

ENERGY AND RESOURCES GROUP

COMMENCEMENT | MAY 17, 2019

310 Barrows | University of California, Berkeley | erg.berkeley.edu

CONGRATULATIONS ERG GRADUATES!

Doctors of Philosophy: Juan Pablo Carvallo, Zeke Hausfather, Laura Moreno, Cecilia Springer, Kripa Akila Jagannathan

Master's Degrees: *Standing (L to R):* Michelle Levinson, Peter Worley, Salma Elmallah, Will Gorman, Samira Siddique, Jack Chang, Gauthami Penakalapati, Catherine Ledna, Jesse C. Strecker, Anaya Hall; *Seated (L to R):* Lisa Rennels, Christian Gregory Miller, Nicholas Depsky, Sara Mulhauser

Undergraduate Minors: Sophia Bagshaw, Camila Yvette Ruiz Custodio, Brian Weiyuan Chang, Michael Comiter, Kelly Jiang, Meera Kota, Maria Otero, Wai Teng Sit



ERG Master's Graduates 2019

ANURADHA MITTAL TO SPEAK AT COMMENCEMENT

EXECUTIVE DIRECTOR OF THE OAKLAND INSTITUTE



Anuradha Mittal, founder and executive director of the Oakland Institute, is an internationally renowned expert on development, human rights, and agriculture issues. Recipient of several awards, Anuradha Mittal was named the Most Valuable Thinker by Nation magazine. Since 2008, under Anuradha's leadership, the Institute has unveiled land investment deals in the developing world which reveal a disturbing pattern of a lack of transparency, fairness, and accountability. The dynamic relationship between research, advocacy, and international media coverage has resulted in an amazing string of successes and organizing in the US and abroad. Mittal has authored and edited numerous books and reports. Her articles and opinion pieces have been published in widely circulated newspapers including the Los Angeles Times, the New York Times, Chicago Tribune, Bangkok Post, Houston Chronicle, and Nation. Anuradha has addressed the US Congress, the United Nations, given several hundred keynote addresses including invitational events from governments and universities, and has been interviewed on CNN, BBC World, CBC, ABC, Al Jazeera, National Public Radio and Voice of America. Anuradha currently serves as the Chair of the Board of Directors of Ben & Jerry's, providing leadership on social mission, brand integrity, and company's impact in 35 countries.

ERG PHD RECIPIENTS



JUAN PABLO CARVALLO

DISSERTATION: MIND THE GAP: BRIDGING STRATEGIES FOR UNIVERSAL ENERGY ACCESS

My years at ERG changed my life in profound ways, way beyond the academic and professional. Here I met people who have become my best friends with whom I share value and visions. Sharing time and space with brilliant, passionate, and kind souls was nurturing for the mind and the spirit, and I will sorely miss that after graduation.

I am grateful for Kay and Megan (and Sandra!) who navigated with me the vagaries of being a visa holder as a graduate student. I am also grateful to my advisors and mentors at ERG and LBNL, Dan, Duncan, Catherine, Chuck, and Pete, for sharing their wisdom and for their support. Finally, I can't thank enough my different families in Chile and here, whose unconditional love and unwavering support made all this possible and meaningful.

I entered my PhD knowing that I did not want to go into academia. For now I will stay at LBNL working on system planning and renewable energy integration, while also continuing my research with my advisor as a postdoc.

ZEKE HAUSFATHER

DISSERTATION: UNDERSTANDING AND RECONCILING GLOBAL TEMPERATURE RECORDS

Thank you to the ERG community for a wonderful experience. You provided me with the resources I needed to grow both personally and professionally, and with an amazing group of folks to hang out, go camping with, and learn from. I'll miss this community, but I'll also know that ERG will continue to inspire and shape the next generation of energy and environment leaders. I am still finalizing my plans after ERG (as I won't be submitting my dissertation until August), but I'm choosing between diving back into the tech startup world or doing something a bit more policy/research focused.



ERG PHD RECIPIENTS



KRIPA AKILA JAGANNATHAN

DISSERTATION: READY-TO-USE? BRIDGING THE CLIMATE SCIENCE USABILITY GAP FOR ADAPTATION#VV

Summarizing the ERG experience is almost impossible, let alone in a short paragraph. Here, we grow and transform not just academically but also as human beings, and we get to do it with the people who will be our friends, mentors and collaborators for the rest of our lives. I have to first thank my ‘rockstar’ dissertation committee. Margaret, Isha, Andy, and Alastair are not just trailblazers in their fields, but are also the most warm, patient, and friendly advisors one can ever have. The only problem is that I am probably spoilt for life! I also lucked out with the #bestcohortever. ERGnewbies2013 are my family here — and we have been together through all the ups and downs that grad school brings with it. And along the way, through the many Bollywood dances, the get-togethers, the cooking sessions, the walks, the movie sessions, and the gym classes — I have made so many more ERGie friends who have helped make this place my new home. And ERG is nothing without Kay, Megan, and our valiant student staff — thanks to you all for keeping everything going so

smoothly. And a BIG thanks to all the ERG faculty, students and alumni who inspire me more and more each passing day! Finally, a shout-out to my family both in the US, and in India, for being so supportive of this crazy adventure. ERG has been a dream come true, and nothing less. I am honored and beyond grateful to have experienced this once-in-a-lifetime journey.

LAURA MORENO

DISSERTATION: EVERYDAY TRANSFORMATIONS OF FOOD TO WASTE: WHAT AND WHY FOOD IS DISCARDED IN U.S. HOUSEHOLDS

My time at ERG has been both everything I imagined it would be and nothing like I expected. Just like I thought, I have had the incredible ability to learn and study what I enjoy. I have dug through trash, struggled through stressful days, and met amazing people. My perspective has broadened and I am ready for the next phase. Unlike I envisioned, ERGies became family (#ergiesforlife). I was fortunate enough to be part of the ‘best cohort,’ no offense intended to any others. I am forever indebted to all of you for your warmth, smarts, and humor. The family extends beyond the cohort. Thank you to all ERGies for more than just friendship, but a kinship in spirit to make the world better and more equitable.



Thank you to all ERG faculty, Alastair, Matthew, Isha, and Kay for all of the support you have given me over the years. I aspire to be a like all of you. I appreciate all of the guidance and mentorship that you have given me. Your generosity will not be forgotten.

To my parents, Louis and Cynthia, this is for you too. You have enabled me at every step of the way — allowed me to follow my own path even when you thought my keen interest in trash was a little strange. Special thanks to the rest of my family, especially Josh, for always supporting me and never letting me forget that I can do it.

ERG PHD RECIPIENTS



CECILIA SPRINGER

DISSERTATION: POLICIES FOR AN ECOLOGICAL CIVILIZATION: CHINA, CARBON, AND ECONOMIC REFORM

ERG — my interdisciplinary home — thank you. Across places where every discipline wants to claim you, name you, and make you in their form, ERG gave me the space to become my own shape. The ERG curriculum made me sharp; long, intense conversations from Hastings to Hilgard gave me direction. Thank you to my cohort, Newbies 2014, for always encouraging my wacky ideas (and helping out with problem sets). Thank you to Accountability Group and S. Seminar for making me a better, more compassionate person. Thank you to all the ERGies who lent time and advice and appliances. And most of all, thank you to my dissertation committee — David Anthoff, Sam Evans, You-Tien Hsing, and Dan Kammen — for their unconditional support and unwavering belief in me as a scholar. Though I am leaving Berkeley for the time being, I take immense pride in being an #ERGieForLife. I know I will see ERG in Boston, Beijing, Bangalore — wherever ERGies stand up for the soft path or the multifaceted view or the complexity, “for a sustainable environment and a just society!” After ERG, I will be completing a post-doctoral fellowship at the Harvard Kennedy School (Belfer Center for Science and International Affairs).



ERGIES



ERG MASTER'S DEGREES

NICHOLAS DEPSKY

PROJECT: DROUGHT IN CENTRAL AMERICA: PAST PATTERNS AND FUTURE PROJECTIONS

I'm looking forward to continuing my academic career as part of this amazing program this coming Fall and to maintaining friendships with the great ERGies who are sadly leaving us this summer. I already have so many fantastic memories of ERG, from the classroom to the soccer field or talent show hall, and I look forward to making more to come! Our program (and especially my cohort) is one of a kind. #Newbies2017 #Twobies2018



SALMA ELMALLAH

PROJECT: CHARACTERIZING FAIRNESS, TRANSPARENCY, AND OPENNESS IN US WIND PROJECT PLANNING

ERG has been such a welcoming community to me for the past two years. I am so excited to continue to grow and learn here in the coming few years. Thank you to my mentors and readers, particularly Kay Burns, Duncan Callaway, Joe Rand, and Isha Ray, for being so supportive, patient, and dependable.

My cohort and my friends at ERG — you are the best. I cannot imagine what grad school would be like without you. Thank you for your friendship and affirmation. I am also fortunate to have friends from home to lean on, and am constantly grateful for our group-chats and video calls.

Most of all, thank you to Mama and Baba, Ahmed and Ibrahim, and Teta. I wouldn't be here without you.

ERG MASTER'S DEGREES



WILL GORMAN

PROJECT: THE EFFECTS OF ELECTRICITY CONSUMPTION AND RATE DESIGN ON SOLAR PLUS STORAGE-ENABLED GRID DEFLECTION

I came to ERG thinking I knew exactly what I needed to learn — methods and strategies to facilitate the transition to an emissions-free energy world. Maybe in non-traditional ERGie fashion, I haven't really deviated from that track in regards to my coursework, and my Master's project involves understanding how electricity storage technologies could facilitate solar energy deployment. However, my formal work has been but a part of what the ERG Master's program has taught me over the last two years. Some of my most significant growth has come not from lectures but from many personal interactions with the ERG community. ERGies are full of innovative ideas, complex perspectives, and diverse critiques, and my exposure to this inspirational group has pushed me far beyond anything I thought I needed to learn. In addition to the techno-economic transformation I thought would be my focus at ERG, I've also developed capacity

to understand social justice and equitable sustainability issues which are critical attributes in a more just society. The ERG community — the real treasure of this program — has pushed me beyond my comfort zone, and I am happy it did.

For such an enriching experience, many thanks are due. Duncan, Severin, and David, my advisors and constant improvers of my research, thank you for sharing so many of your ideas with me. My ERG community — with a special thanks to the Newbie 2017 cohort — for making my time here meaningful and personal. Finally, I wouldn't have gotten to ERG in the first place without the support of my family, and my partner, Jenna. You all keep me moving forward.

ANAYA HALL

PROJECT: MODELING ORGANIC WASTE MANAGEMENT FOR SOIL CARBON SEQUESTRATION IN CALIFORNIA

ERG has truly been a highlight of my academic journey. I am endlessly grateful for the supportive and encouraging staff and faculty, as well as the inspirational students who have taught me more than any course I've taken. A special thanks to David and Kay for always making me feel welcome and advocating on my behalf. I cannot wait to continue working with all of these wonderful people as I move into my next phase as an ERGie. You are all brilliant and amazing, and I am honored to count you as colleagues and friends.

Thank you also to my parents for a lifetime of kindness and for their help in my transition back to the best coast.

Finally, I owe a humongous thanks to the love and patience of my partner, Jeremy. Thank you for moving across the country with me for graduate school (again!), for regularly picking me up from BART without question, for cooking us dinner when I'm stuck working late, and for making our home an oasis of laughter and lightness. I could not do this without you. :)



ERG MASTER'S DEGREES



CATHERINE LEDNA

PROJECT: MODELING ADAPTATION TO SEA LEVEL RISE UNDER UNCERTAINTY

My experience at ERG has been both challenging and rewarding, presenting me with a wide array of intellectual opportunities while also pushing me outside of my comfort zone. The journey toward a Master's degree has allowed me to grow in so many ways, and has helped me to better understand my values and the direction I want to take in my academic and professional life. I am incredibly grateful for this experience, and to the ERG community for their support and encouragement.

MICHELLE LEVINSON

PROJECT: HARNESSING FINANCIAL MOTIVATION TO DRIVE TRANSPORTATION ELECTRIFICATION: A RESOURCE FOR ELECTRIC UTILITY REGULATORS

My pursuit of a sustainable and just society started just four miles down the road as a high schooler in Oakland. Despite the geographic proximity, it was a world apart. At each stage of my journey since, I have met people that have opened my eyes and expanded my horizons — making me a better member of both my local and global communities. For me, the most valuable aspect of graduate school has undoubtedly been the opportunity to learn from and connect with the curious, dedicated, and compassionate ERG community. I am deeply thankful for this!



Passage through ERG has been a bit intense, but also immensely formative and exhilarating. At times I wasn't sure I would make it through the acid-base chemistry or the existential crisis of selecting a single masters research topic. Yet at each turn, support from every corner of my community helped carry me through. I am especially indebted to my cohort and mentors, to ERG's inimitable and tireless staff, to faculty like Dan Kammen & David Anthoff, and to the family and friends that love me through thick and thin.

I'm proud of my magnificent cohort, and cannot wait for the sustainable, equitable, and ERG-tastic world we are shaping! I will be joining the energy & climate consulting firm Cadmus Group as an Associate on the Strategic Electrification team.

ERG MASTER'S DEGREES



CHRISTIAN GREGORY MILLER

PROJECT: MEASURING CALIFORNIA'S ENERGY SERVICE AFFORDABILITY

I have frequently wondered if it was the best decision for me to come straight to graduate school from undergrad rather than enter the workforce. But, looking back, I know that I have made the best decision. ERG provided me the space to acquire training and perspective from many different fields as well as interface with real-world applications. These opportunities have made it feel not like I was truly making a trade-off by my decision, but was only bolstering my skill set, network, and knowledge base... as well as form some lovely new friendships. But now, it is time for me to leave to put these skills to the test, work on some important and challenging problems, and most importantly, make money. I am moving to Oxford, UK. I will be working with Aurora Energy Research, an energy market analytics firm, as a Senior Analyst.

SARA MULHAUSER

PROJECT: BATTERY ENERGY STORAGE TECHNOLOGY ADOPTION & ELECTRIC UTILITY STRUCTURE

I'm really glad the general hippie vibe of the ERG website did not scare away this indoorsy girl, because I am so much better off for knowing each of you. I came in with some experience of the commercial side of the clean technology start-up world. I wanted exposure to all the parts of the energy transformation puzzle that you can't see from inside the trenches of any one company, but which you need to be an effective leader in that transformation. The broad concepts, the technical tools, the common language, the pitfalls, and how all the disciplines which touch this issue can, but sometimes don't, work together effectively. I got everything I wanted and more. I especially loved learning about what brought you here, and how you will change the world.

Thank you to my husband, Chris, for being so patient and understanding with this significant detour, and for your good humor. Thank you to the rest of the family for being supportive and pretending to be interested in energy markets. Thank you to my lovely cohort, you lovely weirdos. You made the hard parts manageable, and the fun parts spectacular. Special thanks to my GSPP energy nerd sub-cohort, Michelle Levinson and Christian Miller, as well as to my partner-in-crime for club sports competition and undergraduate ethnographic research, Lisa Rennels. Other special thanks to Will Gorman and Stephen Jarvis, for spotting me in some brain-heavy portions of my final project. Big thanks to all the academic advisors along the way, too numerous to name here, for encouraging bigger thinking and moving out of comfort zones.



ERG MASTER'S DEGREES



GAUTHAMI PENAKALAPATI

PROJECT: EVALUATION OF SOCIAL NETWORKS AND MEASURES OF EMPOWERMENT AMONG ADOLESCENT GIRLS IN UTTAR PRADESH, INDIA

The past two years have been dynamic! UC Berkeley is immense, but having a home base like ERG makes it possible to explore all that UCB has to offer without feeling lost. ERG has given me the opportunity to step into departments and offices that I otherwise might not have been able to. Interdisciplinary is challenging and difficult to implement, but I am excited and thankful to have the opportunity to do so within a dedicated, mindful, and creative community.

I'd like to thank my partner, Rathin, for his love, support, and encouragement. I'm grateful to my family who I blame and love for encouraging me to pursue a PhD. I'm especially thankful to Isha Ray, Jack Colford, Kay Burns, and Leora Lawton for selflessly sharing their wisdom and their confidence in me. And of course, to my fellow cohort mates, whose laughter got me through the last four semesters. It takes a village to graduate!

DIANNE QUIROZ

PROJECT: MICROBIAL COMMUNITIES IN CONIFERS OF KLAMATH NATIONAL FOREST

Thank you to all who have been a part of my masters journey at ERG. Of special note I want to thank Lara Kueppers for all her generosity and support; thank you for guiding me through this process and letting me explore my interests in ecology. Thank you to Carolin Frank and her lab at Merced who've been super helpful and accommodating. I've had a great time working with you all. Also, thank you to Sophia Bagshaw for being an awesome field assistant.

A mi papá, mamá y a mi hermano les doy las gracias por todo el apoyo que me han dado. Gracias por escuchar todos mis problemas y ayudarme a pensar en soluciones. Estoy muy agradecida de tener el privilegio de obtener una maestría y no sería posible sin su ayuda. Gracias por creer en mí y gracias por nunca dejarme pensar, incluso en los tiempos difíciles, que no sería posible lograr mis metas.



ERG MASTER'S DEGREES



LISA RENNELS

PROJECT: SOBEL SENSITIVITY ANALYSIS FOR INTEGRATED ASSESSMENT MODELS: SUPPORTING RESULT CHARACTERIZATION

It is a joy, a pleasure, and a privilege to spend days surrounded by the bright, curious, dedicated, and rambunctious community that is ERG. The last two years have challenged me deeply, pushing me to question, learn, and grow. While these challenges at times felt overwhelming, it was the people at ERG who always showed up, again and again, to steady me with a laugh (and maybe a beer). Thank you especially to my quirky, game-night loving cohort for always reminding me that I am not alone, and to the dedicated faculty of ERG, especially my advisor David Anthoff.

Thank you also to my partner Dylan, for your genuine interest in my work and unwavering support through coffee shop Saturdays, late night paper edits, and brain-twisting conversations about statistics. Last but certainly not least, thank you to my parents and my twin sister/partner-in-crime Carolyn, for all their humor and love.

SAMIRA SIDDIQUE

PROJECT: DEVELOPMENT FOR THE STATELESS: THE DISPLACEMENT-DEVELOPMENT NEXUS AND IMPLICATIONS FOR THE FUTURE

The past two years at ERG have been as much a personal journey for me as they have been an academic exercise. Among the seminars and presentations that run the gamut from energy systems planning to refugee and forced migration theory, I found great love and friendship. My friends at ERG, especially my dear Twobie cohort, have been my greatest teachers, supporters, and buddies. I am grateful for all the time we've spent together and am looking forward to the Twobie reunion in Columbus, Ohio May 2020! Thanks to Dan Kammen for always encouraging my work, and to the ERG faculty, students, and staff who create intellectual spaces that push the boundaries of our collective research.

I am so grateful to my family — To my parents for their steadfast love, support, and strength, and for how unperturbed they are about me being in California for five years. To apu and bhaya for their love and friendship, and for setting the path before me. And a special note of gratitude to apu and dulabro: thank you for making me a true aunt/khalamoni! Some people have adorable puppy pictures on the Internet, but I have hundreds of Alia photos on WhatsApp. I am grateful for her as a tangible, hopeful example of what the future holds.



ERG MASTER'S DEGREES



JESSE C. STRECKER

PROJECT: EVALUATING THE ROLE OF LABOR UNIONS IN THE POLITICS OF DECARBONIZATION: INSIGHTS FROM POLITICAL ECONOMY AND SOCIO-TECHNICAL TRANSITION STUDIES

My time at ERG has been one of tremendous growth, and I feel so grateful to have spent this time with such an amazing group of people. The ERG community has pushed me to think in new ways, to dig deeper and go beyond easy answers to vexing problems.

This summer I'll be taking the skills I learned at ERG, and applying them to one of the most challenging problems of our time, in a moment of great uncertainty.

I'll be working as a fellow in the office of Senator Ed Markey, helping to develop the policy proposals of the Green New Deal, and make ERG's vision of a just and sustainable world a reality. Though what happens afterward in my life remains unknown, I couldn't be more excited to embark on this adventure, and I couldn't be more grateful for the excellent preparation I've received at ERG.

PETER WORLEY

PROJECT: OHIO INDUSTRIAL ELECTRICITY RATES: IS THE PRICE RIGHT?

ERG was a geographical and intellectual adventure for me. I can't appreciate enough how the ERG community propelled me through the adventure. I have never been a part of such a diverse, welcoming, driven, and caring community. Oh, and funny! Gosh, you all made me laugh so much. These traits, along with people's humility and good-ole-fashion kindness, comforted me in this new place. (Oh and letting me talk about Ohio so much, thanks for entertaining that.)



It was also a new intellectual place. I didn't realize it was a foreign language program. From the classroom, I became conversational in new languages like economesse, financi, and poltical ecologan. Though, perhaps my greatest explorations and learnings were from the benches at local bars and the couches of ERGie homes. I learned so much about political science, philosophy, economics, and climate science from evening conversations with classmates. I am going to miss these dinner and late-night conversations the most.

The ERG community also gave me insights into perhaps the most consistent, difficult, and important question: how should I live my life? It looked to be a mosaic of music, poetry, self-sufficiency, volunteering, outdoor adventure, book clubs, home cooking, philosophy, advocacy, simple-pleasures, and communion.

Through my application, my first sentence to ERG mentioned Plato's Ends. I was pursuing ERG as both a Mean and an End. So perhaps my last sentence should too. I am leaving ERG with an emboldened career End: not a sustainable Ohio, but a just and sustainable Ohio. After graduation I will head back to Ohio to work on my passion: accelerating sustainability in Ohio. I will return to my previous employer, Go Sustainable Energy, where I'll consult on state energy policies, industrial energy efficiency, and net-zero buildings — though now, with ERGie vision.

ERGIES



AWARDS & FELLOWSHIPS

2019 Association for Public Policy Analysis & Management Regional Student Conference 2nd Place Poster Award Sara Mulhauser	National Defense Science and Engineering Graduate Fellowship Richard Barnes
Berkeley Center for Green Chemistry Systems Approach to Green Energy Fellowship Cecilia Springer	National Science Foundation (NSF) Graduate Research Fellowship Program New: Ella Belfer, Catherine Ledna, Samira Siddique, Elif Tasar Continuing: Gordon Bauer, Anna Brockway, Bodie Cabiyo, Yoshika Crider, John Dees, Nancy Freitas, Zeke Hausfather, Paty Hidalgo-Gonzalez, Veronica Jacome, Eli Lazarus, Jonathan Lee, Cecilia Springer, Peter Worley
Berkeley Institute for Data Science PhD Fellowship Valeri Vasquez, Richard Barnes	National Science Foundation (NSF) Data Science for the 21st Century (DS 421) Nancy Freitas, Anaya Hall, Catherine Ledna, Samira Siddique, Elif Tasar, Jenny Rempel, Lisa Rennels, Rachel Ward
Cal Women's Club Water Polo, Blue Team, Most Spirited Player Award, 2019 Lisa Rennels	National Science Foundation Innovation at the Nexus of Food, Energy and Water Systems (InFEWS) Micah Elias, Isa Ferrall, Taryn Fransen, Anaya Hall, Christopher Hyun, Seigi Karasaki, Laura Moreno, Alana Siegner, Esther Shears, Julia Szinai, Elif Tasar
Cal Women's Club Water Polo, Most Likely to be Mistaken for a Freshman Award, 2019 Lisa Rennels	National Science and Engineering Research Council Salma Elmallah
Cal Women's Club Water Polo, Gold Team, Most Improved Player Award, 2019 Sara Mulhauser	National Science Foundation East Asia and Pacific Summer Institute Fellowship Cecilia Springer Outstanding GSI Salma Elmallah, Patricia Hidalgo-Gonzalez Outstanding Student Leader Anusha Hossain
Cal Women's Club Water Polo, Best Cyber Bully Award, 2019 Sara Mulhauser	Philomathia Foundation Kripa Jagannathan
Chancellor's Advisory Committee on Sustainability (CACS) 2018 Sustainability Award Michelle Levinson, Christian Miller	Rocca Africa Dissertation Research Scholarship Veronica Jacome Switzer Foundation Jesse Strecker
Duke University Energy in Emerging Markets Case Competition Winner Isa Ferrall	UC Berkeley Center for Chinese Studies Pamela and Kenneth Fong Graduate Student Fellowship Yoshika Crider, Cecilia Springer UC Berkeley GradSlam Finalist Richard Barnes
Energy Institute at Haas Cleantech to Market "Game Changer" Team Award Winner Sara Mulhauser	UC Berkeley GradSlam Winner Nancy Freitas UC Berkeley Fellowship Ian Bollinger, Jessie Carney, Will Gorman, Jenny Rempel UC Berkeley Dissertation Year Fellowship Jess Goddard
Founder Region Dissertation Fellowship (Soroptimist) Alana Siegner Fulbright Seigi Karasaki Gates Millennium Scholar Hilary Yu	UC Berkeley Mentored Research Fellowship Valeri Vasquez UC Berkeley Graduate Division Summer Grant 2018 Veronica Jacome, Sophie Major
Geomorphometry 2018's Best Student Paper Richard Barnes	Winston Chung Global Energy Center 2019 Energy Storage Technologies & Applications Conference Honorable Mention Poster Presentation Sara Mulhauser
Global Development Fellows Gauthami Penakalapati Graduate Opportunity Program Nancy Freitas Hellman Fellowship Yoshika Crider	
Hoover IP ² Summer Institute on the Economics and Politics of Innovation 2018 Cohort Sara Mulhauser	
Human Rights Foundation Fellowship Kelsey Alford-Jones, Seigi Karasaki	
Institute of International Studies Pre-dissertation Research Grant Jonathan Lee, Gauthami Penakalapati, Samira Siddique, Esther Shears MCED (Modelling Complex Ecological Dynamics) Award for Innovative Contributions to Ecological Modelling Richard Barnes	

IN MEMORIAM: GENE ROCHLIN

Beloved and renowned Energy and Resources Group professor emeritus Gene Rochlin, 80, passed away on November 25th, 2018.

Gene was born in Chicago, Illinois and went on to attend the University of Chicago, obtaining a B.A. (1960), M.S. (1961), and Ph.D. (1966) — all in physics. He then became an assistant professor in physics at UC Berkeley for eight years before making a great pivot and retraining in political science as an advanced post-doctoral scholar at MIT and Harvard. With his new perspectives, he returned to UC Berkeley in 1975 and joined the Energy and Resources Group.



His research at ERG was focused around the political study of science, complexity, and engineered systems, incorporating all aspects of his diverse academic background. He analyzed the societal implications of nuclear proliferation, nuclear waste disposal, military weapons systems and the increasingly computerized society of the 1990s. Over the course of his career, Gene published three books on these subjects: *Scientific Technology and Social Change* (1974), *Plutonium, Power, and Politics* (1979), and *Trapped in the Net: The Unanticipated Consequences of Computerization* (1997), which won the 1999 Don K. Price Award of the Science, Technology and Environmental Politics Section of the American Political Science Association.

Gene was also a tremendous friend and mentor outside the classroom. His welcoming of informal meetings with students, extensive conversations about career paths, and trips to Giants baseball games (especially when the Cubs were in town) showed just how fun and welcoming a role model and friend he was. Alexandra "Sascha" von Meier, former student of Gene and current adjunct professor of electrical engineering at UC Berkeley, states, "He was an amazing adviser because he was able to inspire his students and give just the right amount of direction without pushing too hard and really letting students blossom with their own creativity."

In looking over Gene's papers, his children wanted to pass on a small part of one of his poems that in many ways summed up Gene's optimism and philosophy in mentoring and in building careers in sustainability:

*When at last it's all quite done
Make them feel that it's been fun*

Gene will be sorely missed, but dearly honored and remembered by his family, the ERG community, and all others whose lives he impacted.



For those interested in reading more about Gene's life, sharing a memory of Gene, or making a donation in his honor, please visit the "Remembering Gene Rochlin" website (sites.google.com/berkeley.edu/rememberinggenerochlin).

ERG ALUMNI NEWS 2019



Dear ERG Community,

This year has been a big one for ERGAN. After completing a leadership transition in 2018, the ERGAN Board kicked into high gear to build on the foundational work of the previous Board and continue to cultivate and nurture lasting connections among ERG alumni.

Since the last Commencement, we developed new ERGAN online communities on LinkedIn, Facebook, and Twitter, launched the ERGAN monthly newsletter, successfully recertified ERGAN as an official university body, and hosted the first ERGAN Annual Event. We also worked closely with ERG to support alumni outreach for the Big Give, which resulted in 100 donations and over \$25,000 in support for ERG's students. Thank you for your generous contributions!

For the rest of 2019, and into 2020, we'll continue to work on the following goals:

- We plan to host annual (or more frequent) formal gatherings of students and alumni to encourage networking, improve information-sharing, and foster connections. We kicked off this tradition with the first ERGAN Annual Event in April, and will pursue further opportunities for in-person meetings going forward.
- We will work to build a broader social media presence for ERGAN including a LinkedIn group (to support networking and sharing of professional opportunities) and a Facebook group (a space to share personal or professional news, relevant social events, and discuss ERG-related topics). While live, these communities require nurturing from moderators and engagement from the community..
- We will focus on enhancing our support of ERG fundraising needs through engaging high-net-worth individuals, fundraising drives, and other activities. While the Big Give was a success, financial support for ERG's students and their work remains a challenge.

We would love your help with this agenda. If you'd like to get involved, please reach out to any one of your Board members.

Finally, a reminder that, while all of ERGAN's board members are volunteers, your voluntary \$20 annual dues as well as donations, both payable through www.ergies.org, can help us to better support ERG and its alumni community. If you are able, please take the time to donate, as it will support activities that benefit alumni, students, and the department's broader community. You can now enable recurring donations, so you can set it and forget it!

Thank you again for your engagement and support. We look forward to a great year ahead with all of you!

- The ERGAN Board

ALUMNI PROFILES CAN BE FOUND AT ERG.BERKELEY.EDU

CONNECT WITH ERG STUDENTS, ALUMNI, FACULTY, AND AFFILIATES @ ERGIES.ORG

LETTER FROM THE ERG CHAIR

UNIVERSITY OF CALIFORNIA, BERKELEY

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SANTA BARBARA • SANTA CRUZ

Once again, we gather to celebrate our remarkable ERG graduates, and the families and friends that have provided continuous support to them along the way. For me this is bittersweet: I will miss a truly exceptional and heart-warming event as I will be on the East Coast for my own daughter's college graduation.

ERG has had an exceptionally busy and interesting year. Among the many important developments:

ERG Diversity and Inclusivity Initiative: The ERG faculty, staff, and in particular, the students have led an effort to both foster internally, and work externally to make the research and public engagement process welcoming and focused on equity, diversity, and opportunity. The mission of ERG is to research and build a sustainable environment and a just society. To accomplish this, ERG researches the impacts of equality and inequality and celebrates diversity in our community through scholarship, self-reflection, community life, and public engagement. Through an expanded web presence, and by reaching out at conferences and workshops, as well as in research on socioeconomic, racial, and gender diversity, ERG seeks to make this a cornerstone of the program.

We are excited to increase the number of international perspectives at ERG, with new graduate students from Brazil, Japan, Nigeria, South Korea, and Spain entering in the Fall 2019 cohort.

ERG Summer Sustainability Minor and Certificate: One immediate example of expanding the dialog: ERG now offers a Sustainability Minor which can be earned over one or two summers for UCB students, or a Certificate in Sustainability for anyone outside of ERG. This includes two online-only courses that can be taken anywhere in the world: Energy and Society (Kammen) and Water and Sanitation Justice (Ray).

New Initiatives: As the need to turn data into knowledge and wisdom, ERG now offers ENVRES131 "Data, Environment and Society", (Callaway). David Anthoff's "Climate Change Economics" class continues to set new enrolment records.

At the same time, ERG has played a central role in defining several of the new UC Berkeley-wide "Signature Initiatives" that will link basic and applied research, mentoring, and global engagement. ERG efforts in particular tie into the programs on Charting a New Course to Health and Wellbeing; Environmental Change, Sustainability, and Justice; Equality, Equity, and Opportunity; Inclusive Intelligence; and, defining the Public Research University of the Future. As one example, the tragedy of devastating wildfires has highlighted the need for the work ERG Professor Lara Kueppers and her team are doing on ecosystem health and resilience across diverse alpine and tropical systems.

On a sad, but uplifting note, ERG held a memorial for ERG Professor Emeritus Gene Rochlin, where generations of ERGies turned the event into a celebration of his exceptional mentorship and support for ERG and non-ERG students and colleagues.

Congratulations to all of our graduates: ERG undergraduate minors, ERG Masters, and ERG Doctorates!

Sincerely,

A handwritten signature in black ink that reads "Daniel M. Kammen".

Professor Dan Kammen, Chair
Energy and Resources Group

ERG FACULTY NEWS 2019



DAVID ANTHOFF ASSISTANT PROFESSOR

During the last year, David Anthoff once again taught a course on Climate Change Economics and the ERG Master's Seminar. His research focuses on climate policy, and how the tools of economics can be used to design climate policy design. He builds integrated assessment models of climate change, and asks how distributional equity considerations can be incorporated into cost-benefit analysis of climate policies. His lab continues to grow and is now composed of a healthy number of ERG Master's and PhD students and postdocs. During the last year he became a University Fellow at Resources for the Future and visited Princeton University in the Spring of 2019.

DUNCAN CALLAWAY ASSOCIATE PROFESSOR

Duncan spent the year teaching two new courses -- one undergraduate course merging data science and energy / environment topics, and one graduate course on modeling grids with very high amounts of generation from solar and storage. It was a year of incredible knowledge growth. He also ran a workshop (with Dan Kammen and ERG alum Rebekah Shirley) in Nairobi on decentralized energy systems and energy access. He travelled to MIT, Minnesota, Seattle and Stanford to give talks. The most stimulating meeting he had was one with power engineers in Zanzibar talking about power quality. He chaired the College of Natural Resources Executive Committee.



JOHN HARTE PROFESSOR OF THE GRADUATE SCHOOL



The final stages fell into place this year of a decade-long effort with my students and postdocs to construct a unifying theory of ecology that can predict patterns in the distribution, abundance, and energetics of plants, animals and microorganisms in both pristine and disturbed ecosystems. Invited talks at Princeton, Harvard, UCLA, The Santa Fe Institute, the Berkeley Institute for Data Science, and two international scientific conferences allowed me to showcase and get constructive feedback on the new theory. Other research focused around continuing studies of climate-ecosystem interactions, and in particular on the nature of destructive feedback interactions that result in large greenhouse gas releases as ecosystems warm.

DAN KAMMEN PROFESSOR AND CHAIR

During the past academic year I have worked on a number of projects and partnerships on the decarbonization of regional energy grids and markets, and have worked on theories of innovation in energy and technological systems. In China, Malaysia, Borneo, Kenya, and in Colombia, I have partnered with local universities, NGOs, and government offices to defeat specific coal and mega-dam projects (successfully in all but Kenya, so far), and to re-work national energy strategies to emphasize green energy and electric transportation. In the Democratic Republic of Congo, my lab has partnered on projects to protect and empower ethnic minorities and women engaged in scale industry and sustainable agriculture. In the US I have partnered with the Green New Deal and published papers and Op-Ed pieces on the injustice of both past solar energy deployments and current housing and land-use practices. In Spain I met with President Obama on a plan for a global Island Earth program on green energy and a livable, culturally diverse, and biodiverse planet. I must miss ERG graduation this year, with regrets, but will be attending my daughter Sade's college graduation.



ERG FACULTY NEWS 2019

CATHY KOSHLAND

VICE-CHANCELLOR, UNDERGRADUATE EDUCATION

As Vice Chancellor for Undergraduate Education, Cathy leads the campus efforts for innovation and change to implement the vision for a discovery based undergraduate experience. She convenes the Council of College Deans and works closely with many other units to implement the vision. Other dimensions of her work include guiding new ventures for campus through Summer Sessions, Study Abroad, OLLI; supporting the Arts and Design Initiative; working to integrate technology into teaching with RTL (research teaching and learning through technology and faculty development) supporting advising initiatives and the new student systems implementation project. She welcomes the chance to mentor ERG students and is thoroughly enjoying her work with Bodie and Anusha. Cathy is delighted to have her now seven grandchildren in the Bay Area, and to enjoy Open Field Farm in Petaluma - an organic biodynamic on-farm pickup CSA - that her daughter Sarah (Cal '99) runs with her husband, Seth. Maggie (Cal '02) and Will (Cal'02) live in San Mateo; Maggie works for IDEO. Jake (Cal MBA '19) will start at Clorox in August and he and Claire will move to SF in June. Cathy's husband Jim will be chair of the UC Berkeley Foundation beginning in July 2019.

LARA KUEPPERS

ASSISTANT PROFESSOR



Lara Kueppers taught a fun seminar in fall for mostly ERGies on disturbance and resilience in terrestrial ecosystems and is settling in with ER102 (News flash! mid-semester, 45% of students used video-taped lectures instead of going to class - should she "flip" the classroom? What do you think? It's a new era!). She also launched a new project with collaborators at other UC campuses using dynamic models to assess the vulnerability and resilience of California's ecosystems to shifts in climate, including drought and fire. She continues her work on tropical forest feedbacks to climate change as well. Perhaps most time consuming over the last year was a second story addition to her north Berkeley house that eliminated all natural gas and added a solar PV array that moved their 4-person household to net zero energy (preliminary data suggests...).

ISHA RAY

ASSOCIATE PROFESSOR

Isha Ray continued her tenure as Co-Director of the Berkeley Water Center, and conducted & guided & research in India, China, Nepal and California. She was the Masters of Development Practice Special Lecturer in Spring 2019.



MARGARET TORN

ADJUNCT ASSOCIATE PROFESSOR



Margaret Torn studies the global carbon cycle and how climate change affects terrestrial ecosystems. She will spend much of the summer above the Arctic circle in Alaska, measuring greenhouse gas (CO₂, CH₄) emissions from thawing permafrost. Land ecosystems can also help reduce atmospheric CO₂ by sequestering carbon and Margaret convened a conference on the "Land-Energy Nexus in Climate Change Mitigation" for the 2018 Global Climate Action Summit. In early May, she co-organized a workshop on wildfire bringing together Berkeley ecologists, engineers, resource managers, and energy experts to address California's challenges. At ERG, Margaret taught the Master's Seminar for second-year student; she dearly misses Gene Rochlin (1938-2018), co-instructor of the seminar and general partner in crime. She is honored to have two fantastic graduating students, Kripa Jaganathan and Zeke Hausfather. Margaret heads the Biosphere-Atmosphere Interactions program at Berkeley Lab and leads the AmeriFlux network of 425 sites measuring ecosystem fluxes across the Americas. She recently became President-Elect of the Biogeosciences section of the American Geophysical Union.

ERGIES



Make a Gift to ERG!

Please consider making a donation to ERG's research, teaching, policy influence, and scholar-activism for a sustainable environment and just society. Donations make a huge difference for our students and help bring their research to a world in much need of it. To give, contact our office, visit our website, or do it from your chair by typing this address into your phone's browser now:

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