



# CENTER ON GLOBAL TRANSFORMATION

School of Global Policy & Strategy

## 2018-19 ANNUAL REPORT



# DIRECTOR'S MESSAGE

AUGUST 2019

Greetings from the Center on Global Transformation (CGT) at the UC San Diego School of Global Policy and Strategy (GPS). I am pleased to share with you highlights from last year's activities and plans for 2019-20.

Our Pacific Leadership Fellows (PLF) program remains a cornerstone of the center's activities. Now in our 13th year of operation, we are proud to have welcomed 96 distinguished leaders from 23 countries. During their residences, fellows share insights with our community, thereby elevating the discourse on campus regarding global business, economics and politics.

This year, GPS celebrated its 30th anniversary. We purposefully invited fellows to support the themes of the year-long celebration. Among the six new fellows we welcomed, Arindam Bhattacharya delivered a public lecture on the future of globalization and led a panel discussion during the anniversary weekend on policy uncertainty and global business. Other new fellows hailed from Brazil, China and Mexico. CGT also welcomed back three returning fellows – James Fallows, Robert Hormats and Enrico Letta – who headlined events during the lively and successful anniversary weekend. You can watch the videos [here](#).

Another key CGT initiative is granting research awards, which invest in the frontiers of scholarship at GPS and across campus. Designed as seed funding, these awards support faculty and graduate students in economics, international relations, environmental and climate science, global management and public policy. They position our scholars to win major grants from extramural sources for long-term innovative projects.

This past year, the center awarded six grants, the majority of which focused on developing new methods for using satellite imagery to improve the design of public policy. Our scholars mapped the seasonality of crop production in Sub-Saharan Africa to gauge the productivity of low-income farmers, helped the U.S. Federal Emergency Management Agency forecast the economic impacts of hurricanes and other extreme weather events, collaborated with the World Bank to evaluate the economic consequences of India's massive two-decade-long project to upgrade its roads and highways and assisted partners in South Asia in evaluating how air pollution affects the productivity of small and medium enterprises.

Each of these projects is part of the Big Pixel Initiative, which combines social science, data science and environmental science to achieve breakthroughs in using big data to promote economic development, environmental management and adaptation to a changing climate. Big Pixel has led the way in connecting GPS with the new Halıcıoğlu Data Science Institute on campus. CGT also supported the launch of the new Center for Commerce and Diplomacy at the school, whose mission is to inform government and business leaders about strategies for managing international commercial diplomacy in a dynamic world.

On a personal, I write to announce that in 2020 I will be stepping down from the CGT directorship after 13 exciting and rewarding years. During this time, CGT—in addition to bringing nearly 100 Pacific Leadership Fellows to campus—has helped GPS launch the Policy Design and Evaluation Lab, the Japan Forum for Innovation and Technology, the Big Pixel Initiative, and now the Center for Commerce and Diplomacy, as well as strengthen our research partnerships with scholars from nearly a dozen departments across the university. All of this has been made possible by the continued generosity and engagement of our founding supporters, Joan and Irwin Jacobs, to whom I expressed my deepest thanks and admiration.

CGT will continue to provide excellent programming during the next academic year under new leadership and I look forward to watching the changes they will bring to the center.

Thank you for your involvement in CGT and we hope to see you at our many public events this coming year.

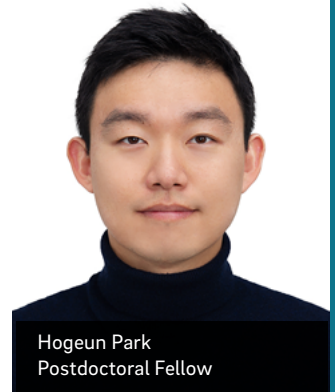


Gordon Hanson



PLF Luciano Rezende visited Cross Border Xpress with USMEX Senior Policy Advisor Denise Ducheny and a GPS student.

# SPOTLIGHT ON POSTDOCTORAL FELLOW HOGEUN PARK



Hogeun Park  
Postdoctoral Fellow

In 2018, Hogeun Park joined the Center for Global Transformation as a postdoctoral fellow.

In just one year, he has made significant contributions to the growing body of the Big Pixel Initiative, helping to establish what circumstances and conditions suggest using this technology over conventional research methods.

Examination of development in India with the technology, for example, offers a strong contrast with the traditional approach of door-to-door household surveys. Park contributed to findings that validated technology-based research methods – Geographical Information System (GIS), Remote Sensing (RS) and computational modeling – demonstrating improvement in the speed, depth and volume of data gathered.

Translating these approaches to analyzing urban development through a multi-spatiotemporal scale helped position Park for a crucial role on the East Asia team at the World Bank. In this new position, Park will provide decision support for city planning in Myanmar while taking into account the geographic and social determinants of urban sustainability.

As physical conditions grow increasingly volatile and resources diminish, Park's experience with the integrated technology and policy methods will be invaluable for helping this emerging region prepare.

## YEAR AT A GLANCE 2018-19 HIGHLIGHTS

**WELCOMED SIX PACIFIC LEADERSHIP FELLOWS** from Brazil, China, India and Mexico, including prominent public figures from the The Boston Consulting Group, City of Vitória in Brazil, India's Department of Telecommunications, Inter-American Development Bank, the Mexican government and Tencent, a leading Internet company in Asia.

**CONTINUED COLLABORATION** with UC San Diego's Big Pixel Initiative, which is developing geospatial capacity to address the world's greatest challenges at scale.

**HOSTED A RANGE OF PUBLIC TALKS** on topics such as India's ongoing technological transformation; flawed microeconomic policies and changes that will lead to prosperity in Mexico; Brazil's public administration and challenges for the new president; digital media and youth in China; social-economic rights; and globalization and what it means for public policy.

**PROVIDED SIX RESEARCH GRANTS** to fund both ongoing and new, innovative research projects by professors and graduate students.

## ACKNOWLEDGEMENTS



Joan and Irwin Jacobs' philanthropic support has had a significant impact on numerous cultural, medical, educational and civic organizations in San Diego. Since 2006, they have supported the vision of Dean Peter Cowhey and Director Gordon Hanson, as well as our faculty to make the creation and continued success of CGT possible. Their support enables our campus and the Greater San Diego region to become a center for reflection and action by leaders from the Pacific region, as well as a catalyst for innovative research.

# PACIFIC LEADERSHIP FELLOWS

CGT's Pacific Leadership Fellows program brings leaders to UC San Diego from around the globe to engage in dialogue, research and instruction with students, alumni, faculty and the San Diego community. Fellows comprise remarkable scholars and policymakers who shape strategy in their own countries through government, private sector and academia, and provide valuable insight into how economic and political systems are evolving. Having completed its 13th year, CGT now has hosted 96 fellows from 23 different countries.

◆ Denotes number of past fellows from that country





## FELLOWS ACTIVITIES

While in residence, each fellow fulfills a number of responsibilities. Though their events and interactions vary based on interests and length of stay, each fellow will:

- **COLLABORATE** with a faculty partner on a project or initiative
- **MENTOR** students informally and in a classroom setting
- **SPEAK** at a public program or guest lecture at community events
- **ENGAGE** with other UC San Diego departments
- **CONNECT** with the broader San Diego regional community, and business, government or nonprofit leaders
- **INTERACT** with supporters and the local community



# CREATING A NETWORK OF LEADERS IMPACTING THE WORLD

It has been 15 years since the idea took shape. Since then, CGT has brought distinguished leaders from across the globe to campus to share insights in business, economics and politics, and exchange ideas about the urgent challenges confronting the world and work on projects that form the basis for policy dialogues with UC San Diego scholars.

Today, we have welcomed 96 leaders from 23 countries through our Pacific Leadership Fellows (PLF) program, and created an interconnected network that will help shape public policy over the coming decades.

Even though the fellows' residencies at UC San Diego only last for a week or two, the impact of their fellowships is long-lasting and the return on investment has been substantial. The current dean of the Paris School of International Affairs at Sciences Po and the former Prime Minister of Italy Enrico Letta is a perfect example.

As part of his 2017 fellowship, Letta derived new impressions of not only EU-U.S. relations, but also the U.S.-Mexico relationship, and he found himself at a three-way junction he'd never traversed before. In a sold-out public talk, Letta spoke to this topic, highlighting similar dilemmas in Europe as seen through Brexit and the migration crisis.

In addition to meeting with GPS and UC San Diego scholars and students, he travelled to Tijuana, Mexico to see the border region firsthand. Letta explained that the election of Donald Trump raised the importance of this visit for him because San Diego – a place where Mexico and the U.S. are so interconnected – is a region embroiled in threat in terms of trade and the border.

One idea also took shape during his campus stay: create an innovative program to train students around the globe in economic diplomacy. With tensions in the world economy rising and the rules-based trading order under scrutiny, the demand for this field of study is at an all-time high.

As a result, this past year GPS entered into a partnership with three other prestigious universities – Sciences Po, the Graduate School of International Studies in Seoul and HEC Montreal, which is Canada's largest management school – to create such a program.

At its core, the program will support coordinated academic year curricula, collaborative case studies and faculty exchanges. In addition, a class on economic diplomacy will be offered beginning in the fall of 2019. This coursework training will prepare students to secure a summer 2020 internship at the Organization for Economic Cooperation and Development—the influential Paris-based intergovernmental think-tank that promotes economic progress and global trade. Students will receive a certificate upon course completion and compete for this coveted internship.

Letta also returned to campus this April to celebrate the 30th anniversary of GPS. Welcoming more than 400 alumni, students, scholars and community members to campus, the two-day schedule was designed to engage speakers and audiences alike on topics likely to dominate the news cycles in the future.

Joining a public panel on "The Fate of Democracy," Letta shared his insights on the European stage and how parties like Lega Nord and the Five Star Movement look fundamentally different today. He also considered whether the rise of these right-wing parties can be considered a challenge to the fate of democracy to Europe.

When the center was founded in 2006, the main goals were simple – to connect a global network of thought leaders to GPS and UC San Diego and to fund innovative research on the global economy.

Through the PLF program, we can say without a doubt that we have successfully accomplished our first goal. The expansion of global thought leadership sparked by Enrico Letta's fellowship demonstrates the potency and potential of connections forged through the program. Our aim now is to use this network, which we continue to expand, to find ways in which GPS and UC San Diego can help solve the global challenges that our fellows have helped us identify.



Enrico Letta meeting with GPS students during his 2017 Pacific Leadership Fellows residency.



# PACIFIC LEADERSHIP FELLOWS



## ARUNA SUNDARARAJAN

OCT. 1 – 5, 2018

Faculty Hosts: Teevrat Garg and Peter Cowhey

## TECHNOLOGICAL TRANSFORMATION

Aruna Sundararajan is the secretary of the Indian Department of Telecommunications and chair of the Telecom Commission in India. She has over three decades of experience in a variety of leadership roles in both federal and state governments in the areas of economic development and IT investment. During her residency, Sundararajan gave a public talk covering the technological transformation in India and the challenges this presents, and met with student groups on this topic. She also visited Qualcomm to learn about their vision for 5G and sustainable development and toured the UC San Diego Energy Innovation Park with the Director of Sustainability and Carbon Neutrality Dave Weil. To conclude her time in the San Diego region, she spent time exploring the local markets and food options in Tijuana.



## SANTIAGO LEVY

OCT. 15 – 19, 2018

Faculty Hosts: Gordon Hanson and Rafael Fernández de Castro

## PROSPERITY IN MEXICO

Santiago Levy is vice president for Sectors and Knowledge for the Inter-American Development Bank. Previously, he was general director at the Mexican Social Security Institute and deputy minister at the Ministry of Finance and Public Credit of Mexico, becoming the main architect of the renowned social program Progres-a-Oportunidades that benefits the poor. Levy began his fellowship with a welcome lunch with GPS students and later joined the fellows of the Center for U.S.-Mexican Studies as a speaker at their weekly seminar series. He also gave a guest lecture in a GPS class to discuss Mexico's social program Progres-a-Oportunidades. In addition, he gave a public lecture on prosperity in Mexico and explored the region with a visit to Tijuana with Professor Rafael Fernández de Castro and a lunch with regional business leaders.



## LUCIANO REZENDE

OCT. 30 – NOV. 10, 2018

Faculty Host: Rafael Fernández de Castro

## AFTERMATH OF PRESIDENTIAL ELECTIONS

Luciano Rezende is the mayor of Vitória, Brazil, the capital of the state of Espírito Santo. Before becoming the mayor in 2012, he served as a councilman in Vitória for four terms, and as the city's Secretary of Health and Education and the state's Secretary of Sports. During his residency, Rezende met with several faculty members and GPS students. He visited the California Highway Patrol Otay Mesa facility and the Cross Border Xpress to learn about innovations in regulation on the U.S.-Mexico border. Rezende also met with leaders at the San Diego World Trade Center and with a team from the Port of San Diego. He also visited the UC San Diego Energy Innovation Park. Finally, he gave his public community talk describing Brazil's elections and his assessment of local administration. He rounded out his southern California experience by visiting Coronado, the USS Midway, Sunset Cliffs and a local hockey game.



**CAITLYN CHEN**

DEC. 1 – 4, 2018

Faculty Host: Susan Shirk

## GENERATION MOBILE

Caitlyn Chen is vice president of Tencent, the leading Internet company in Asia. She has helped shape Tencent's content ecosystem through partnerships, including launching a number of successful products including the Tencent News, Tencent Sports and several local online media platforms. During her residency, Chen met with several faculty members including Dean Peter Cowhey and Professor Weiyi Shi, Molly Roberts and Victor Shih. In addition, she gave a career talk to China Focus students at the school. She delivered a public lecture to a full house on the interaction between digital media and youth in China. To round out her time, she visited Torrey Pines State Park.



**LUIS VIDEGARAY**

MARCH 11 – 22, 2019

Faculty Hosts: Gordon Hanson  
and Rafael Fernández de Castro

## FROM NAFTA TO USMCA

Luis Videgaray is the former Foreign Minister and Finance Minister of Mexico and led Mexico's relationship with the Trump White House, including the successful renegotiation of NAFTA (now USMCA). He is one of the founders of the Lima Group and conducted Mexico's leading role in the UN towards an inclusive debate on AI and other new technologies. As a fellow, he joined a migration roundtable discussion alongside experts from San Diego and attended a symposium on the domestic politics of free trade agreements hosted by GPS Professor Renee Bowen and the new Center for Commerce and Diplomacy. He also visited Viasat, the Contextual Robotics Institute and Qualcomm to learn about the evolving technology in the San Diego region. Later he also engaged with leadership from Calit2 and the World Trade Center of San Diego, and met with the Mexican Consul General and Ambassador.



**ARINDAM  
BHATTACHARYA**

APRIL 21 – MAY 7, 2019

Faculty Host: David Michael

## THE NEW GLOBALIZATION

Arindam Bhattacharya is the senior partner and director of The Boston Consulting Group (BCG), India and the co-leader of Bruce Henderson Institute, BCG's new research institute. He is also a BCG Fellow. Before taking over his current role, he led BCG India for six years. He has researched, written and spoke extensively on globalization. During his residency, Bhattacharya met with numerous faculty members and joined GPS Professor of Practice David Michael in his "Doing Business in China" course as a guest lecturer. Bhattacharya presented at GPS 30th anniversary celebrations and met with UC San Diego Chancellor Pradeep Kholsa to discuss further engagement between the university and India. He also delivered his public talk discussing the changes in globalizations. Finally, he took the opportunity to visit Tijuana to learn about innovations on the border.



## UPCOMING PACIFIC LEADERSHIP FELLOWS

The following are the confirmed 2019–20 Pacific Leadership Fellows. Visit [cgt.ucsd.edu](http://cgt.ucsd.edu) for an updated list.

**CHARLES DALLARA**, Partner, Partners Group AG (United States)

**TIAGO FALCÃO**, Secretary, Renda de Cidadania (Brasil)

**BENNETT FREEMAN**, Principal, Bennett Freeman Associates LLC (United States)

**JONG-WHA LEE**, Professor, Korea University (South Korea)

**REBECCA MACKINNON**, Director, Ranking Digital Rights (United States)

**NIRUPAMA RAO**, former Indian Ambassador to the United States (India)

**SUDHAKAR RAO**, Chairman, BSE Training Institute (India)

## 2018 SUMMER FELLOWSHIPS

CGT's summer fellowship program was established to assist GPS students in conducting high-caliber summer internships related to research on economic growth, equality and market change in the Pacific region.



**PAOLA ALEMAN ORDAZ, MIA '19**, interned in Brasilia, Brazil at the Brazilian Confederation of Agriculture and Livestock (CNA). As a trade intelligence fellow at CNA, she worked on articles which analyze and compare trade partnerships, such as Brazil-China and Mexico-U.S. By the

end of the internship, Aleman Ordaz finalized an analysis on Brazil's trade potential with Mexico and Canada, and an analysis of Brazil's tariff preferences with other Latin American countries. At GPS she studied international economics and international politics, with a regional focus on China.



**MATTHEW HEIDEN, MIA '19**, interned in Geneva, Switzerland at the United Nations Conference on Trade and Development (UNCTAD). As an intern in the Africa section, he worked on one of UNCTAD's flagship publications, the Economic Development in Africa Report. The

2018 version of the report is focusing on the African Continental Free Trade Agreement, and Heiden did quantitative research on how the agreement should be structured to generate the greatest possible increase in welfare for the continent. At GPS he studied international economics, with a regional focus on Latin America.

**KANGYU (MARK) WANG, MIA '19**, interned in



Washington, D.C. at the American Enterprise Institute's (AEI's) for political economy chair Nicholas Eberstadt, who is a demographer and North Korea expert. Wang noted that all the effort that he put into figuring out every Stata command was valued and appreciated when

dealing with much larger and more complex databases at AEI as well as writing detailed memos. At GPS he studied international economics, with a regional focus on China.



**LIANA WONG, MIA '19**, interned in Washington, D.C. at the U.S. Department of Treasury in the Office of International Affairs within the South and Southeast Asia desks. Since Treasury leads U.S. engagement in multilateral development banks, Wong learned

about the current economic environment of emerging markets in the region from a U.S. and multilateral perspective. In addition to extracting data to update charts and background reports, Wong conducted quantitative and qualitative research on contemporary issues such as fintech development through Chinese foreign direct investment in the region. At GPS she studied international economics, with a regional focus on Korea.

# CELEBRATING A BANNER YEAR

The School of Global Policy and Strategy (GPS) celebrated a significant milestone this year, commemorating 30 years of forging the Pacific Century. GPS used the anniversary of its founding as an opportunity to reflect on past achievements and look forward to further its impact as an incubator for cutting-edge policy design and global research.

Building upon a deep foundation in Asia and Latin America over the last three decades, GPS faculty have advanced the state of knowledge on the globalization of the world's economy and labor force, proposing paths forward through political morass and conflict – all with an eye towards a more secure and peaceful world order. During the 30th celebration, CGT was highlighted as a key contributor to the school's efforts.

Prior to the establishment of CGT in 2006, GPS had only small research programs. CGT was the first new center launched under Dean Peter Cowhey and it quickly became a focal point for the school. Through Cowhey's nearly two-decade tenure at the helm of GPS, the center has helped sharpen and strengthen the school's economic and business focus.



PLF James Fallows speaks at the "The Evolving Global Order in the Next 25 Years" panel during the 30th celebration.

The Pacific Leadership Fellows program has been a vital component to the school's dialogue and is a significant source of pride and international prestige. By providing our fellows an extended stay at GPS, UC San Diego scholars and students are afforded the opportunity to spend substantial amounts of time with these notable visitors. This time spent together sparks imaginations, new understandings and novel research projects with impact around the world.

And these bonds last. Thanks to the Pacific Leadership Fellows program, GPS has made powerful connections with top policy and business leaders who now serve on the school's International Advisory Board, speak at commencement activities and engage in conferences. The 30th celebratory weekend, held April 26 and 27, featured five former CGT fellows, who continue to push the boundaries of conventional wisdom with stimulating dialogue. In addition, the International Advisory Board's newest member, Arindam Bhattacharya, senior partner and director of the Boston Consulting Group's Henderson Institute, now brings much-needed expertise on India, widening the school's scope in important ways.



PLF Arindam Bhattacharya speaks at the "Policy Uncertainty and Business" panel during the 30th celebration.

Another critical element of the CGT mission is providing seed funding for innovative research targeting real world problems and global policy issues. These funds promote interdisciplinary research and strengthen GPS's ties with other parts of the UC San Diego campus. CGT funding has fueled projects with Scripps Institution of Oceanography, the Rady School of Management and others, further deepening the bonds between units of this world-class university. The funds also help support master's and doctoral candidates, preparing them for a lifelong career addressing the critical issues facing society today.

GPS's prowess in interdisciplinary research was a focal point of the 30th celebration, showcased during the anniversary weekend. With panel discussions on topics such as "Policy Uncertainty and Business," "The Evolving Global Order in the Next 25 Years" and "Mobilizing Technology for Policy," GPS facilitated important discussions on a large stage – the same type of discussions that have taken place amongst CGT fellows and the GPS community since the center's inception.



# ACADEMIC EVENTS

CGT engages with other research centers, universities, corporations and government agencies to provide a focus for dialogue.



Director Gordon Hanson, PLF Arindam Bhattacharya and Professor of Practice David Michael.

## DIGITAL INDIA: OPPORTUNITIES AND CHALLENGES

OCT. 3, 2018

Aruna Sundararajan, secretary of the Indian Department of Telecommunications, discussed aspects of India's ongoing technological transformation and the public policy lessons that emerge from this engagement.

## THE ELUSIVE QUEST FOR PROSPERITY IN MEXICO

OCT. 16, 2018

Santiago Levy, vice president for Sectors and Knowledge at the Inter-American Development Bank, discussed the flawed microeconomic policies that have suppressed growth and highlighted substantive changes to Mexico's tax, labor and social insurance regimes that will allow the country to prosper.

## BRAZIL'S PUBLIC ADMINISTRATION IN THE AFTERMATH OF PRESIDENTIAL ELECTIONS

NOV. 7, 2018

Luciano Rezende, mayor of the City of Vitória, Brazil provided his assessment of the challenges to succeed in local administration in a period of crisis and discussed the challenges that the new president will face.

## GENERATION MOBILE: DIGITAL MEDIA AND YOUTH IN CHINA

DEC. 3, 2018

Caitlyn Chen, vice president of Tencent, discussed the topic of digital media and youth in China as well as how China's dynamic Internet-based businesses are transforming Chinese society and the economy.

## FULFILLING SOCIAL AND ECONOMIC RIGHTS

JAN. 29, 2019

In her award-winning book "Fulfilling Social and Economic Rights", CGT Fellow Terra Lawson-Remer examined one of the most ambitious legacies of the 20th century – the universal commitment to ensure freedom from want as a human right. She discussed the central themes of the book and issues related to social-economic rights.

## IS GLOBALIZATION DEAD?

MAY 1, 2019

Arindam Bhattacharya, senior partner and director of BCG Henderson Institute at The Boston Consulting Group, gave a talk on this new globalization and what it means for public policy, industry structures and global business models.



PLF Aruna Sundararajan toured UC San Diego's electric vehicle charging infrastructure initiative.

## GPS-ECONOMIC SEMINAR ON INTERNATIONAL TRADE AND DEVELOPMENT

Ruixue Jia and Munseob Lee, Professors, GPS

CGT supports this innovative seminar series that hosted six speakers in fall 2018 and 11 speakers in spring 2019.

It covered various issues in international trade and development. For example, Melanie Morten from Stanford University presented her recent work on immigration policy, especially on the border wall and Nick Bloom, also from Stanford, discussed the impact of Chinese trade on U.S. employment.

The seminar also featured development issues in other countries, such as the labor market in Uganda, lending in India, industrial policy in China, and the re-unification of South and North Korea.

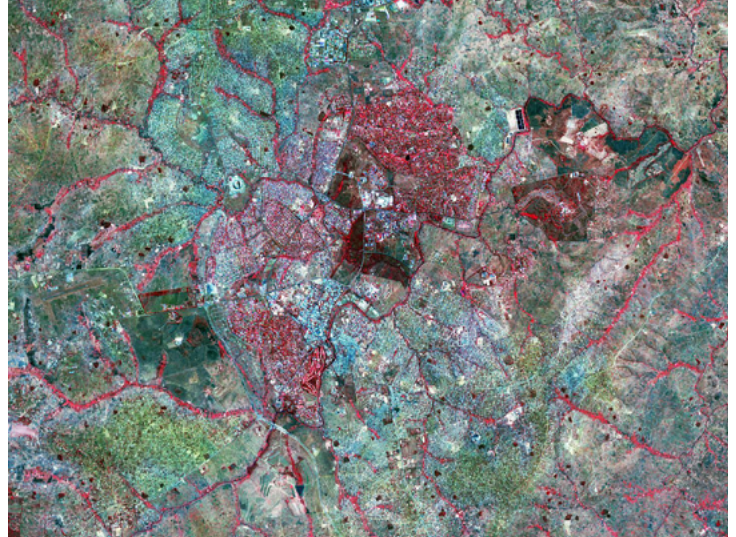
# RESEARCH GRANTS

CGT fosters academic inquiry at GPS and departments across UC San Diego by offering grants for innovative research for faculty and doctoral students. The following major projects were awarded.

## GLOBAL MAPPING OF CROPPING SEASONALITY

JENNIFER BURNEY, ASSOCIATE PROFESSOR, GPS, UC SAN DIEGO

This project uses Sentinel and Landsat satellite imagery to map the seasonality of crop production – how many crops are produced each year and when – over the entire globe. The newer Sentinel data is the basis for a higher resolution current product, while the longer-running Landsat data provides a time series to understand how cropping intensity has changed over time. Detecting these changes is vital for understanding how much multiple cropping potential exists to help agricultural regions adapt to environmental changes and Burney notes it also provides a mechanism for estimating irrigation water use – a critical adaptation technology about which we have very little information worldwide. This project was in collaboration with FEMA and Google Earth Engine.



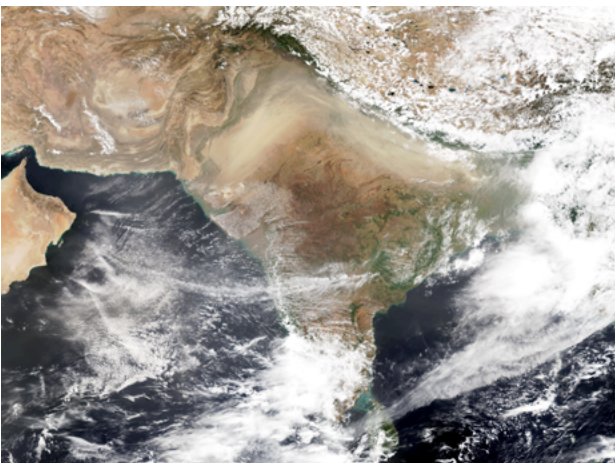
## LAND USE AND ENVIRONMENTAL MANAGEMENT

JENNIFER BURNEY, ASSOCIATE PROFESSOR AND SUSANNE BENZ, POSTDOCTORAL SCHOLAR, GPS, UC SAN DIEGO

In addition to our greenhouse gas emissions that have warmed the atmosphere, human transformations of Earth's surface have dramatically altered the surface radiation balance. Urbanization often leads to heating, and vegetation and irrigated agriculture can cool the surface, although these impacts vary across space and time. Burney and Benz are mapping the world's surface temperature heterogeneity, and using basic geophysical models to understand how much is attributable to human activity. This project will help us understand how much human settlement patterns will magnify or mitigate the global temperature changes that are already baked in from past emissions, and can thus be used to guide adaptation investments.

## THE COST OF AIR POLLUTION IN INDIA

TEEV RAT GARG, ASSISTANT PROFESSOR, GPS, UC SAN DIEGO



The project aims to analyze the impacts of air pollution on firms in India, which has one of the highest concentrations of air pollution in the world, with 13 of the Earth's 20 most polluted cities. Government action has been slow, in part, because the full costs of air pollution are not properly understood. Using atmospheric thermal inversions that increase the concentration of local pollutants as an instrument, Garg proposes to examine how India's rapidly deteriorating air quality impacts worker and firm productivity as well as infant mortality. The research should shed light on the economic cost of poor air quality in India to provide a benchmark for cost-benefit analysis of proposed environmental regulations. The project will rely on newly available satellite-based reanalysis products on air quality and thermal inversions.



## THE ECONOMIC CONSEQUENCES OF INFRASTRUCTURE INVESTMENT IN INDIA

GORDON HANSON, PROFESSOR AND HOGEUN PARK, POSTDOCTORAL SCHOLAR, GPS, UC SAN DIEGO

While India has experienced significant infrastructure development over the last few decades, our understanding of economic and societal impact of new infrastructure is still limited. By synthesizing novel techniques such as remote sensing imagery analysis, computational modeling and econometrics, they quantified the economic impact of road development in India. To understand the dynamics of economic development, they synthesized multiple remote sensing products to define urban markets and their growth. Hanson and Park developed a market accessibility database across multiple years through computational modeling that enabled them to analyze the relationship between infrastructure development and economic changes in multi-spatiotemporal scales. This project is in collaboration with Columbia University.

## THE ECONOMIC CONSEQUENCES OF HURRICANES

GORDON HANSON, PROFESSOR AND HOGEUN PARK, POSTDOCTORAL SCHOLAR, GPS, UC SAN DIEGO

Hanson and Park seek to find out how neighborhood characteristics differently affect socioeconomic recovery after extreme climate events (e.g., Hurricane Irma, Harvey, etc.) in this research project. They teamed up with New Light Technologies, Columbia University, and National Aeronautics and Space Administration (NASA) to bring interdisciplinary perspectives to the research. To untangle the complex relationships among multiple factors affecting the recovery, they synthesized socioeconomic data and remote sensing products. Based on this research, they aimed to understand not only a trend of recovery but also a big picture of regional disparity and climate vulnerability.

## DOMESTIC INSTITUTIONS AND FREE TRADE AGREEMENTS: PARLIAMENTARY VS. PRESIDENTIAL SYSTEMS

MEGUMI NAOI, ASSOCIATE PROFESSOR, DEPARTMENT OF POLITICAL SCIENCE, UC SAN DIEGO

Do democratic political institutions affect the depth of trade liberalization and the profile of products that are liberalized? This project shows that a parliamentary system of government facilitates “substitution bargain,” where executives exchange promises of redistributive compensation for legislative support for ratification. Specifically, parliamentary systems mitigate information and commitment problems in substitution bargain as the same actor (i.e., executives are legislators in parliamentary systems) negotiates a trade agreement and domestic compensation (i.e., budget), leading to deeper trade liberalization during economic booms and among geographically-concentrated products. By contrast, this bargain is difficult to strike and enforce in presidential systems where the two distinctive branches negotiate a trade agreement and budget, leading to deeper liberalization during economic downturns and among geographically-discussed products. This project tests this argument using new data on product-level trade liberalization across all preferential trade agreements. As an identification strategy, Naoi leverages overlapping trade agreements whereby democratic countries with two different political institutions sign a trade agreement with a common trading partner. GPS students were hired to code institutional and procedural features of compensatory budget-making in Japan, South Korea, the U.S. and Mexico as well as the timeline of trade negotiations relative to the timeline for compensatory budget decisions.



Photo credit: NOAA National Environmental Satellite, Data and Information Service

# A LITTLE GOES A LONG WAY WITH SEED GRANTS

Early on, the School of Global Policy and Strategy's Center for Global Transformation (CGT) made it a priority to invest in boundary-pushing research at the school and across campus.

Although small in number, CGT awards support faculty in a wide range of disciplines – economics, international relations, environmental and climate science, global management and public policy – and oftentimes become just the assistance needed to compile enough data for submission to major funders for large scale, multiyear projects.

The funding strengthens intellectual ties on campus by supporting joint projects with colleagues from other units – engineering, earth and environmental sciences and health sciences – and assists with recruiting new faculty to GPS as this program serves as a built-in research incubator.

The program also acts as a recruitment tool for students, since priority is placed on projects that include graduate students and other early career scholars. Case in point – GPS associate professor Jennifer Burney has partnered with Susanne Benz, a geophysicist who is a postdoctoral fellow at the Big Pixel Initiative, to work on several projects associated with land use and environmental management.

Burney is an environmental scientist focusing on simultaneously achieving global food security while mitigating climate change. A master of interdisciplinary research, Burney is a professor, co-leads the Big Pixel Initiative and leads the Science Policy Fellows Program at the school and is a National Geographic Explorer.

Through CGT funding, Burney and Benz are mapping the world's surface temperature heterogeneity this year. What is unique is their approach: they are using basic geophysical models to understand how much of these differences are attributable to human activity.

Beyond greenhouse gas emissions, mankind's transformations of the Earth's surface has dramatically altered the surface radiation balance. Urbanization often leads to heating, and vegetation and irrigated agriculture can cool the surface, although these impacts vary across space and time. Benz and Burney are working to understand how these effects scale with city size, as urbanization continues at a rapid pace around the world, and how much additional heat burden may exist in cities as the atmosphere warms due to anthropogenic greenhouse gas emissions.



Photo credit: Lennart Woltering – part of the National Geographic Explorer project addressing food production's footprint on global climate change.

And the end goal of their research? They hope to better understand how much human settlement patterns will magnify or mitigate the global temperature changes that are already baked in from past emissions, and whether there are "smarter" ways to urbanize. This data can be used to help policymakers and business alike make the investments needed for adaptation to climate change.

Burney notes that seed grants, like the above mentioned from CGT over the years, have helped her to secure funding for other large-scale research projects.

Currently in the pipeline are research grants awarded by the National Science Foundation's Dynamics of Coupled Natural and Human Systems (\$1.5M), the United States Department of Agriculture's National Institute of Food and Agriculture (\$450K), the Robert Wood Johnson Foundation on the health co-benefits of climate mitigation (\$133K) and the Russell Sage Foundation on the use of satellite imagery (\$174K).



GPS associate professor Jennifer Burney



# SUPPORTING COMMERCE AND DIPLOMACY

Under the leadership of Professor Renee Bowen, the GPS Center for Commerce and Diplomacy (CCD) launched in 2019. A core tenant of its mission is to produce high-quality research that informs government and business leaders about the challenges and institutions of international commercial diplomacy in a changing world.

CCD held its first major event on March 19 on “Domestic Politics of Free Trade Agreements: Implications for U.S.-Japan Relations.” In collaboration with CGT and the GPS Japan Forum for Innovation and Technology, the symposium included GPS faculty, Japan experts from academia and local San Diego business leaders.

The event began with three TED-style talks about trade policy and lobbying and their implications on global commerce and U.S.-Japan relations. Minister Takeshi Komoto from the Embassy of Japan in the U.S. gave a keynote address. The day concluded with a moderated discussion led by Professor Lawrence Broz, who also serves as the associate director of CCD, and a Q&A session with Luis Videgaray, CGT Pacific Leadership Fellow and former Foreign Minister and Finance Minister of Mexico.

Support from CGT also helped to establish the Political Economy Lunch Group Speaker Series designed to showcase UC San Diego as a hub of political economy research and serve as a forum for discussing new research from across the globe.

Attendees to the CCD series came from across campus, including scholars from GPS, economics, political science, sociology and mathematics, as well as the general public.

In its first year, the series hosted 14 guest speakers from across the country and the globe, including Bård Harstad, from the University of Oslo, speaking on climate agreements, and Jeffrey Frieden from Harvard University, speaking about the political economy of the globalization backlash. These talks facilitated a rich interaction of academics that is already fostering pathbreaking research in political economy.

Learn more at [ccd.ucsd.edu](https://ccd.ucsd.edu).



CCD Director Renee Bowen, Interim Executive Director Alexandra Hubenko and Associate Director Lawrence Broz.

# cgt.ucsd.edu

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