



Evidence to Action

ENGINEERING FOR DEVELOPMENT

MAY 4, 2015 • 1:00 - 5:00 PM
GOOGLE SAN FRANCISCO



**WELCOME TO EVIDENCE TO ACTION:
ENGINEERING FOR DEVELOPMENT**

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Cover photo: Installing Gram Power microgrid technology in Rajasthan, India. Courtesy of Gram Power.
Inside cover: Rural Electric Power Project in Rajasthan, India. Courtesy of Ken Lee.

AGENDA

1:00pm – 1:15pm	Welcome Hal Varian (Chief Economist, Google) Temina Madon (Executive Director, CEGA)
1:15pm – 1:45pm	Keynote Address Ann Mei Chang (Executive Director, US Global Development Lab)
Session 1: Technology Transforming Development	
1:45pm – 2:15pm	Under the Hood at GiveDirectly: Cash Transfer Logistics Paul Niehaus (UC San Diego, CEGA)
2:15pm – 2:45pm	Secure Digital Payments: Improving Public Welfare Programs Karthik Muralidharan (UC San Diego, CEGA)
2:45pm – 3:15pm	Coffee Break

SESSION ONE

Session 2: Designing Smart Services

3:15pm – 3:35pm	Chlorine Dispensers: An Early Case Study in Development Engineering Edward Miguel (UC Berkeley, CEGA Faculty Director)
3:35pm – 4:05pm	Rural Electrification & Smart Meters Catherine Wolfram (UC Berkeley, CEGA) Samson Ondiek (Chief Planning Officer, Kenya Power & Lighting Company)
4:05pm - 4:25pm	Mezuri: Measuring Development Outcomes for Iterative Design Eric Brewer (UC Berkeley, CEGA and VP of Infrastructure, Google)
4:25pm – 4:55pm	Satellite Data for Development: Assessing Impacts at Ultra-low Costs David Lobell (Stanford, CEGA) Jon Zemel (Product Manager, Skybox)
4:55pm - 5:05pm	Closing Remarks Carla Hesse (Executive Dean, College of Letters & Science, UC Berkeley) Anand Radhakrishnan (Investcorps Technology Partners and Chairman of the CEGA Advisory Board)
5:05pm – 6:30pm	Reception

SESSION TWO



Photo: Biometric Smartcards. Courtesy of Sandip Sukhtankar.

WELCOME

Welcome to the sixth annual research symposium of the Center for Effective Global Action (CEGA). This year's event is generously co-sponsored by Google. Our program explores the role of technology in international development, with an emphasis on smart service delivery and real-time measurement of development outcomes.

Advances in data science have opened a new frontier for research. Today's firms analyze web clicks and transactions at a massive scale, generating rich information about consumer preferences. A \$20 billion industry has emerged around the collection and analysis of "big data" from online services and enterprises. But in less developed countries, consumer demand has proven harder to capture, making the preferences and needs of the poorest households practically invisible.

CEGA is working to bridge these information gaps.

We are supporting rigorous research to understand technology adoption by the poor— from experiments that reveal willingness to pay, to adaptive trials that bring iterative design principles into economic development. We are also using sensors, mobile phones, and microsatellites to generate granular, real-time data on decision-making by low-income households. These tools illuminate the lives of the poor and can ultimately improve the design of pro-poor technologies.

Innovating for the world's poor is not a job for academics, policymakers, or the private sector alone. It requires a synergistic and interdisciplinary approach. Today's symposium builds a foundation for future research and forges a path toward more equitable economic development.

Thank you for joining us.



Photo: Serengeti, Tanzania. Courtesy of Cameron Breslin.

ABOUT CEGA

The Center for Effective Global Action (CEGA) designs and tests solutions for the problems of poverty, generating actionable evidence for policy-makers in less developed countries. Using rigorous field trials, behavioral experiments, and tools from data science, we measure and maximize the impacts of economic development programs throughout the world.

INVESTING IN EFFECTIVE SOLUTIONS

Poverty in developing countries is pervasive and persistent: more than 2.7 billion people survive on less than \$2 per day. Governments and NGOs collectively spend more than \$100 billion each year on official development assistance. Yet just \$50 million is spent to rigorously study public policies in developing countries. With so little invested in learning and research, how will we ever find the right solutions?

OUR APPROACH

To achieve equitable, sustainable growth, governments must allocate scarce resources strategically. CEGA generates credible, actionable evidence for donors, policymakers, and communities by evaluating the effectiveness of large-scale development programs. We are an analytics engine for the global development community, providing intelligence to improve the design of social programs throughout the world.

CEGA TECH INITIATIVES

Technology plays an essential role in accelerating development in the poorest countries, but is not a black-box solution for fighting poverty. CEGA leverages an interdisciplinary network of researchers, with close ties to Silicon Valley, to design products and services that have potential for scale-up in developing countries. Our portfolio includes the design of infrastructure and information technologies that improve public sector performance and accountability.

In parallel, we work on improving the integrity of data collected in field research settings by promoting the use of tools like microsattellites, wireless sensor networks, and mobile devices to measure outcomes. These technologies are increasingly being used to understand human behavior, community decision-making, and the environmental impacts of economic activity.

THE DEVELOPMENT IMPACT LAB

The Development Impact Lab (DIL), CEGA's flagship technology initiative, is an innovation hub at UC Berkeley. The program's research portfolio links insights from economics with engineering design to optimize the adoption and impact of technologies for development. DIL was established in 2013 by CEGA and the Blum Center for Developing Economies, with support from the U.S. Global Development Lab powered by USAID.



THE GOLDILOCKS PROJECT

In partnership with Google and Innovations for Poverty Action (IPA), CEGA is helping NGOs build and use appropriately-sized data collection systems to accurately monitor, evaluate, and report impact. Using new technologies like microsatellite imagery, mobile applications, and environmental sensors, CEGA is helping NGOs use timely and actionable operational data for effective decision-making while demonstrating accountability to their funders.

MEZURI

Developed by a multi-campus team with the Development Impact Lab, the Mezuri Platform is a hardware and software for managing development data. It creates uniform protocols for capturing data from distributed sensors and other measurement technologies. At the center of the platform is a cloud-based rapid feedback on technology deployments or interventions that have been instrumented to track outcomes. This enables rapid prototyping and iterative design of new devices and services.



Hanging power lines in Rajasthan, India. Courtesy of Gram Power.

SPEAKERS



Hal Varian is the Chief Economist at Google. Since 2002 he has been involved in many aspects of the company, including auction design, econometric analysis, finance, corporate strategy and public policy. Hal also holds academic appointments at UC Berkeley in business, economics, and information management. Hal is a fellow of the Guggenheim Foundation, the Econometric Society, and the American Academy of Arts and Sciences. He was co-editor of the American Economic Review from 1987-1990 and holds honorary doctorates from the University of Oulu, Finland and the University of Karlsruhe, Germany. He received his S.B. degree from MIT and his M.A. in mathematics and Ph.D. in economics from UC Berkeley. Hal has taught at MIT, Stanford, Oxford, Michigan and other universities around the world.



Ann Mei Chang is the Executive Director of USAID's U.S. Global Development Lab. Prior to USAID, she was the Chief Innovation Officer at Mercy Corps, where she built highly scalable social ventures and leveraged mobile/internet to improve the lives of the poor. Previously, she served as the Senior Advisor for Women and Technology in the Secretary's Office of Global Women's Issues at the U.S. Department of State. Ann Mei has more than twenty years of engineering and leadership experience in Silicon Valley. Most recently, she served as a Senior Engineering Director at Google for 8 years, where she led worldwide engineering for Google's mobile applications and services. Ann Mei has held leadership roles at several other leading companies including Apple, Intuit, SGI, and a few startups. Ann Mei holds a B.S. degree in Computer Science from Stanford University.



Temina Madon is the Executive Director of the Center for Effective Global Action (CEGA). Her research and training activities focus on health services, agricultural innovation, and technology design for emerging markets. Dr. Madon has worked as a science policy advisor for the National Institutes of Health-Fogarty International Center, with a focus on enhancing research capacity in developing countries, and received her Ph.D. from UC Berkeley and her B.S. from MIT.

Paul Niehaus is an Associate Professor in the Department of Economics at UC San Diego as well as a Faculty Research Fellow at the National Bureau of Economic Research, a Junior Affiliate at the Bureau for Research and Economic Analysis of Development (BREAD), an Affiliate of the Jameel Poverty Action Lab (J-PAL), and an Affiliate at the Center for Effective Global Action (CEGA). His research deals with program implementation in developing countries and with learning. He is also co-founder and president of GiveDirectly. He holds a PhD in economics from Harvard University. In 2013 Foreign Policy named him one of its leading 100 "Global Thinkers."



Karthik Muralidharan is Associate Professor of Economics at UC San Diego. His research spans development, public, and labor economics. Specific topics of interest include education, health, and anti-poverty programs; measuring quality of public service delivery; program evaluation; and improving the effectiveness of public spending in developing countries. His work typically features large-scale randomized evaluations of social policy interventions and is often conducted in close partnership with governments. He is also actively involved in policy advising and capacity building, with a focus on India. Prof. Muralidharan obtained his undergraduate and Ph.D. degrees in economics from Harvard. He is a Research Associate of the NBER, an affiliate of CEGA, and an affiliate of J-PAL where he is on the Board of Directors and co-chairs the education research program.



SESSION ONE

SPEAKERS



Edward Miguel is the Oxfam Professor in Environmental and Resource Economics and Faculty Director of CEQA at UC Berkeley, where he has taught since 2000. His research focuses on African economic development, the impact of ethnic divisions on local collective action, and interactions between health, education, and productivity for the poor. Miguel has conducted randomized evaluations of a deworming program in Kenya and of a nutrition supplement program in India. He has also conducted field research in Sierra Leone and Tanzania. Miguel received the Chancellor's Public Service Faculty Award for Research in the Public Interest in 2014.



Catherine Wolfram is the Cora Jane Flood Professor of Business Administration at the Haas School of Business at UC Berkeley. She also serves as Co-Director of the Energy Institute at Haas, a Faculty Director of The E2e Project, and a CEQA Affiliate. Her research analyzes the impact of environmental regulation on energy markets and the effects of electricity industry privatization and restructuring around the world. She is currently implementing several randomized control trials to evaluate energy efficiency programs.



Samson Ondiek is a senior economist currently working as the Chief Planning Officer at Kenya Power & Lighting Company. He has over 13 years of experience in corporate planning, project Monitoring and Evaluation and in social economic research. Samson holds two post graduate degrees; an MBA and M.A. in Economic Policy Analysis & Management from Kenyatta University and University of Nairobi respectively. He is currently pursuing his Ph.D. studies in Economics at the University of Nairobi. Prior to joining Kenya Power, Samson worked as a chief Economist at the Rural Electrification Authority (REA), a government organization whose mandate is to increase the pace of rural electrification in Kenya. While at REA Samson played a major role in the review of the rural electrification master plan and in the development of various strategies and policies aimed at increasing the level of connectivity within the rural areas.

SESSION TWO



Eric Brewer is a Professor of Computer Science at UC Berkeley and Vice President of Infrastructure at Google. He has led projects on scalable servers, network infrastructure, sensor networks, and security. His current focus is (high) technology for developing regions, with projects in India, Indonesia, and Kenya among others, and including communications, power, and health care. The World Economic Forum named Eric a “Global Leader for Tomorrow” and Technology Review has cited him as one of the top 100 most influential people for the 21st century.



David Lobell is an Associate Professor at Stanford University in Environmental Earth System Science, and Associate Director of Stanford’s Center on Food Security and the Environment. His research focuses on identifying opportunities to raise crop yields in major agricultural regions, with a particular emphasis on adaptation to climate change. He is the lead author on the “Food Production Systems and Food Security” chapter of the Intergovernmental Panel on Climate Change Fifth Assessment Report.



Jon Zemel is a Product Manager at Skybox Imaging, a satellite imaging and data analytics company that was acquired by Google in 2014. His team focuses on imagery and analytics applications that provide useful & timely metrics describing economic & societal activity on Earth, in support of the mission to help organizations increase efficiency, profitability, & safety, and provide transparency in support of global good. Jon also works with the Skybox for Good program, which provides free satellite imagery for select projects that save lives, protect the environment, promote education, and positively impact humanity.

SPEAKERS

Carla Hesse is Executive Dean for UC Berkeley's College of Letters and Science. A Professor of History, Hesse is a prize-winning scholar with 20 years of experience teaching at Berkeley. Her focus has been modern European history, including its social and cultural aspects, with a specialty in modern European women's history. She holds the Peder Sather Chair in the Department of History, and in 2007 won the prestigious Aby Warburg Prize. Previously, Hesse taught at Rutgers University. She earned her M.A. and Ph.D. from Princeton University and her B.A. from UC Santa Cruz.



Anand Radhakrishnan is the Chair of CEGA's Advisory Board and Chief of Staff at Investcorp Technology Partners in New York. Previously, he was with The Carlyle Group in Washington, D.C., where he worked in the Venture Capital Group and at Robertson Stephens in San Francisco, as a member of the Technology Mergers and Acquisitions Team. He currently sits on the boards of OpSec Security Group, Skrill, and TelePacific Communications. Anand holds a B.S. in Electrical Engineering and Computer Science from MIT and an MBA with Distinction from the Harvard Business School.



ORGANIZERS



Sarah White is a Program Associate working on CEGA's flagship technology initiative, the Development Impact Lab (DIL). Prior to joining CEGA, Sarah consulted with the World Bank where she supported an internal review focused on corruption prevention and quality management among Bank health projects. She has also worked with an NGO in rural El Salvador leading an assessment of a small-scale microcredit program. Sarah holds a M.A. in International Policy Studies from the Middlebury Institute of International Studies at Monterey and a B.A. in Economics and International Relations from Lake Forest College.



Alex Grossman is the Communications Associate at CEGA, responsible for managing communications and coordinating events. Prior to joining CEGA, she worked for The Climate Reality Project promoting global awareness and action on climate change. She holds a masters degree in Latin American Studies from Boston University and bachelors degrees in International Relations and Anthropology from the University of Colorado, Boulder.



Barbara Phillips is the Administrative Business Partner of the Economics team at Google. Prior to joining Hal Varian's team, Barbara was part of Google's Global Mobility Team specializing in Relocation. She worked closely with People Ops, Mergers&Acquisitions and Benefits teams. Barbara also supports various internal groups including HOLA (Hispanic Opportunities in Leadership & Advocacy) where she helps build and develop mentoring and networking, advocates for local communities, and helps empower Latino businesses and entrepreneurs to make most of the web.



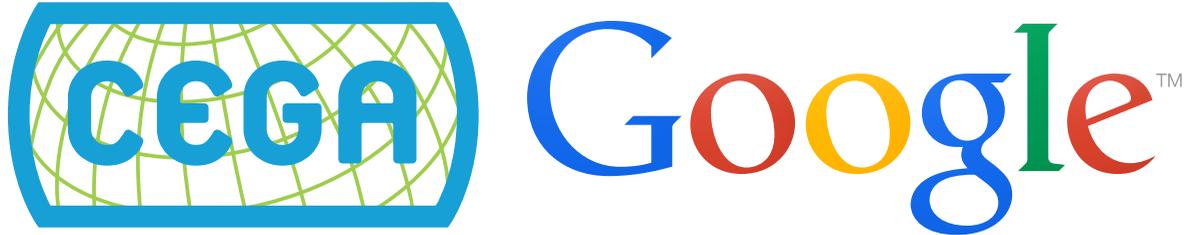
Lauren Russell is CEGA's Operations Manager and leads finance, operations, and organizational development. Prior to joining the Center, she worked at UCLA as the Project Manager of a countywide public health initiative, and at multiple nonprofit organizations overseeing fundraising and grantmaking activities. Previously, she was a Peace Corps Volunteer in El Salvador where she designed and managed economic development and maternal-child health interventions. Lauren has a Masters in Public Administration in International Management from the Middlebury Institute of International Studies at Monterey and a B.A. in Anthropology from UC Santa Cruz.



Photo: Solar cookstoves in Darfur. Courtesy of Omnia Abbas.

SPONSORS

This event is generously co-sponsored by Google.





Every day, CEGA measures the effectiveness of “real-world” programs and policies, generating evidence that governments, NGOs and the private sector use to fight poverty.

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