the world. They have written letters on my behalf, nominated me for awards, invited me to speak at their institutions, co-mentored my students and recruited them for post-Ph.D. positions, and helped me achieve more than I could have imagined at this stage in my career. If it were not for the impact of mentorship on my life, I may have pursued a very different path. I probably would have become a physician. Thankfully, I didn't, and as a result, many more patients are alive today.

FUN FACT

I was a semi-professional poker player for a few years. I am now retired but on "recall" every now and then.

STEPHANIE REICH
PROFESSOR
SCHOOL OF EDUCATION

DISTINGUISHED
MID-CAREER FACULTY AWARD FOR SERVICE

I am honored to be recognized with the Mid-Career Faculty Award for Service. Growing up in an immigrant family and being raised by very young parents in different households, I have always found connection to others to be a lifeline. Watching my parents work to become the first in their families to attend college and eventually find careers in helping professions solidified my desire to pursue higher education – and having an amazing older sister's support and trailblazing made a pathway in academia seem possible. I feel exceptionally fortunate that I have been able to build a fulfilling career in which I work closely with colleagues in my school, throughout campus, and across universities near and far, and importantly, with our local community.

I grew up in Southern California and from elementary school onward, volunteered my time to many causes, ranging from teaching dance classes at a low-resourced elementary school to peer advising to helping with AIDS hospice care. Common to all my service was a desire to work directly with people, learn about their experiences, and help others to feel empowered to help themselves. However, it wasn't until I was an undergraduate at UCLA that I discovered a career pathway that focused on providing service in meaningful and sustainable ways. To pursue this, I moved to Nashville (after a few years of backpacking internationally and a lot of scuba diving) and completed a doctorate in Community Psychology in the Department of Psychology and Human Development at Vanderbilt University. During my time there, I worked with a variety of people in myriad roles—in and outside the university—to identify ways to support the wellbeing of children and teens and their families. This work solidified my desire for community engagement, but it also made me realize that service alone was not sufficient to create sustainable change. Research, I realized, offered invaluable insight to understand what works and why and how best to leverage finite resources to support others. Thus, halfway through graduate school I realized that I wanted to be a professor.

Since then, my career has been dedicated to helping children and their families thrive by working with and supporting youth directly and the people, programs, and structures with which they interact. During my time at UCI, I have had the pleasure of working with numerous people in homes, schools, hospitals, museums, and programs all committed to supporting children and teens. I am amazed by the passion and dedication of our Orange County community. These partnerships have allowed me to provide resources to help these organizations reach their goals while affording me opportunities to examine the processes and practices that lead to sustainable change and that can inform and aid others' efforts. I have also been able to bring my students into this work and to see the power of community partnerships and engaged scholarship. Thus, I am fortunate that I have been able to weave together my scholarship, teaching, and service. I am truly honored that my partnership work in the community (and for countless committees at UCI) has been recognized by this distinguished award – and that UCI values contributions to others. I am especially grateful that I am able to work across campus and the community in ways that feel meaningful, are useful, and support community resources that I remember relying on as a child.

FUN FACT

Several days of the week, you can find me literally hanging from the ceiling, as I continue to refine my aerial arts skills. If the academic thing doesn't work out, I may join the circus.

JULIA REINHARD LUPTON
DISTINGUISHED PROFESSOR
DEPARTMENT OF ENGLISH

DANIEL G. ALDRICH, JR. DISTINGUISHED UNIVERSITY SERVICE AWARD

At the beginning of the party scene in *Romeo and Juliet*, one servant calls to another:

You are looked for and called for, asked for and sought for, in the great chamber.

The other replies,

We cannot be here and there too. Cheerly, be brisk awhile.

As the Capulet servants move the furniture and bring out the good china, they are transforming the "great chamber" into a party zone. Directing the action is Juliet's busy, bossy Nurse. As the planning gets started in the cold and cavernous House of Capulet, I like to imagine her muttering the words of a later house philosopher, Gertrude Stein, who wrote of her childhood, "There's no there there."

There there names the warmth and presence that create a sense of place. Wielding simple ingredients like memory and marzipan, the Nurse's big fat "therriere" brings wit and spice wherever she goes. As I look back at my thirty-plus years of service at UCI, I like to think that I have helped build some there there right here: a welcoming ambiance and sense of purpose that helps those around me feel like they know where they're going, and why.

In 1989, I arrived at UCI with my Romeo, Kenneth Reinhard, who accepted a position at UCLA. We were lucky to acquire a home in University Hills, where we went on to raise our four children and a sequence of judgy cats. Whenever there was too much "there there" at home, I was happy to escape by foot to campus for my classes and meetings.

In 1998, I founded Humanities Out There (HoT), because sometimes the university's "there there" has to be out there, in the community. HoT is now a set of internships for UCI students serving local organizations. As the Interim Director of the UC Humanities Research Institute, I enjoy visiting the ten

campuses and finding new ways to connect the creative disciplines to other fields and to the lives of Californians.

In 2012, I founded the Shakespeare Center with Eli Simon. Eli directs the shows; I organize educational experiences like Shakespeare Weekend and the Shakespeare Trial. My favorite part of the job is simply showing up and being fully present, which is what theater is all about. I show up for our audience, who like asking questions and learning more. I also show up for the actors, who can count on me to laugh at every joke, every night I'm there.

In 2014, Chancellor Gillman asked me to start an arts program for the campus, which became Illuminations: The Chancellor's Arts and Culture Initiative. Since then, many major authors have visited UCI, talked with students, and encouraged them to become writers themselves. After months of organizing a marquee event, the best part for me was passing the mic during Q and A, giving students a voice in the room.

In the 2000s, I wrote two trade books with my sister Ellen Lupton, a graphic designer and design educator. In D. I. Y. Kids, we set up design activities for our six children and then documented the results. (They used to grumble, "We design for food.") In Design Your Life, we wrote short essays applying design principles to our experience as working mothers.

My design skills are my superpower, whether I'm drafting a cut-rate logo for an internship start-up or figuring out how to shake some extra minutes out of the day. As I leafed through Design Your Life to write this bio, I noticed that the first section is called … "Here and There."

FUN FACT

I am an identical twin and the mother of four children, including triplets.

JOEL LANNING
ASSOCIATE PROFESSOR OF TEACHING
DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

DISTINGUISHED EARLY-CAREER FACULTY AWARD FOR TEACHING

Receiving the Distinguished Early-Career Faculty Award for Teaching is a true honor and a validating one. As a first-generation college graduate, working in academia had never crossed my mind as an undergrad. Coming from a blue-collar family, my motivation was to obtain an engineering degree, following my father's mantra to “get a good education so you don’t have to work like I do.” I didn’t need much convincing after spending a few high school summers building houses with him. But it was from that experience that I discovered my interest in structures. Coupled with a childhood spent watching my dad build or fix just about anything, sometimes using “creative” methods, I developed a very pragmatic mindset towards problem solving. So, I found myself in college studying structural engineering. After moving to UC San Diego for grad school, I then found myself as a researcher in the area of seismic design of structures.

Despite the differences in my upbringing in rural Ohio and that of my students here at UCI, I can see so much of myself in them. Many are also first-generation students coming from a similar background and striving for that same upward socioeconomic mobility I was seeking. Similar to my undergrad mentality, I’ve noticed some tend to view much of the curriculum as a means to an end and when the assignments stack up, and understanding is weak, they may resort to “plugging and chugging” to get by. These aren’t great approaches to learning, especially in areas like civil and structural engineering, professions that affect the life and safety of many, many people.

As a faculty member, I made the decision to do everything I could to combat these outcomes for my students. Following the example of my doctoral advisor, Professor Chia-Ming Uang of UC San Diego, I strive to “tell the story” and to emphasize the physical meaning of what I’m teaching. The ultimate goal is to help my students foster a gut feeling for structures and to discover an intrinsic motivation for being a civil or structural engineer. I’ve added my own flavor to this method by using interactive mini demonstrations in class and by developing various engaging online tools to drive students’ curiosity. Overall, I hope to meet students where they are in their academic journey and stage in life. I recognize they may need support in prerequisite topics, even in my senior level courses, I extend flexibility in response to those who are working (often

full time) in order to pay tuition, and I am generous with my time to talk with them about getting a job or entering grad school. My hope is that my approach will promote my students' growth as students, engineers, and as people and will let them know that I believe in them.

FUN FACT

Although I grew up in the corn fields and forests of central Ohio, I am now an avid surfer and hiker. I've surfed in the presence of Kelly Slater*, one of the best surfers ever, and I've summited the tallest mountain in the contiguous 48, Mt. Whitney at 14,505 ft., twice!

*Just in the right place, at the right time!

JAYNE LEWIS
PROFESSOR
DEPARTMENT OF ENGLISH

DISTINGUISHED FACULTY AWARD FOR TEACHING

Not long ago, my elderly mother's house had to be sold. With it went my childhood bedroom, including a bureau whose long-closed drawers now had to be emptied. I emptied them. The contents of the bottom one were disconcerting: Third-grade report cards ("Conduct: S-"). Fifth-grade math tests ("-19. Not very good."). Notes to a junior-high BFF folded into tight origami flowers ("He like's you"). Fervent imitations of the poems of Sylvia Plath, most apparently composed during sophomore biology class. The evidence mounted: I was a Bad Student. Certainly, the odds were not in favor of the future that found me: graduate school? A lifetime vocation teaching English literature to college students? Yet that's what I've been doing for the last 35 years.

At least I think it's been 35 years: I'm still "not very good" at math. But what I've learned in this precious time, however long or short it's been, is that there's really no such thing as a Bad Student. Nor have I ever thought of myself as a Good Teacher, though I have been touched and shaped by so many of those, among them my own students. I'm profoundly honored and more than a little shocked by this award. At the same time, though, I'm proud of UCI's commitment to teaching, and beyond that of a public university's commitment to teaching everybody.

I went to a public university—Colorado—for my undergraduate degree in English, and then to Princeton for graduate school, where, inveigled by a single truly magical teacher, fell in love with the literature of the 18th century. My first academic job was at UCLA. At the job interview, I was asked if I could teach the much earlier work of John Milton. I had only read parts of Milton's great epic, *Paradise Lost*, but I really, really, really wanted that job, and so I declared that I could indeed teach the work of John Milton. Which is to say, I lied: I spent my first quarter of teaching armed only with someone else's syllabus, poring over the all-too-relatable travails of Milton's Satan deep into the night. But most of what I learned about the poem, I learned with, and often even from, my students.

Since coming to Irvine in 2004, I've introduced many an Anteater to *Paradise Lost*, and they have introduced it back to me. I still make my students buy the physical book. Sadly, the digital revolution has meant that they are increasingly

reluctant to buy it. But it's important to be able to touch someone else's words, as I've learned from my current research interest: the deafblind memoirist and activist Helen Keller. Keller encountered words only through Braille and so-called fingerspelling, which she learned from her beloved teacher Annie Sullivan. I became interested in Keller through a student: for several years, I was a faculty consultant for UCI's innovative UTeach program, which encourages undergraduates to design a one-unit course that they can offer their peers. It so happened one year that a computer science major picked sign language as his topic. I went to observe one of his classes. That day he was showing scenes from a classic film about Keller, *The Miracle Worker*. The miracle worker is Sullivan (Anne Bancroft), who teaches a six-year-old child (Patty Duke) locked in a world of silence and darkness both how to escape that world and, crucially, how to communicate it. In the breakthrough scene, after months of trial and error, Sullivan madly pumps brilliant torrents of water all over Helen while signing the word WATER onto her palm. Helen suddenly gets it. Her face lights up. She signs back. Student and teacher share one ecstasy. The water dazzles as it pours. An indissoluble bond is formed.

To me, two things matter about this scene. One is that it is as much a breakthrough for the teacher as it is for the student. Sullivan didn't necessarily know what she was doing; Helen's response taught her it was the right thing. Second, I was taught about this scene by a student. This is the radiant loop we are in if we are allowed to do the work of education.

I have never given my own students a gift remotely comparable to what Anne Sullivan gave Helen Keller. But those students endlessly astonish and delight me, and they have always been my own best teachers. I have a special tenderness for the ones who don't easily fit into the Good Student box. So, I'm grateful to that old drawer from my childhood bedroom: it reassures me that I am one of them.

FUN FACT

I once wrote a book about Mary Queen of Scots. I felt almost mystically drawn to her, and much as if I were being guided every step of the way. Many years later, my sister researched our family genealogy and discovered that we are descended from the family of one of her ladies-in-waiting!

STEPHANIE SALLUM
ASSOCIATE PROFESSOR
DEPARTMENT OF
PHYSICS AND ASTRONOMY

DISTINGUISHED EARLY-CAREER FACULTY AWARD FOR RESEARCH

I'm honored to be recognized by my colleagues with this award, which is an acknowledgement of the hard work of many people over the last few years. I should first say a big thank you to the excellent group of students and postdocs working with me here at UCI, who share my enthusiasm for studying the universe (as well as instrumentation and image processing). I'm very lucky to get to do research with you in a field that I enjoy so much.

There are a number of fundamental things that keep me doing astronomy. At the top of the list is feeling tiny compared to the endlessness of space, but not without acting as an explorer of distant stars and planets. Lumped into that are the excitement and adventure of discovery, creatively approaching challenging and open-ended questions, and doing technical work that will help us better observe faraway solar systems.

Factors that I think drew me to these things include growing up in a place with dark skies close to the ocean (which like space is pretty good at making you feel insignificant), with a family that encouraged exploration and creativity in many ways. As a kid I was interested in astronomy but didn't think much about making it my job. I remember enjoying building "constellation tubes" in elementary school, observing the Moon and Jupiter through my dad's binoculars, and planning a birthday party around a particularly spectacular Leonids meteor shower. The night sky was always beautiful and perfect and fascinating, and (when I stopped to think harder about it) an exciting reminder of how much we don't know.

In the end I wandered into a career in astronomy during college, by finding the MIT Planetary Astronomy Lab (PAL) after figuring out a few lines of work that I didn't want to pursue. PAL showed me a somewhat adventurous side of research by involving me in observations of Pluto occultations, which occur when Pluto passes directly between us and a distant background star. Like eclipses, occultations can only be observed from specific locations on the globe and only last for short amounts of time. This meant that as an undergrad (and with some continuing involvement after I graduated), I got to travel to remote places with specialized equipment and telescopes, and often use very hands-on methods to troubleshoot issues close in time to the occultation events.

After a few years with PAL I was totally hooked. Summer internships at the University of Hawaii, Maria Mitchell Observatory, and Lowell Observatory introduced me to the wide variety of open questions in the field, from exoplanets to active galaxies to instrumentation. As a Ph.D. student at the University of Arizona I specialized in observational planet formation, and after postdoc fellowships at UC Santa Cruz and starting here at UCI I've broadened my research to include instrument development. I'm very fortunate to get to take pictures of the sky with the biggest telescopes on the planet and in space, and to participate in building the next generation of instruments for some of those facilities.

Some of the things I've valued the most during all of this are working with inquisitive and talented people, seeing new places and exploring new ideas, and mentoring up-and-coming young scientists. I'm curious and excited to see where the next few years lead.

FUN FACT

My dad owned a lettuce farm, and when I was a kid, I used to work there harvesting and packing the lettuce.

KRISTIN TURNEY
PROFESSOR
DEPARTMENT OF SOCIOLOGY

DISTINGUISHED MID-CAREER FACULTY AWARD FOR RESEARCH

I am incredibly humbled and grateful to receive UCI's Distinguished Mid-Career Faculty Award for Research. I have been fortunate to have worked at UCI for the past 13 years, so it is not lost on me that this institution has amazing scholars across campus.

Shaped by early formative experiences, my research examines how the criminal legal system creates, maintains, and exacerbates inequalities in well-being. My interest in inequality dates to my childhood experiences growing up in Joliet, IL, a working-class town outside of Chicago, where I witnessed cleavages across race/ethnicity, social class, and neighborhoods. My father worked as a police officer, so I learned early on about this country's capacity to arrest, convict, and confine people on the margins. I was similarly exposed to inequality as a college student at Northwestern University. As the first person in my extended family to attend college, amidst my generally more advantaged peers, I struggled both in and out of the classroom.

Sociology courses provided language to understand my personal experiences, though, and I embarked upon sociological research soon after college graduation. I worked as a research assistant, interviewing families to understand how neighborhood conditions shaped their lives. Armed with a tape recorder, a map of Chicago (this was in a pre-Google maps era!), and a lot of persistence, I entered the city's most economically depressed neighborhoods. I immersed myself in the lives of these families, became passionate about granting their individual narratives a voice, and honed my interviewing skills. This year spent interviewing families was transformative for my research interests. We didn't ask people any questions about criminal legal contact, but nearly every interview highlighted the overwhelming role of the criminal legal system in the lives of vulnerable families.

My ongoing research, much of it collaborative with UCI faculty and graduate students, examines the repercussions of criminal legal contact. I am especially interested in understanding the experiences and consequences of jail incarceration, a form of confinement that is nearly six times more common

than prison incarceration but one that has received considerable little research attention. My research team interviewed 123 incarcerated men and their family members (including their children, children's mothers, and their own mothers) to understand how individuals and families experience jail incarceration. We find that jail incarceration is quite consequential, generating stress for men and their family members as they await adjudication of their cases, receive convictions and serve sentences, and return back to their families and communities. Even short jail stays can facilitate job loss, eviction from housing, and strain familial relationships. Jail stays can also be quite consequential for family members who await adjudication alongside their loved one, often generating stress and creating new caregiving responsibilities.

In other work, I have been shedding light on how the COVID-19 crisis impacted carceral facilities. With PrisonPandemic—a collaborative project with UCI faculty, graduate and undergraduate students, and a community advisory board—we collected nearly 5,000 stories (including both letters and phone calls) from people incarcerated across the state during COVID-19, wherein they predominantly described the horrifying conditions of confinement during this time. These narrative stories laid the foundation for research devoted to understanding mortality in carceral facilities, also collaborative with UCI faculty and students. We are collecting data on mortality in jails and prisons—using a combination of public records requests, research requests, web-scraping rosters, and vital statistics data—to understand mortality in carceral facilities during the pandemic, with the goal of providing transparency to notoriously opaque institutions.

FUN FACT

You'll often find me walking around UCI's campus with my sweet little Havanese puppy (who is no longer a puppy but still has the energy of one!).

KRZYSZTOF PALCZEWSKI

DIRECTOR OF THE CENTER FOR
TRANSLATIONAL VISION RESEARCH
DISTINGUISHED PROFESSOR
DEPARTMENT OF OPHTHALMOLOGY

DISTINGUISHED
SENIOR FACULTY AWARD FOR RESEARCH

I was raised and educated in Wroclaw, a beautiful city in southwestern Poland. There, I had to endure a Soviet occupation. Despite the situation, I learned to be exceptionally proud of my heritage, and to appreciate many accomplished Polish citizens, including Maria Salomea Skłodowska, also known as Madame Curie, the only person to win two Nobel Prizes in the sciences. She was a cherished and inspiring role model, as were my loving parents and family.

I attended the University of Wroclaw, obtaining my master's degree in organic chemistry; then I earned my Ph.D. in biochemistry under the tutelage of Professor Marian Kochman. In the meantime, I was somehow able to convince a young Grazyna Szafert to become Grazyna Palczewska in what has been my longest collaboration and certainly my most productive, resulting in two wonderful sons, Michal and Greg. Besides being my life partner, Grazyna is an expert engineer who has advanced the development of two-photon imaging. Michal is a gifted computer scientist with a Ph.D. in Computational Biology, and Greg is a Ph.D. biochemist at the Metabolon Company.

As a Ph.D. student, I studied the aldolase enzyme, which was the beginning of my devoted interest in molecular structure-function relationships. Of great significance, Dr. Paul Hargrave, a well-known scientist in the field of biochemistry of visual processes, was a collaborator on this project. In 1986 I came to Paul's laboratory at the University of Florida as a post-doctoral fellow. This was my introduction to vision research.

My transition to the U.S. was the most difficult decision of my life, however, I perceived the limitless opportunities for academic research in this country. Within the first few months here, Grazyna and I made the decision to stay. I have had no second thoughts about our decision to make the U.S. our new home.

In my research career, I have been blessed with many wonderful successes. I was able, with my wonderful collaboration, to determine the crystal structure of rhodopsin, which led to new insights into the function of G protein coupled receptors. My work on the visual cycle has led both to understanding the molecular mechanisms of hereditary blindness and to implementation of novel pharmacological treatments that can slow retinal degeneration in adults. My team's efforts revealed that humans can detect infrared light due to simultaneous 2-photon absorption, and this phenomenon can be adapted so that 2-photon imaging of human eyes can reveal the visual system's sub-cellular architecture and be used safely for non-invasive early diagnosis of disease. Recently, my collaborators and I applied a new generation of CRISPR technology called base and prime editing as a treatment for inherited retinal diseases. This gene therapy research has the potential to spawn new treatments for many other inherited diseases.

As my career evolved, I wanted to build something larger than my own laboratory. As Chair of Pharmacology at Case Western Reserve University, we achieved a top-ten ranking among American medical school pharmacology departments. I then came to UCI as founding Director of the Center for Translational Vision Research, which is a burgeoning multidisciplinary enterprise. My early positions as a basic scientist grew to encompass translational research, and now I have added applied science to my portfolio. I am humbled that my ideas can be transformed into improved health care for people with devastating diseases. I gratefully recognize all of the people who have accompanied me on this journey. I cannot over-state the important contributions of numerous students, trainees, and postdoctoral fellows whom I have been fortunate to mentor. I treasure the talented colleagues, fruitful collaborations, and the institutions that have made this work possible.

FUN FACT

I am quite competitive and I like a good challenge. For example, in Poland I was a champion sprinter, winner of the 800-meter run. When my also very competitive sons were in high school, I would jog with them, but I would never let either of them finish first. And don’t challenge me to a game of chess, ping-pong, or pool unless you are ready for a strenuous effort!

PRESENTATION

PRECISE GENOME EDITING IN THE EYE: CURING BLINDNESS IS NOW WITHIN SIGHT

KRZYSZTOF (KRIS) PALCZEWSKI, PH.D.

Gene therapy, which involves the replacement or repair of defective genes, has the potential to alleviate inherited genetic disorders of vision that have been untreatable previously. By delivering normal copies of the defective genes (gene augmentation) or correcting mutations in the genes (gene editing), relief can be achieved from these afflictions that are a leading cause of blindness. Although gene augmentation treatment was recently FDA-approved and is commercially available for a particular type of inherited retinal disease, there are many shortcomings that need to be addressed, including progressive retinal degeneration and diminishing efficacy over time. On the other hand, innovative CRISPR-Cas9-based genome-editing technologies have expanded the proportion of genetic disorders that are treatable. These new approaches to repair defective genes can greatly improve treatment outcomes relative to gene augmentation. Progress in this relatively new field involves the development of versatile therapeutics that can achieve many types of genetic repairs, including disruption of faulty gene regions, strategies to ablate-and-replace mutations, and precision gene-correction techniques, such as base editing and prime editing that convert defective genes to effective forms using the target cell's own natural genetic machinery. By making direct edits to endogenous DNA, genome editing theoretically guarantees permanent gene-correction and long-lasting treatment effects. Moreover, improvements in the ways that the gene editors are administered (delivery modalities) have been aimed at limiting persistent gene-editor activity within the cells that can lead to off-target errors, thereby achieving an improved safety profile. Continued progress to advance precise gene correction and ideal delivery strategies will establish genome editing as the preferred treatment for genetic retinal disorders and serve as a model for broad application to many other types of inherited diseases.