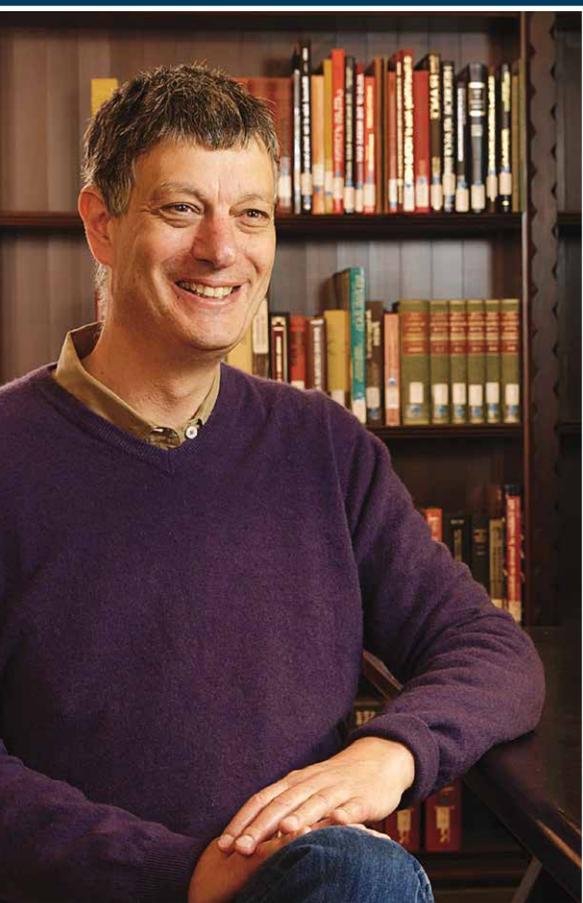




DIVISION OF THE HUMANITIES AND SOCIAL SCIENCES

2017 **IN REVIEW**

2018 PREVIEW



GREETINGS FROM THE CHAIR

December is upon us, yet winter still seems far away. It may well be that HSS enjoys the endless summer of the curious mind. Still, 'tis the season of summing up and thankfulness. Looking back, a thrill rises as I recall the interplay of faculty, students, staff, and friends in and out of the classroom, in and out of the lab. That interplay pushed our explorations forward all year long, as you will see in the following pages. May 2018 be a year of joy and discovery. In the meantime, the Chair dreams of snow.

JEAN-LAURENT ROSENTHAL

Rea A. and Lela G. Axline Professor of Business Economics;
Ronald and Maxine Linde Leadership Chair,
Division of the Humanities and Social Sciences

DECEMBER 2017

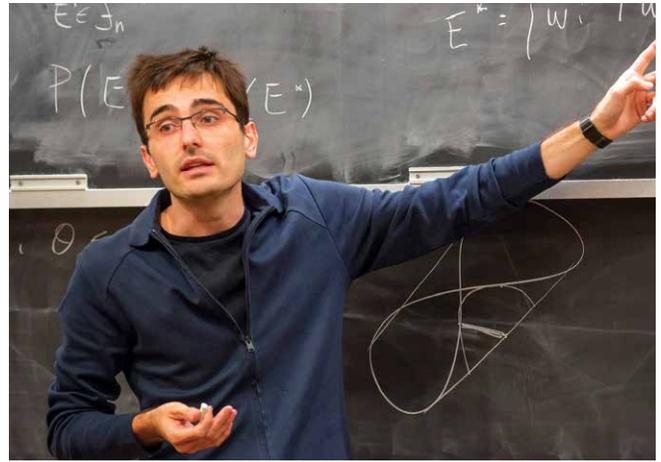
2017 IN REVIEW

WINTER



Adolphs Research Fixates on Faces

Research in HSS this year got off to a strong start with the publication of a study led by Ralph Adolphs, Bren Professor of Psychology, Neuroscience, and Biology and the Allen V. C. Davis and Lenabelle Davis Leadership Chair of the Caltech Brain Imaging Center (CBIC) as well as its director. The study's experiments show that activation of the part of the brain involved in recognizing faces depends on where you are paying attention—it's not enough for a face to simply be within your field of vision. "The ability to recognize other human faces is the basis of social awareness and interaction," Adolphs explained. "We wanted to understand how brain activity changes with eye movements and capture the natural dynamics of how people constantly shift their attention in crowded scenes." The study's findings may lead to a better understanding of the mechanisms behind social cognitive defects that characterize conditions such as autism. The paper, titled "Fixations gate species-specific responses to free viewing of faces in the human and macaque amygdala," appeared in the January 24 issue of *Cell Reports*.



The Rich Language of Probability: A Conversation with Luciano Pomatto

In an interview with Caltech News in February, Assistant Professor of Economics Luciano Pomatto described his research on the limits of probability and prediction. He explained that while probabilistic statements allow scientists to quantify the degree of uncertainty about events, these statements also allow people to hide ignorance and feign knowledge. He used an example of a weather forecaster to depict how repeated observations are required to infer competence. "I develop[ed] a statistical test that can, under some assumptions, distinguish between informed and uninformed forecasters," Pomatto explained. "The test is based on a simple intuition: it compares the predictions of the forecaster to the predictions of a fictitious automated forecaster created by the test. This fictitious forecaster represents a benchmark that a predictor must beat in order to qualify as knowledgeable. While the test is relatively straightforward to implement, the difficulty is in constructing the 'right' fictitious forecaster. A benchmark that is too strict may discourage even honest forecasters from speaking their mind. A benchmark that is too loose would allow someone who is strategic but uninformed to pass the test."

2017 IN REVIEW



Dykstra Looks Forward with an Eye on the Past

Maura Dykstra, assistant professor of history, spoke with Caltech News in March about her research and her experience as a humanist working among scientists. Her research focus is on policies, government, and everyday life in China during the last dynasty—from the seventeenth to the early twentieth century. “I’m interested in how people are governed and how policy decisions—made in order to help society flourish and keep people from doing bad things—produce opportunities for cheating, produce opportunities for beauty, and produce unexpected consequences.” After describing her unconventional education and career path, Dykstra summed up what brought her to academia: “I decided to commit myself to the study of history when I realized how powerfully it can redefine the way that we ask questions about our lives today.” She relishes the collaborative environment at Caltech, noting, “What is uniquely wonderful about working at Caltech is that I get to be in the same place as people who are working on the problems of today and in a community where a conversation across disciplines is encouraged.”



Social Choice Meets Public Choice: The Plott Conditions at 50

At its 2017 conference, the Public Choice Society (PCS) honored Charlie Plott, William D. Hacker Professor of Economics and Political Science, for his contributions to the study of economics and political science over more than five decades. The conference gave tribute, in particular, to the “Plott conditions” from his seminal 1967 paper “A Notion of Equilibrium and Its Possibility Under Majority Rule,” which examined the situation where a group uses a majority voting rule with heterogeneous preference (ideal points) over policy in at least two dimensions. Among other results, Plott established that to achieve stability in two dimensions, individual ideal points must be pairwise symmetric around the stable outcome; any minor perturbation of such a distribution of ideal points will lead to instability.

Plott opened the PCS conference in March with the first plenary session lecture, in which he spoke about the continuing impact of that paper, how his own research agenda has evolved, and the impact of his work on social choice theory, public choice, and political science. The four-day conference also included Professor of Economics Marina Agranov, who presented her paper “The Effects of Income Mobility and Tax Persistence on Income Redistribution and Inequality,” co-authored by Flintridge Foundation Professor of Economics and Political Science Thomas Palfrey.



Corruption Research Brings Ensminger to Congress

Jean Ensminger, Edie and Lew Wasserman Professor of Social Sciences, has been conducting research in Africa for 40 years, beginning with the study of the economics of small Kenyan villages. That work led her to uncover and investigate corruption in projects run by the World Bank, an international money-lending organization charged with reducing poverty. Ensminger published that research based on extensive data on social networks, demographics, and wealth, as well as information about the income levels for the same individuals over decades. In 2007, she presented her paper at a World Bank research seminar. That's when "all hell broke loose," according to Ensminger. Within hours, word of her research made its way back to the World Bank, and the bank's response aroused her suspicions that what she observed in one village might also be happening in hundreds of others where the project also operated—a question she has been exploring ever since. Her work recently caught the attention of the U.S. House of Representatives, because the United States provides 20 percent of the World Bank's funding. In March, Ensminger was invited to testify before the House Financial Services Committee Subcommittee on International Monetary Policy and Trade, which she spoke about in an interview with Caltech News.



HSS Mourns the Passing of Trustee Stephen A. Ross (BS '65)

Alumnus and senior trustee Stephen A. Ross (BS '65), whose work helped shape the development of the field of financial economics, passed away on March 3 at the age of 73. Ross, perhaps best known for his arbitrage pricing theory and agency theory, also helped develop techniques for pricing derivatives that are widely used on Wall Street and other financial centers for determining the value of complex financial instruments. Ross was a longtime friend and supporter of HSS, having served on the last three HSS Visiting Committees (including as chair in 2015) and spoken at The Ronald and Maxine Linde Institute of Economic and Management Sciences' Caltech + Finance Symposium in 2015. "Steve Ross unstintingly applied his deep knowledge of financial economics and complex organizations to help guide Caltech," said Caltech's president, Thomas Rosenbaum. "We will sorely miss his keen insights, his generous spirit, and his infectious sense of humor."

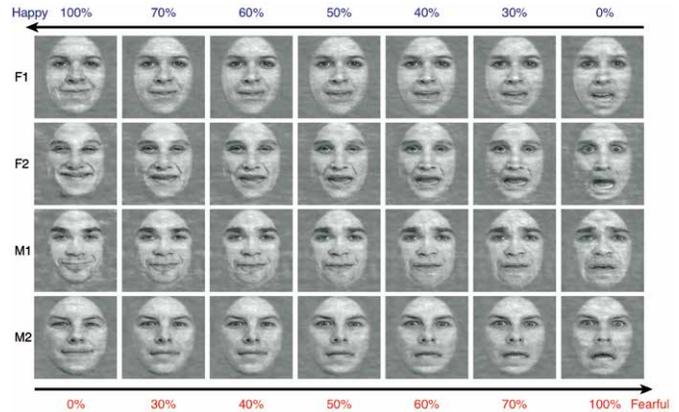
2017 IN REVIEW

SPRING



Students Learn to Reverse Engineer Poetry with Visiting Artist-in-Residence

Caltech students explored the intersection of art and technology with Israeli programmer, poet, and new-media artist Eran Hadas, who joined Caltech for the spring term through the Schusterman Visiting Israeli Artists Program. Hadas's work combines poetry and computer science, creating software that writes poetry and text with input from the Internet. "I always joke that I consider myself a poet, but in order to be taken seriously, other people should consider me as a software developer," he said. "I once heard the saying, 'Poetry is the R&D department of humanity.' I wish to augment it to 'the R&D department of post-humanity,' but at the core of either is the decision to step out of our particular selves and raise questions about our being." His course at Caltech, Computational Literature, covered the evolution of poetry and poets from the end of the Romantic era until 2045, when futurist Ray Kurzweil predicted the singularity—the point at which artificial intelligence and technology will surpass human capabilities.



Facial Expressions: How Brains Process Emotion

Have you ever thought someone was angry at you, but it turned out you were just misreading their facial expression? Researchers in the Adolphs lab found that the amygdala is involved in making these (sometimes inaccurate) judgments about ambiguous or intense emotions. "We have long known that the amygdala is important in processing emotion from faces," Adolphs explained to Caltech News. "But now we are starting to understand that it incorporates a lot of complex information to make fairly sophisticated decisions that culminate in our judgments." In addition to recording single cells from the amygdala, the researchers also carried out a neuroimaging study using fMRI and studied the emotion judgments of three subjects with rare lesions of the amygdala. The study is the first to combine so many different sources of data. The paper, titled "The human amygdala parametrically encodes the intensity of specific facial emotions and their categorical ambiguity," appeared in the April 21 issue of *Nature Communications*. Michael Tyszka, associate director of the Caltech Brain Imaging Center, is a co-author.



Art Historian Visits the Humanities Faculty as a Moore Scholar

For six weeks in the spring, Lynda Nead visited Caltech as a Moore Distinguished Scholar from Birkbeck College, University of London, where she is the Pevsner Chair of History of Art. She has published widely on the history of British visual culture, and her most recent book, *The Tiger in the Smoke: Art and Culture in Post-War Britain*, was published by Yale University Press this fall. Nead gave a public lecture at Caltech in April, titled "Dickens Noir: The Persistence of Victorianism in Post-War British Art and Culture." She also participated in a workshop on "visual ecologies" organized by Professor of English and Executive Officer for the Humanities Catherine Jurca and Professor of English Dehn Gilmore. This one-day workshop investigated the ways in which forms of visual evidence, such as photography and film, condition our relationship to ecological change and affect our ability to respond, when necessary, to ecological crisis.



Camerer Research: Testosterone Makes Men Less Likely to Question Their Impulses

In April, Caltech News reported on research into whether higher levels of testosterone increase the tendency in men to rely on their intuitive judgments and reduce cognitive reflection, as posited by a team led by Colin Camerer, Robert Kirby Professor of Behavioral Economics and the T&C Chen Center for Social and Decision Neuroscience Leadership Chair as well as the center’s director. The study showed that men given doses of testosterone performed more poorly on a test designed to measure cognitive reflection than a group given a placebo. “What we found was the testosterone group was quicker to make snap judgments on brain teasers where your initial guess is usually wrong,” Camerer said. “The testosterone is either inhibiting the process of mentally checking your work or increasing the intuitive feeling that ‘I’m definitely right.’” The researchers believe this phenomenon can be linked to testosterone’s effect of increasing confidence in humans. Testosterone is thought to generally enhance the male drive for social status, and recent studies have shown that confidence enhances status. The Camerer study, which includes his former graduate student Gideon Nave (PhD ’16) as a co-author, was published in the journal *Psychological Science*.



Wey-Gomez Sheds More Light on Christopher Columbus’s Discoveries

Professor of History Nicolas Wey-Gomez presented the Earnest C. Watson Lecture on May 10, titled “What Columbus Discovered.” Wey-Gomez’s research focuses on the early history of exploration and empires—in particular, the role that science and technology played in Portugal’s and Spain’s discovery of a vast world beyond Europe. “My work on Columbus reinvents the geographical history of the discovery of America as part of Europe’s problematic awakening to the natural and human resources of the tropics,” he said. “It draws attention to the role that terrestrial latitude played in Columbus’s exploration of the Caribbean, to the assumptions that informed his account of tropical latitudes, and to the political lessons that he and his contemporaries in Europe were willing to draw about America’s native peoples.” Wey-Gomez’s lecture considered how the famed navigator’s discoveries revolutionized old ideas about the globe and how science, faith, and politics shaped the momentous encounter between Europe and the Americas.



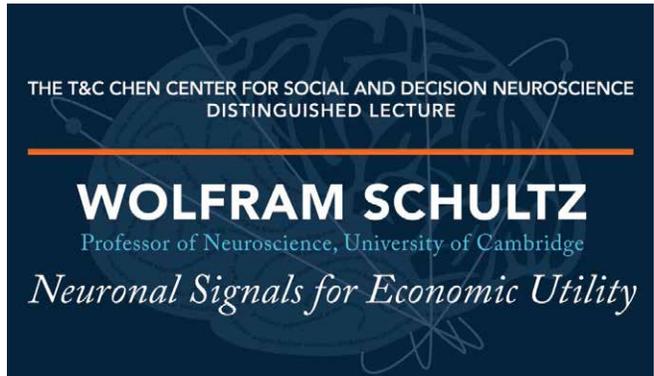
Alumnus Reflects on Caltech Mentors

The Caltech *Break Through* campaign featured an interview with Sam Barnett (BS ’12), founder and chief executive officer of SBB Research Group, a Chicago-area investment management and research firm. Among other accolades and accomplishments, Barnett was included in Forbes magazine’s “30 Under 30 in Finance” and earned his PhD in neuroscience from Northwestern University in 2017. As an undergraduate, he began doing independent research with Jaksa Cvitanic, Richard N. Merkin Professor of Mathematical Finance and Director of The Ronald and Maxine Linde Institute of Economic and Management Sciences. Cvitanic encouraged Barnett to approach an investment opportunity as an experiment. “Jaksa introduced me to my first investor, and the summer after my sophomore year I began managing \$2 million,” said Barnett. “I discovered that I loved the experiment. I launched SBB Research Group the following year and started looking for my first employee. . . . If I can be half as good a mentor as the ones I had from Caltech, then my students and employees will be very lucky.”

2017 IN REVIEW

Jahner Research: Probing the Past and Present

The *Break Through* campaign also highlighted the work of Assistant Professor of English Jennifer Jahner, specifically her research at the intersection of poetry and politics and her role in the Caltech-Huntington Humanities Collaborations (CHHC). “We live in a time of heightened political rhetoric and tend to think of that rhetoric as a specifically modern problem,” Jahner observed. “My research looks at the long history of the language of polarization. For as long as people have been arguing about the public good, about fiscal responsibility and security, writers have been shaping the emotional terms of that debate.” She works closely with Professor of History Warren Brown in leading the inaugural two-year research module of the CHHC, titled “Violence and Order Past and Present,” which brings researchers together to collaborate around theories and practices of violence in the Middle Ages and their implications across history and in contemporary society. Jahner explained: “In traditional departments, being interdisciplinary is something people try very hard to cultivate. Here, it’s just the way we work.”



Pioneering Neuroscientist Kicks Off New Social Sciences Lecture Series

On June 1, neuroscientist Wolfram Schultz gave the first ever T&C Chen Center for Social and Decision Neuroscience Distinguished Lecture. Schultz, a professor of neuroscience at the University of Cambridge, works on the biological basis of reward. He has received numerous honors and awards for his research, including the 2017 Brain Prize, which recognizes his outstanding contribution to European neuroscience. Caltech’s Colin Camerer, in his role as director of the T&C Chen Center for Social and Decision Neuroscience, invited Schultz to give this inaugural lecture, explaining that “Wolfram is interested in one of the most basic parts of decision making, which is neurons firing. . . . He is an enormous pioneer in decision neuroscience, and is constantly making new discoveries, too.” A video of Schultz’s lecture, titled “Neuronal Signals for Economic Utility,” is available online.



HSS Congratulates Its Latest PhD Recipients

At the 123rd commencement exercises in June, Caltech awarded PhDs to four accomplished scholars completing their degrees in the Division of the Humanities and Social Sciences. The 2017 HSS graduates (with their dissertations) are:

- Tatiana Mayskaya (“Essays on Information Collection”)
- Welmar Rosado-Buenfil (“Essays on the Political Economy of Subnational Public Finances”)
- Myungkoo Song (“Essays on the Impact of Information Asymmetry”)
- Jun Zhang (“Essays on Matching Theory”)

SUMMER



New Political Science Faculty Interview: Gibilisco and Lopez-Moctezuma

Soon after their arrival this summer, the division's newest assistant professors of political science, Michael Gibilisco and Gabriel Lopez-Moctezuma, spoke with Caltech News about their research and today's politics. Lopez-Moctezuma received his PhD in politics from Princeton in 2016 and then spent a year as a postdoctoral associate at Yale University's Cowles Foundation. In his research, Lopez-Moctezuma is interested in "understand[ing] the role of political institutions, electoral rules and voting procedures in group decision making—from small committees of policymakers to large groups of voters such as the U.S. electorate." He uses simplified models of the political context, along with data on political behavior, to determine the preferences and incentives that lead individuals to take one position over others. When asked what drew him to Caltech, Lopez-Moctezuma responded, "Caltech pioneered the use of formal mathematical models to explain political behavior, including models of voting and bargaining. Later, when experimental economics (the use of experiments to test theories in economics) was developed here as a field, it began providing important insights into political science. The research I do would not be possible without these early contributions, so it is a privilege having been invited to collaborate at Caltech."

Gibilisco received his PhD in political science from the University of Rochester in 2017. His research examines political institutions and constitutions and their effects on group conflict and compromise. "Some of the research questions I tackle include how to design constitutions, presidential powers, or political institutions like legislatures in order to decrease conflict and increase compromise among multiethnic groups," Gibilisco explained. When asked about research questions arising from the current political landscape, he responded, "It's

interesting thinking from an academic perspective about the sequence of choices both candidates made in the recent presidential election and being able to isolate which of those choices actually had the largest impact in the surprising election we observed last year. In the years to come, it's going to be an important research topic."

Regarding the potential for these two political scientists to work together, Lopez-Moctezuma noted: "The thing that is interesting about Mike and [me] starting [at Caltech] this year is that we have overlapping research interests and a similar way of thinking about research in political science. When we talk about potential collaboration at Caltech, hopefully it will start right here with us."

The Ins and Outs of Matching: A Conversation with Economist Laura Doval



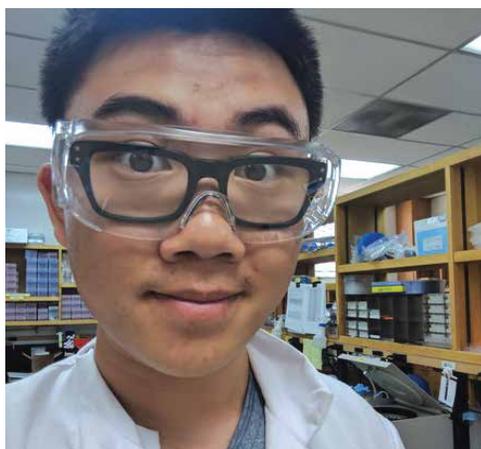
Laura Doval, new assistant professor of economics, also joined the HSS faculty this summer. She received her PhD in economics from Northwestern University in 2016 and came to Caltech from Yale University, where she spent a year as a postdoctoral associate at the Cowles Foundation. Doval's research focuses on dynamic matching markets—those in which prices are not the primary drivers and in which each side of a transaction has to be chosen by the other side. She studies how the characteristics of these markets affect the ability of their participants to find their match, and how those characteristics might be tailored to increase efficiency or fairness. She explained: "My research explores questions of optimal consumer search, the feedback between rules and incentives to delay decisions in dynamic matching markets, and how we can use the timing of decisions to generate incentives." When asked why she chose Caltech, Doval responded, "Caltech is well known for its research in mechanism design and market design; John Ledyard [Allen and Lenabelle Davis Professor of Economics and Social Sciences, Emeritus], Thomas Palfrey, and Charlie Plott are pioneers in these areas. This tradition is still going strong. For instance, the Social and Information Sciences Laboratory brings together faculty from economics, computer science, engineering, and mathematics who study the theoretical and computational aspects of network markets and platforms. I can't think of a better place to be."

2017 IN REVIEW



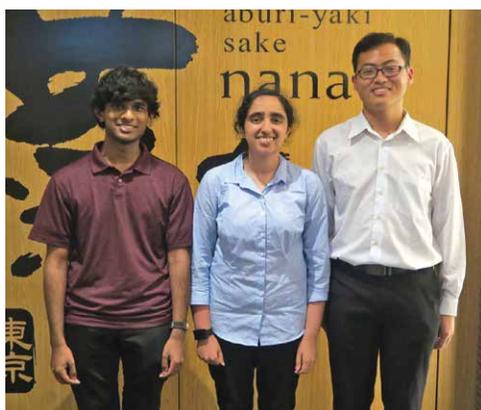
Jocelyn Holland Talks German Romanticism and Comparative Literature

Professor of Comparative Literature Jocelyn Holland joined HSS from UC Santa Barbara at the end of the summer. In an interview with Caltech News, she discussed her research interests and book projects as well as the impact that humanities studies can have on scientists. While studying German in college, she quickly became fascinated with German Romanticism—specifically, how it connects scientific theories to poetic creativity. Holland explained, “It’s such an experimental and speculative way of thinking with language and constructing conceptual relationships.” Her research in comparative literature explores connections between literature, philosophy, and science around the turn of the nineteenth century. Holland has two book projects on the horizon: one “focuses on how ‘technology’ emerged as a word, a concept, and an academic discipline in eighteenth-century Germany,” and the other is a collection of essays on material connection.



Students Engage in Summer Research at Caltech and Around the World

Every summer, HSS faculty work directly with undergraduates at Caltech and other universities on summer research projects. The summer of 2017 was the second year of The Ronald and Maxine Linde Institute of Economic and Management Sciences Summer Undergraduate Startup Internship (SUSI) program, funded by Caltech alumnus Olivier Cojot-Goldberg (BS '87, MS '88). Some of these summer research projects were highlighted on the Caltech website, including that of SUSI intern Cody Lim, a junior majoring in bioengineering, who spent his summer at Provivi, a Caltech startup in Santa Monica with a focus on pest control. Lim researched how insect pheromones might be used as a safer alternative to traditional pesticides. Also featured were two students who spent their summers in the Adolphs lab through the Amgen Scholars program: Sam Jensen, a Brigham Young University senior majoring in bioinformatics, who explored how a person’s awareness of how their body feels might be linked to disorders like depression and anxiety, and Tenzin Yin, a University of Florida senior double majoring in philosophy and interdisciplinary computational neuroscience, who researched brain activity in people with a birth defect called agenesis of the corpus callosum (the structure that connects the two hemispheres of the human brain). Last but not least, undergraduates Naveen Arunachalam, Maya Josyula, and Yan Qi Huan spent their summers overseas through their participation in the long-running Japan Internship Program (JIP), which pairs Caltech student-scholars with Japanese company researchers to collaborate on industrial projects.



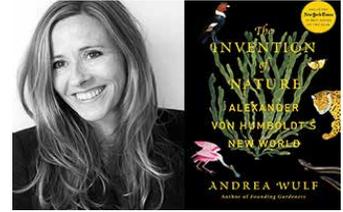
FALL



Caltech Finance Open House Brings Together Students and Alumni

On October 12, HSS held the first annual Finance Open House to connect Caltech alumni with students interested in internships and careers in finance and entrepreneurship. The afternoon event, sponsored by The Ronald and Maxine Linde Institute of Economic and Management Sciences, included informational interview sessions for students to meet with alumni finance professionals, followed by a keynote lecture and reception. Keynote speaker Arturo Cifuentes (MS '81, Civil Engineering, and PhD '85, Applied Mechanics), adjunct professor of business at Columbia University and research associate at CLAPES UC in Chile, offered insights into the current world of finance based on his 15 years of work on fixed income, asset management, derivatives, and securitization on Wall Street as well as his varied career as an investment banker, hedge fund manager, risk analyst, scientist, university professor, consultant, and newspaper columnist. Cifuentes explained why Caltech students are uniquely well prepared to succeed in confronting today's challenges in finance. HSS is grateful for the participation of Cifuentes and the other alumni: Sam Barnett (BS '12, AACM and BEM), founder and chief executive officer of SBB Research Group; Samantha Foster (BS '98, ENG), senior investment analyst at the University of Southern California Investment Office; Rosemary Macedo (BS '87, Independent Study), chief investment officer at QS Investors, LLC; Andrew Westhead (PhD '05, AACM), director in the Global Execution Services group at Bank of America Merrill Lynch; and Xiaolei Zhu (BS '90, AMA), portfolio manager with Cubist Systematic Strategies.

Andrea Wulf Lectures on *The Invention of Nature*



Historian and bestselling author Andrea Wulf came to Caltech in October to lecture at the first installation of the James Michelin Distinguished Visitors Program for the 2017–2018 academic year. The talk, titled “*The Invention of Nature, Alexander von Humboldt, and the Merging of the Arts and the Sciences*,” focused on von Humboldt’s insight that there is a bond between the arts and the sciences, between imagination, poetry, and meticulous observation. Von Humboldt’s view of nature as an interconnected web in which all species have a role informs much of the modern environmental movement, as do his ideas about the importance of nature to the human soul.



Katz and Kousser Submit Briefs to the Supreme Court on Partisan Gerrymandering

As the U.S. Supreme Court tackles many hot-button issues, its justices recently received advice from two HSS professors on an issue that has huge implications for the nation’s politics—partisan gerrymandering. J. Morgan Kousser, the William R. Kenan, Jr., Professor of History and Social Science, and Jonathan Katz, the Kay Sugahara Professor of Social Sciences and Statistics, both helped author informational briefs submitted to the court in the case of *Gill v. Whitford*. The case arises from a challenge to the redistricting plan passed by Wisconsin’s Republican-controlled legislature in 2011, after a lower court struck down the plan in 2016, finding that it violated the Constitution because it was the product of partisan gerrymandering—that is, the practice of purposefully drawing district lines to favor one party and put another at a disadvantage. The Supreme Court heard oral arguments in October, and its decision is pending. Alumnus Sam Wang (BS '86), a neuroscientist and author, also signed onto the brief Katz co-authored.

2017 IN REVIEW



Hixon Writing Center Focuses on STEM

All scientists and engineers need to know how to write, not just for everyday communication but also so that they can prepare research proposals, theses, and papers for publication in peer-reviewed journals. The development of writing skills often takes a backseat to research, but the Hixon Writing Center (HWC) is aiming to change that. The center was established in 2000 with a gift from Pasadena philanthropists Alexander P. and Adelaide F. Hixon. While the center's work has focused primarily on aiding students with their HSS course writing, now, thanks to an additional gift from the Hixon family as part of the Caltech *Break Through* campaign, the HWC can also support Caltech undergraduates with scientific and engineering writing. Last fall, the HWC hired its first STEM (science, technology, engineering, and mathematics) writing specialist, and by the end of the 2016–2017 academic year, nearly 40 percent of the students visiting the center were seeking help with scientific or technical writing. “The goal was to create a high-quality one-on-one tutoring resource for our students when they’re writing technical or scientific papers,” said Hixon Writing Center Director and Lecturer in Writing Susanne Hall. “So now a student in any scientific discipline can come into the writing center and get help on their academic writing from a tutor with firsthand experience of the styles and genres of scientific communication.”



Ewens's Research Uncovers Bias Facing Female Tech Entrepreneurs

A new study by Michael Ewens, associate professor of finance and entrepreneurship, provides insight into why women have not made more headway in Silicon Valley. Ewens and co-author Richard Townsend of UC San Diego analyzed nearly 18,000 start-ups to identify the “chicken and egg” situation often faced by women entrepreneurs. Because female-led start-ups face tougher funding prospects than male-led start-ups, fewer women enter the tech entrepreneur pipeline that ultimately feeds the ranks of venture capitalists. Without an adequate supply of female venture capitalists, women-founded start-ups continue to struggle to find funding. “Women are treated differently than their male counterparts,” said Ewens. “They receive less interest and, in the end, less funding from male investors.” The authors considered a few possibilities about why this happens and what needs to change. As Ewens explained in an interview with Caltech News, “There’s no quick fix; however, if we continue to lower the barriers to becoming an investor, the pool of venture capitalists will begin to look more like the general population, and the gender gap will shrink.”



Social Sciences Graduate Research Studies California Groundwater Regulations

Fourth-year social sciences graduate student and Resnick Fellow Hao Zhao is using the tools of economics to identify the best ways to assign groundwater rights in California after the apparent end of the drought. He began studying this field at the suggestion of his advisor, Jean-Laurent Rosenthal (PhD '88), the Rea A. and Lela G. Axline Professor of Business Economics and holder of the Ronald and Maxine Linde Leadership Chair in the Division of the Humanities and Social Sciences. From interconnections among basins to the number of parties pumping water, Zhao has a multitude of factors to consider in his search to find a solution that everyone can accept. His current project aims to home in on a better approach to groundwater regulation for California's Central Valley—a region rife with complications. Compared to Southern California, it has many more smaller-scale water users, including farmers. "My current work fills a hole in the literature, and we're still working on the data," Zhao said in an interview with the Caltech *Break Through* campaign. "Hopefully we can get to some conclusions that help farmers in the Central Valley."

WHERE ARE THEY NOW?

AMONG OUR GRADUATE STUDENTS WHO RECEIVED THEIR PHDS IN 2017 . . .

Tatiana Mayskaya is an assistant professor of economics at the National Research University Higher School of Economics in Moscow.

Welmar Rosado-Buenfil is a consultant with the World Bank.

Myungkoo Song is an associate research fellow at the Korea Institute for Industrial Economics and Trade.

Jun Zhang is an assistant professor at the Nanjing Audit University in China.

AMONG OUR POSTDOCS WHO COMPLETED THEIR HSS APPOINTMENTS IN 2017 . . .

Ahrash Dianat is a lecturer in the department of economics at the University of Essex.

Taisuke Imai is an assistant professor in the department of economics at the Ludwig Maximilian University of Munich.

Duk Gyoo Kim is an assistant professor in the economics department at the University of Mannheim in Germany.

Eva Pool is a senior researcher and lecturer at the University of Geneva.

Aleta Quinn is an assistant professor of philosophy at the University of Idaho.

Benjamin Saltzman is an assistant professor of English at the University of Chicago.

Robert Spunt recently accepted a position as a data scientist with Snap Inc. (Snapchat).

2017 IN REVIEW

CONGRATULATIONS

HSS recognizes and congratulates its faculty, students, and friends for honors and awards bestowed this year.

Marina Agranov was awarded tenure in April. Her research combines theory and experiments to study how institutions affect credible transmission of information. Her goal is to understand the mechanisms that govern decision making and ultimately improve the predictive power of economic theory. Agranov will give an Earnest C. Watson Lecture in Beckman Auditorium on April 25, 2018.

Howard E. and Susanne C. Jessen Postdoctoral Instructor in the Humanities **Keith Pluymers**'s article "Atlantic Iron: Wood Scarcity and the Political Ecology of Early English Expansion" was chosen by the *William and Mary Quarterly* editorial board as the recipient of the Richard L. Morton Award for 2016.

The **HSS student prize winners** honored at Caltech's commencement in June included:

- **Hamed Hamze Bajgiran** (John O. Ledyard Prize for Graduate Research in Social Science)
- **Alejandro Robinson Cortes** (John O. Ledyard Prize for Graduate Research in Social Science)
- **Nishant Desai** (David M. Grether Prize in Social Science)
- **Kshitij Grover** (Gordon McClure Memorial Communications Prize in Philosophy)
- **Zofii Kaczmarek** (Gordon McClure Memorial Communications Prize in English)
- **Jessica Du Li** (Rodman W. Paul History Prize)
- **Crystal Liang** (Alexander P. and Adelaide F. Hixon Prize for Writing, awarded July 2017)
- **Christina Lin** (Gordon McClure Memorial Communications Prize in History)
- **Daniel McAndrew** (Mary A. Earl McKinney Prize in Prose Fiction)
- **Suchita Nety** (Hallett Smith Prize for an outstanding essay related to the work of Shakespeare)
- **Karen Pham** (Mary A. Earl McKinney Prize in Poetry)
- **Gauri Shastri** (Hallett Smith Prize for an outstanding essay related to the work of Shakespeare)

Twelve HSS staff members were recognized for the important work they do to advance the mission of the Institute at the 62nd annual **Staff Service and Impact Awards** on June 1. The honorees included:

- **Victoria Cruz**, Staff and Facilities Manager (20 years)
- **Sarah (Emily) de Araujo**, Executive Project Assistant & Senior Publicity and Editorial Assistant for the Einstein Papers Project (10 years)
- **Sabrina De Jaegher**, Administrative Assistant (15 years)
- **Hsing-Yang Lee**, Technical Manager for the Lab for Experimental Economics (30 years)
- **Ralph Lee**, Manager of MRI Education and Technologies for the Caltech Brain Imaging Center (10 years)
- **Tifany Hyun Kim**, Grants and Center Business Manager (10 years)
- **Travis Maron**, Apps Development Assistant for the Lab for Experimental Economics (20 years)
- **Remya Nair**, Staff Scientist (10 years)
- **Lynn Paul**, Senior Research Scientist (10 years)
- **Ze'ev Rosenkranz**, Senior Editor and Assistant Director of the Einstein Papers Project (15 years)
- **Julian (Michael) Tyszka**, Associate Director of the Caltech Brain Imaging Center (20 years)
- **Candace Younger**, Division Administrator (10 years)

This year, two HSS faculty members received chaired professorships. **Federico Echenique** was named the Allen and Lenabelle Davis Professor of Economics, and **Cindy Weinstein** was named the Eli and Edythe Broad Professor of English.

Thomas Palfrey was elected a fellow of the Game Theory Society, which selects its fellows based on its honorees' contributions to the game theory field and service to the Game Theory Society.

Social sciences graduate students **Nicholas Adams-Cohen**, **Seo Young (Sylvia) Kim**, **Yimeng Li**, and **Lucas Núñez** attended, by invitation, the annual Polmeth Conference, hosted by the Society for Political Methodology, in July. The event is one of the premier

conferences in political science, and the application process for graduate students is quite competitive.

The Economic History Association named Rea A. and Lela G. Axline Professor of Business Economics and History **Philip Hoffman** as their representative for the National Bureau of Economic Research Board of Directors.

The Society for Political Methodology honored Professor of Political Science **R. Michael Alvarez** with its 2017 Excellence in Mentoring Award. The nomination came from several former students, who wrote letters expressing appreciation for his dedication and encouragement. One letter stated, “[Alvarez] loves his research, but he also genuinely loves working with his students and seeing them develop into scholars in their own right.”

Social sciences graduate alumna **Betsy Sinclair** (PhD '07), now an associate professor of political science at Washington University in St. Louis, received the Emerging Scholar Award from the Society for Political Methodology.

HSS is pleased to support the work of its social sciences graduate students this year with the following fellowships:

- **Hamed Hamze Bajgiran** (HSS Chair’s Council 2017 Summer Graduate Fellow and Repetto-Figueroa Family Graduate Fellow, 2017–2018)
- **Anastasia Buyalskaya** (Chen Graduate Fellow, 2017–2018)
- **Jun Chen** (2017–2018 Linde Institute Graduate Fellow)
- **Marcelo Fernandez** (2017–2018 HSS Chair’s Council Graduate Fellow)
- **Lucas Núñez** (2017–2018 HSS Chair’s Council Graduate Fellow)
- **Mali Zhang** (HSS Chair’s Council 2017 Summer Graduate Fellow)
- **Pengfei Sui** (2017–2018 Linde Institute Graduate Fellow)

Over the course of the past year, the research of several HSS faculty members and scholars was recognized with competitively awarded external funding, including:

- **Ralph Adolphs**, for “Using complex video stimuli to elucidate atypical brain functioning in ASD,” from Indiana University (sub-award from the National Institutes of Health); and for “Outer Brain and Inner Brain: Computational Principles and Interactions,” from the Simons Foundation
- **Ralph Adolphs**, Professor of Psychology **John O’Doherty**, Assistant Professor of Cognitive Neuroscience **Dean Mobbs**, and **Colin Camerer**, for “The Neurobiology of Social Decision Making: Social Inference and Context

(P50 Renewal),” from the National Institutes of Health, to continue and expand on research at the Caltech Conte Center

- Professor of Political Science **R. Michael Alvarez**, for “The Consequences of Primary Process Reform in California,” from the John Randolph Haynes Foundation; and for “Assuring Election Integrity: A Comprehensive Ecological Framework for Evaluating Elections in Southern California,” from the Haynes Foundation
- Professor of Philosophy **Frederick Eberhardt** and **Ralph Adolphs**, for “Causal mapping of emotion networks with concurrent electrical stimulation and fMRI,” from the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative (via the National Institutes of Health)
- **Federico M. Echenique** and Professor of Economics **Kota Saito**, for “Testing Attitudes Toward Risk and Uncertainty in Financial Markets for Older Adults,” from the University of Pennsylvania (via the TIAA Institute and Pension Research Council)
- **Susanne Hall**, for “Standard: An Investigation of Text Recycling in Scientific Research Writing,” from Duke University (via the National Science Foundation)
- **John O’Doherty**, Bing Professor of Neuroscience, Behavioral Biology, and Economics **Antonio Rangel**, and **Ralph Adolphs**, for “MRI: Acquisition of a High Performance 3T Magnetic Resonance System for High Resolution Human Brain Imaging,” from the National Science Foundation
- **John O’Doherty**, for “Neuroimaging of Affect and Semantics,” from Pomona College
- **Warren Brown**, for “Violence and Order: Past and Present,” from the Borchard Foundation

In November, it was announced that Professor of Economics **Leeat Yariv** was among 20 others elected as fellows of the Econometric Society for 2017.

The **Brass Division Awards** honor service to HSS and recognize teaching, mentoring, or other activities that enhance learning among Caltech students. The 2017 winners, who received their awards at the December 8 HSS holiday lunch, are:

- **Jean E. Ensminger**, Edie and Lew Wasserman Professor of Social Sciences
- **Susanne E. Hall**, Campus Writing Coordinator in the Hixon Writing Center and Lecturer in Writing
- **Kapauhi L. Stibbard**, HSS AV & Logistics Coordinator



ALSO IN THE NEWS

The *New York Times* sought input from **Ralph Adolphs** after scientists in London trained bees to move a ball to the center of a platform. The article examined what enables insects to solve problems, though Adolphs cautioned that the bees might not understand why they are performing the task.

In an interview with *Inverse*, **Adolphs** explained his research on whether fear is real or just a psychological construct and reflected on his 2013 paper “The Biology of Fear.” He said, “I still believe emotion is a bona fide scientific object of study in both humans and animals. Since 2013 I now think it’s more complicated than I had originally thought, but I think that about everything. Specifically, emotion has a lot to do with social communication in humans, an aspect I did not fully appreciate back in 2013.”

Business Insider shared a list of the traits and behaviors that make people dislike others, both online and in person, based on scientific findings. Number five on

the list—posting a close-up profile picture—referred to **Adolphs**’s research suggesting that faces photographed from just 45 centimeters away are considered less trustworthy, attractive, and competent than faces photographed from 135 centimeters away.

The *Wall Street Journal*’s “Research Report” described a study by **Adolphs** and his colleagues showing that “people with autism may have more of a social side than previously thought,” challenging “the theory that abnormal social behavior in autism is due to a reduced interest in people.”

The *Virginian-Pilot* website ran an article on voting behavior during the 2016 presidential election and referenced findings from the Caltech/MIT Voting Technology Project, which is co-directed by **R. Michael Alvarez**. One of the trends they observed is that if voters are able to wait until later in the day to visit the polls, they will likely get through the line quicker due to smaller crowds.

Colin Camerer's research demonstrating that higher levels of testosterone interfere with men's decision-making processes and cause them to act more impulsively received a lot of press coverage. Numerous media outlets shared the study's findings, under such headlines as "This Is a Man's Brain on Testosterone" (*CBS News*), "The Real Reason Men Hate to Ask for Directions, According to Science" (*Reader's Digest*), "Science Explains Why Men Make Bad Decisions" (*New York Post*), and "There's a Scientific Reason Why Men Are More Likely to Make Dumb Decisions" (*Playboy*).

Camerer is quoted throughout an online *Wired* article that considers the "replication crisis" in economics—a reference to the methodological crisis, across a variety of fields, in which scientists find that the results of many scientific studies are difficult or impossible to replicate on subsequent investigation, either by independent researchers or by the original researchers themselves. Camerer, who has been emphasizing reproducibility throughout his career, explained: "One of my first papers, in the 1980s, has all of the data and the instructions printed in the journal article. Nowadays it would all be online. I was able to kind of bully the editor and say, 'This is how science works.'"

Camerer was also interviewed by *Bloomberg News* about the Nobel Prize in Economic Sciences and the work of his colleague Richard Thaler, who won the award this year. Camerer discussed the impact of the award on the field of behavioral economics, and he explained how behavioral economics affects policy and decision making in government and in business.

Mental Daily shared the findings of **Michael Ewens**'s study on male investors' bias against female entrepreneurs.

In February, Caltech News published a story about the Caltech-Huntington Humanities Collaborations (CHHC) and its inaugural (2016–2018) research module, "Violence and Order Past and Present," with interviews of some of its participants. As Professor of English and Dean of Undergraduate Students **Kevin Gilmartin** explained, "We had a historian [**Warren Brown**] who saw a set of historical problems and a literary scholar [**Jennifer Jahner**] who perceived a set of literary questions and both of them were interested in working together across disciplines. And it was more than just a theme, it was a problem, and a problem that has claims well beyond this specific period. It has implications across history for all sorts of scholars."

Christopher Hitchcock, J. O. and Juliette Koepfli Professor of Philosophy, discussed his research on causation in an interview with *3:AM Magazine*. The conversation covered "the distinction between actual causation and causation, why norms are important in accounts of causation, why he rejects a Humean account of causation, an aside about scientific anti-realism, probabilistic causality and the worries of determinism, Kant's 'means-ends' metaphysics," and much more.

Pasadena Now reported on the city's budget woes from growing retirement costs, which have the mayor and other city officials considering layoffs and cut-backs on services—steps that Professor of Political Science **Rod Kiewiet** does not think will help. He is quoted as saying, "When you cut back on the number of employees, then you've got fewer employees paying into the retirement system, so it's like a mini version of Social Security. You've got more and more retirees and fewer workers. The number of public retirees grows by about 4 percent a year."

2017 IN REVIEW

2017 IN REVIEW

Caltech alumna Mary Boyajian wrote a long feature for the *California Tech* titled “The Agitator – **J. Morgan Kousser**’s Pursuit of a Truly Egalitarian Society.” In the story, Kousser delves into his early activist days, his teaching, and his consulting work for several high-profile legal cases aimed at combatting discrimination.

The BBC referenced a study conducted by **John O’Doherty** and **Antonio Rangel** in an article titled “The psychology behind spending big.” The study found that “people not only rate the same wine more highly when they’re told it is more expensive, [functional MRI] scans taken of their brains while they were drinking the wine suggest participants enjoyed the experience of drinking it more.”

Senior Research Scientist **Lynn Paul** was interviewed in an article by *Spectrum*, the online news and research outlet for autism. The piece elaborated on the role of the corpus callosum and the brain abnormality known as agenesis of the corpus callosum, or AgCC, that is present in one-third of people with the developmental

disorder. “Even people with AgCC who don’t have autism often have problems with social skills,” Paul explained. “The corpus callosum’s connective power supports complex social interactions.”

Professor of Economics and Political Science **Erik Snowberg** is quoted in a *Wired* story examining “blockchain,” the global ledger that securely records transactions for bitcoin digital currency and could help predict future markets.

Cindy Weinstein was featured in an article on the Caltech *Break Through* campaign website showcasing examples of the exploratory spirit of Caltech. She describes the first class she taught at Caltech, in which they read and analyzed Herman Melville’s *Moby Dick*. The story also discusses her roles as vice provost and chief diversity officer at Caltech and as co-principal investigator on the California Alliance for Graduate Education and the Professoriate, an NSF grant designed to increase diversity in STEM fields in higher education.

THANK YOU

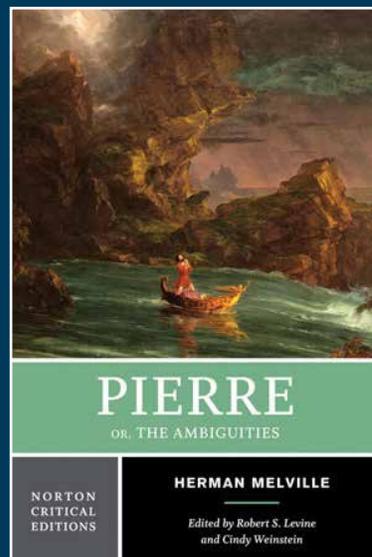
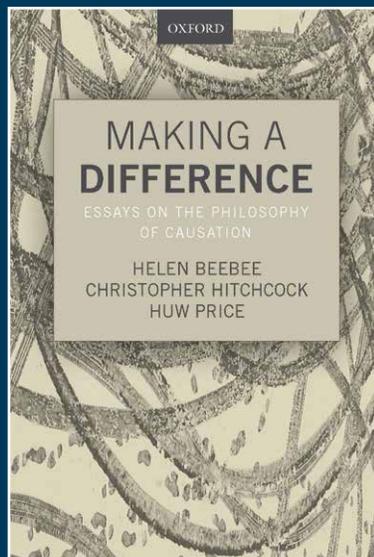
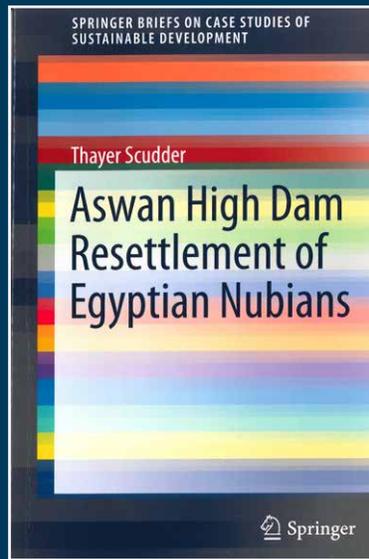
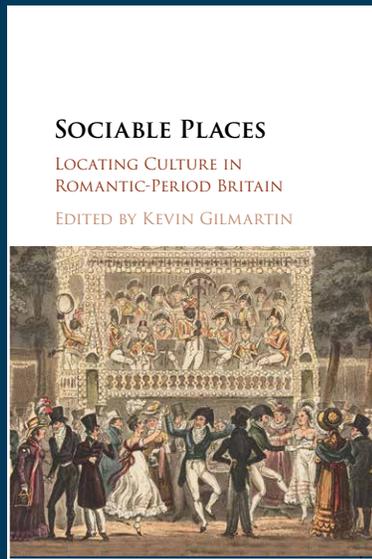
HSS thanks our friends for their generosity over the years. Philanthropy is a critical pillar that supports our teaching and research ambitions. It is with particular joy that we announce and recognize the following philanthropic milestones in 2017:

- The creation of the **Hamid and Manijeh Habib-Agahi Economics Fellowship Fund** to provide financial support for graduate students, with a preference for those pursuing degrees in economics.
- The awarding of the first **Repetto-Figueroa Family Graduate Fellowship** (to fourth-year social sciences graduate student Hamed Hamze Bajgiran).
- The establishment of the **Anne Rothenberg Fund for the Humanities** to help advance humanities research and education at Caltech by providing flexible support for a range of collaborative efforts with The Huntington Library, Art Collections, and Botanical Gardens. In 2017-2018, this fund is supporting the work of Leah Klement, Anne Rothenberg Postdoctoral Instructor in the Humanities.

Every gift, regardless of its size, plays a crucial role in the progress and continuing success of HSS.

FACULTY BOOKS

PUBLISHED IN 2017



2018 EVENT PREVIEW

FEB. 12

**ART + TECH PANEL: SPACE,
IMAGING, AND POWER**

Maayan Amir, *Artist and Lecturer,
Department of Fine Arts, Haifa
University*

Ruti Sela, *Artist and Lecturer,
Department of Fine Arts, Haifa
University*

Robert Simmon, *Senior Data
Visualization Engineer, Planet Labs*

Nicolas Wey-Gomez, *Professor of
History, Division of the Humanities
and Social Sciences, Caltech*

MAR. 12

**EXPLORATION: THE GLOBE
AND BEYOND**

Peter Westwick, *Lecturer
in History, Caltech; Adjunct
Professor of History, USC;
Director, Aerospace History
Project, Huntington-USC Institute
on California and the West*

APR. 11

**JAMES MICHELIN
DISTINGUISHED
VISITORS PROGRAM**

Hampton Sides, *American
historian, author, and journalist*

APR. 25

**EARNEST C. WATSON
LECTURE SERIES**

Marina Agranov, *Professor of
Economics, Caltech*

MAY 14

**JAMES MICHELIN
DISTINGUISHED
VISITORS PROGRAM**

Leslie Jamison, *American novelist
and essayist*

MAY 29

**JAMES MICHELIN
DISTINGUISHED
VISITORS PROGRAM**

Mary Szybist, *American poet*

*Event details are subject to
change. Please check the calendar
on the HSS website for the latest
information about these and other
HSS events.*

HSS

DIVISION OF
THE HUMANITIES AND SOCIAL SCIENCES

For questions about this publication and HSS in general, please email hss@caltech.edu.

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