Program Mission, Description, and Calendar of Events

Stanford University School of Engineering
The Stanford GPC Disruptive Technology & Digital Cities Program was founded to transform disruptive technology into new opportunities for growth and to provide a new academic perspective on technology and urban markets.

As the 2019-2020 academic year begins, our corporate affiliate members work with Stanford faculty, researchers and graduate students to create understanding on how technology will impact industry business models, governance, sustainability, and competitive advantages. For each affiliate member, we develop a comprehensive annual plan to match up business needs with disruptive technology and continuously work on joint-venture activity and research engagements. The program also has Venture Capital and Family Office members who will invest in targeted startups and work with the members to identify opportunities.

During the academic year that just passed, Stanford researchers from the Schools of Engineering, Computer Science and Law have engaged with our affiliate members on seed research projects, speaking engagements and the creation of prototype products. A study conducted at the program on the future of mobility was presented at the Mobile World Congress. On behalf of the entire membership, the program just released a new research paper that covers how movement is becoming a key aspect of consumer profiling with examples of impact across industries.

For the coming year, we will greatly expand on program activities with several new research projects, venture capital partnerships and events at Stanford that are open to all affiliate members. This 2019-2020 program brochure outlines all of this year’s activities aimed at assisting our affiliate members to understand how to transform disruptive technology into new business models and opportunity for revenue growth.
Transforming Disruptive Technology into Revenue Growth

Bridging the Gap Between Disruptive Technology and Corporations

Disruptive technology and cities are tightly intertwined, as urban environments are rapidly being digitalized – by private corporations selling to commercial markets – with sensors, networks, connected devices and vehicles. It is now possible to collect real-time data on preferences and activities of consumers, device performance and usage and structural health. Rapidly improving networks, algorithms, meta-materials and cloud computing are all examples of technologies that enable new business models and disrupt old ones.

As innovation often comes from new market entrants, existing companies often have difficulty adapting to disruptive technology. Corporate life-spans are decreasing and technology is at the center of this development – the five most valuable companies in the world are technology companies that did not exist 30 years ago. From the Fortune 500 of 1955, only 60 companies remained on that list by 2017.

Connecting Technology to Business Models

Most companies are finding it difficult to translate opportunities created by IoT technology into value creation. In academia, the impact of IoT on business models is still an under-researched field. A key program function is to translate disruptive technology into business models.

Products and services are no longer clearly defined and demarcated as it is possible to continuously interact with customers and respond to their behavior with new features and individualized offers. Technology that enables for device performance and usage monitoring bolsters optimization and forecasting capabilities that can create a Continuously Connected Value Chain and entirely new product-service business models.

Our overarching goal is to help companies bridge the gap between earl-stage disruptive technologies and their own organizations – and provide strategies that connect technology to business models.

Why we Focus on Urban Markets

• Global urban population has grown from 1 to 3.5 billion – expected to double again over the next 50 years.

• 80% of the R&D of the top 5 Silicon Valley tech companies is on products targeted at urban markets.

• By 2025 60% of Global GDP will be generated in 600 cities with 25% of the population.

• Cities are also where it is possible to create insights from constant connectivity of individuals and devices.

A New Definition of a Digital City

We challenge the use of the term "Smart City" as we believe that it is a misnomer. Contrasting from most research that focuses on city governance, we believe that digital cities will be developed by private enterprises that are growing their own commercial markets in urban centers by leveraging disruptive technology.
Research That can Lead to New Business Opportunities

Stanford offers members an opportunity to fund seed research that will explore a given area of technology that could result in a new business model.

Following the Fellow-Mentor-Advisor model, a Stanford Ph.D. student Fellow, interacts closely with one or a few Mentor experts from the affiliate company under the guidance of a faculty Advisor.

Seed projects can lead to a more in-depth, sponsored project that can generate intellectual property that is transferable to the sponsor.

Affiliate Research Meeting - December 11, 2019

This fall, we will bring together members to solicit and review technology proposals from Stanford faculty. Members can then evaluate what they see. Here are a few seed research areas:

- Data Strategies and Architecture Design
- Neuro-morphic chip technology for computing on the edge
- Robotics and Stretchable Materials for low-cost sensors
- Human behavioral dynamics
- Applied Artificial Intelligence for big data

Connecting the Annual Plan to Research

We conduct calls and meetings with each member to set the annual plan. During these conference calls, we work with each individual member to understand in more detail the strategic problems they are facing and what they want to accomplish with their membership. The annual plan helps us identify and focus on opportunities in research and collaboration that might provide a member insights, and/or a path to a solution. This process includes Stanford’s technology labs, our venture fund, keynotes and workshops.

One outcome of the dialog between our team and the affiliate member is to engage on a seed research project that explores a given area of research.

Creating Intellectual Property Through Sponsored Research Projects

As our members begin to explore our program offerings for the coming year – or if a seed research project has shown promising results – there may arise an opportunity for a member to do a sponsored research project. Generally, this process involves identifying a specific area where an affiliate member wants to engage Stanford faculty and graduate expertise to explore one avenue that could lead to a new application or business model leveraging Intellectual Property, "IP". As an example, a pre-commercial seed research project may lead down a path where a member may want to do more in-depth work to create specific IP which is owned by the member. Sponsored project scope and cost is negotiated with the faculty Principal Investigator of the sponsored project.

Through our venture capital affiliates, sponsored projects can provide the foundation for a startup company. So far we have seen Meta-Wave, Robotik, and One-Point-One funded as early stage startups. Meta-Wave produces high-resolution radar, Robotik AI-powered dexterous robots and One-Point-One a new kind of robotic-enabled urban farm.
A One-Stop Stanford Clearing House

The Disruptive Technology and Digital Cities Program covers disruptive technologies and new business models for healthcare, financial services, transportation, construction, sustainability, energy, advanced materials and data analytics. For the 2019-2020 academic year we have added new academic co-directors to the program. A few key areas of research covered by our co-directors:

**Predictive Analytics**
Predictive Analytics and the use of AI is a critical element of every platform that helps companies create insight and opportunity from data. Several of our affiliated researchers focus on what to consider when developing these platforms and how data creates insight.

Professor Ram Rajagopal directs the Stanford Sustainable Systems Lab (S3L), focused on large-scale monitoring, data analytics and stochastic control for infrastructure networks, in particular, power networks. His current research interest in power systems are in the integration of renewables, smart distribution systems, and demand-side data analytics.

**Neuromorphic Computing**
The Brain in Silicon Laboratory at Stanford’s School of Engineering has several projects aimed at creating computer chips that emulate human behavior. Under the leadership of Dr. Kwabena Boahen, the goal is to design a computer that works like a brain. This type of neuromorphic computer has the potential to transform various industries and lead to an affordable super-computer. A primary application area is Edge Computing – a mini-brain chip can be embedded into IoT material to decide how to collect, process, and store data efficiently reducing Cloud cost. From an energy perspective, it is possible that this could have applications for deciding when to run certain applications, adjust temperatures and such in a more efficient way. Edge computing also has the added benefit of requiring almost no energy, radically changing the model for sensors with inbuilt computing capability.

**Stretchable Sensors**
Professor Fu-Kuo Chang has developed a radical new approach to advanced materials that makes it possible to create sensors that are fully integrable with wireless networks embedded in a wide range of materials. One of his first projects has been to build robotic skin - making it possible for a robotic arm to feel its way in its environment giving autonomy and freeing it from human management.

Professor Chang is also using stretchable materials for aerospace and battery applications. He has created an aircraft wing that is intelligent enough to detect stress, identify cracks in the wing, and manage the data coming off the sensors embedded in the metal. He has also created a composite material with stretchable materials to dramatically increase the life of a battery while decreasing its overall size and weight while not losing the energy generated.

**Autonomous Systems**
The Autonomous Systems Lab (ASL) develops methodologies for the analysis, design, and control of autonomous systems, with a particular emphasis on large-scale robotic networks and autonomous aerospace vehicles. The lab combines expertise from control theory, robotics, optimization, and operations research to develop the theoretical foundations for networked autonomous systems operating in uncertain, rapidly-changing, and potentially adversarial environments.
The Global Projects Center

Our program is part of The Global Projects Center - an interdisciplinary research center at Stanford. GPC facilitates understanding of financing, development, and governance of critical infrastructure worldwide. GPC also conducts early-stage research, facilitates engagement among academic and industry leaders, and educates future leaders at the doctoral level. Key research areas covered at the GPC:

Long-Term Investor Research Program
- Pensions and Infrastructure Paper Series: Three case-based papers on direct investments by public pension funds in public infrastructure projects. Cases include the N33 project in the Netherlands, Queensland Motorway in Australia, and the CDPQ Infrastructure program in Canada (in development).
- Institutional Fintech Research Program: Study of the financial technologies and their applicability to improve risk management and portfolio allocations for institutional investors.

Infrastructure Development Research Program
- US and Chinese Infrastructure Investment Abroad: Series of case studies on the practices of bilateral and multilateral lending institutions and their effectiveness in financing urban and rural infrastructure projects in developing economies.

P3 FLIPS Program
- Project Risk Paper Series - Toll Road Revenue Risk: Series of case studies on US toll roads that experienced revenue risk during the start of the great recession. We are examining project outcomes based on how it was financed and the governance of the institutions managing it.
- Deferred Maintenance Research Initiative: Joint GPC and CIFE research program on deferred maintenance in public buildings and other infrastructure. The initiative will include a study of the future costs of deferred maintenance, active asset management, and accounting standards.
- Municipal P3 Program Development: Study of the institutional changes necessary to implement smart city projects or alternative procurements at the state or local level. This research includes a study of the structuring options available in municipal asset classes such as public buildings and educational facilities.

Stanford Law CodeX/LST
The scope and complexity of legal and regulatory challenges presents a hurdle to harnessing the full potential of emerging technology, at a time when the velocity of technological transformation is unprecedented and unrelenting. The Stanford Center for Legal Informatics (CodeX), a pioneer in applying engineering approaches to these challenges, brings strengths well aligned with the program mission, as does its umbrella program, the Stanford Program in Law, Science & Technology (LST) with a focus on law and policy related to emerging technology. With deep roots in Silicon Valley and robust networks globally, CodeX/LST provides access to unique strategic, multidisciplinary expertise and novel research, education, and collaboration opportunities in emerging domains such as digital cities, AI, robotics, IoT, autonomous vehicles, data security and privacy, and block chain, expanding options for corporate affiliates navigating legal and regulatory challenges at the speed of disruption.
Breakthrough Visual Modeling Platform - Open to All Members

Stanford is developing a ground-breaking new framework to visualize and ask "What If" questions of an entire city and understand consumer behavior within a city. As we attach physical data to the model, including earthquake, flooding, energy flow, financial transactions, commuting data, sensor information, demographics and a wide range of other public and private information. When this data is applied to the model, we can run scenario analysis and predict outcomes for financial transactions, real estate markets, demographics and energy usage using machine learning.

For the first time, it is possible to create insight on how people behave, spend and about their daily activities within a city. We can also see how mobility technology is likely to impact commercial opportunities across all commercial markets.

Our goal is to develop the ability to predict future outcomes with a high degree of reliability. It will also be possible to develop vertical applications for specific industry sectors that enable companies to create insights that support questions such as commercial real estate investment, ROI, disaster scenarios, autonomous vehicle impact, revenue prediction and climate change.

All members can participate in the project and the first application is commercial real estate, led by Professor Ram Rajagopal and Dr. Herman Donner.

Identifying Urban Change
Current work on the Visual Modeling Platform involves training state-of-the-art machine learning algorithms to identify patterns of urban change using satellite imagery, street view imagery and digital exhaust from platforms such as Yelp that tells us local demand and preferences.

Specifically, street view images and satellite images encode not only the physical appearance, but also inherent socioeconomic attributes of neighborhoods. We plan to use satellite and street view images at two different time points, to conduct both predictive and causal analysis on urban change. Specifically, leveraging state-of-the-art deep learning techniques, we are able to obtain the vector-representation of neighborhood physical appearance based on imagery data. We can then use the change of these vector-representations to predict the change in socioeconomic attributes and house price, and vice versa. Also, the causal effect of neighborhood appearance on house price, or the effect of rising house price on the neighborhood appearance change, can also be quantitatively analyzed.

Stanford Team: Professor Ram Rajagopal, Dr. Herman Donner, Ph.D. Candidate Zhecheng Wang, Ph.D. Candidate Junwen Zheng.

Business Model Implications
A visual modeling platform is designed for commercial market development. We can add and evaluate real-time data for healthcare, financial transactions, services, transportation companies, autonomous vehicles, IoT sensors, and a vast array of demographic information as well. We expect our members will find their own application for the platform which could lead to new monetization models.
Networking End Access to Technology Intelligence

Our corporate affiliate members have access to some of the most valued expertise in disruptive technology and human behavior. Aside from the direct program benefits, members may use the program leadership to understand how to find the right expertise or people to discuss a wide range of topics including:

Business Models & Strategy

We are also exploring new business models that could leverage autonomous vehicles as mobile network scanning platforms. For the first time, we can acquire images ranging from infrastructure to human activities transmitting daily data feeds to powerful cloud-based systems for analysis.

In other areas, we will explore how financial transactions are likely to change, from Block Chain to transactions conducted in the car and transmitted via mobile networks to the cloud. How will business models of financial services companies change with these new platforms?

For the coming academic year, we will be expanding pro-active networking to connect each member with whatever resources are needed to drive a new strategy or simply learn about a new domain. Please fell compelled to connect with us as you find a need. As we work together in 2019-2020, we will learn about each other's businesses, organization, and needs. Let's find a way to make leverage this for our mutual benefit.

Michael J.T. Steep
Executive Director & Adjunct Professor,
Stanford Former Senior Vice President PARC

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- Finding technical and technically-Savy business talent
- Developing effective innovation organizations
- Learning how to leverage partnerships and joint ventures
- Developing networking skills brining it to a leadership level
- Accessing foreign partners and market expertise
- Finding the right expert in Artificial Intelligence or Robotics or Pick One
- Finding the right executive in one of 1500 Fortune Group companies to engage in a discussion
- Accessing the Silicon Valley Community
- Understanding how to develop a low-cost way to become aware of disruptive technology
- Learning more about IP rights
- Understanding privacy
- Learning about venture-backed startup models
- Understanding how VC's strategize and operate
- Access and hire unaccessible talent
- Create effective innovation processes inside the company
- Learn where to invest in future technologies
- And many more...
Membership Benefits at a Glance

Affiliate members of the Disruptive Technology and Digital Cities Program, gain access to a one-stop Stanford Clearing House on disruptive technologies spanning all areas of technology and schools at Stanford. We often assist our members in identifying Stanford resources for speaking engagements, write memos on areas of interest, conduct seed research projects and even create prototype products at Stanford labs (cost in addition to the membership fee).

Access to World-Class Faculty and Ph.D.’s
Our reach spans engineering, computer science, materials science and law. We identify relevant technology and help our members interact with world-class researchers.

Connecting Technology to Business Models
In each member annual plan, we identify emerging and potentially disruptive technology that is relevant in relation to member goals.

Stanford Technology Labs Portfolio
We have access to a complete catalogue of all Stanford technology labs (400+) and research projects (4000+) that are used to "Match Up" member annual plan goals to specific labs where IP is commercially transferable. We also work with Stanford researchers, venture capital and affiliate members to create start-up opportunities.

Facilitated Access to Venture Capital
The program offers facilitated access to $60M in venture funding for use in developing early stage startup opportunities with member involvement (through GPC affiliate member, Diamond Ventures). Two startups have been funded through the program so far.

Joint-Venturing
Members also get access to the eco-system of the membership - we continuously work on identifying opportunities for research collaboration.

Program Research
Access to GPC related research, and digital cities research on behalf of the entire membership. During the past year, we have been heavily engaged in the visual modeling project. A research report on how analytics and movement data will impact business models has also been presented.

Recruitment
We can assist our members in connecting with Stanford graduate students to explore part-time and full-time employment opportunities.

Events
- Our 2-day summit attracts upwards of 300 researchers, policymakers and C-level executives. In addition to networking events, we facilitate break-out sessions on research and joint-venturing. This year’s conference will be a collaboration with Stanford Law School on analytics, privacy and regulation.

- A one-day research meeting where we bring together Stanford research and affiliate members to learn about new technology and get opportunities for further exploration.

- A one-day venture capital themed conference during 2020 in which we bring together founders, venture capitalists, researchers and industry experts to discuss trends in technology and finance.

- We also assist our members with tailored events spanning executive visits at Stanford with presentations to research labs to on-site workshops on business modeling and data strategy.
2019-2020 Program Calendar

• Advisory Board Meeting: November 15th, 2019

• Member Research Meeting: December 11, 2019
  • Venture Capital Summit, March 19, 2020
  • Advisory Board Meeting: May, 2020

• Digital Cities Summit, September 9-10, 2020
  • Monthly Membership Conference Calls
    • Individual Member Activities
Kathleen Cahill, Vice President, Cushman & Wakefield

Kathleen Cahill is a Vice President at Cushman & Wakefield managing strategic partnerships and emerging technology initiatives. In her role, Kathleen advises C&W service lines on leading technology solutions and trends that can help drive organic growth, operational efficiencies and strategic transformation. Prior to C&W, she spent four years working for JPMorgan Chase & Co. as a strategy and business consultant analyst for their multifamily, commercial and construction lending businesses. She was recently named to CSQ’s NextGen 10 in 2018 for Real Estate and Finance and is the co-founder of the women’s focused real estate technology industry group, Women in PropTech.

Ronald S Diamond, Chairman and CEO, Diamond Wealth Strategies

Mr. Diamond graduated Magna Cum Laude from Northwestern University with a degree in Economics. Following graduation, Mr. Diamond worked at Drexel Burnham Lambert working in high yield, investment banking, and money management. Following Drexel Burnham, Diamond became a Managing Director at Bear Stearns managing over $1 billion for high net worth individuals. After Bear Stearns, Diamond launched a $250 million hedge fund utilizing his proprietary trading strategy. He successfully ran the hedge fund for 10 years, beating the S & P index each year, and ultimately sold it to an institutional investment firm.

Jim Disanto, Managing Partner, Motus Ventures

Jim DiSanto is a 20 year silicon valley technology executive and veteran entrepreneur. Jim has extensive experience in enterprise software, mobile applications, navigation and location based services, and automotive applications. During the past decade, Jim co-founded and lead KonaWare, a pioneer in mobile applications for transportation and logistics operators, which he sold to Yamei Electronics of Beijing, China in 2008. Jim joined Yamei as a board director and General Manager and formed strategic partnerships with automotive OEMs and Tier One suppliers in China. Yamei was purchased by Trimble Navigation in 2011 yielding a 4X return on invested capital over two years. Prior to this, Jim co-founded Simplexity Wireless, the leading web MNVO now over $400M in annual revenue, and Vicinity (VCNT), one of the first web location based services, which went public in 2000, and was purchased by Microsoft (for MapPoint) in 2002.

Lara Druyan, Managing Director, Head of Innovation (West Coast), RBC

Lara Druyan is a Managing Director at RBC where she is the Head of Innovation on the West Coast. She is responsible for identifying and working with start-ups on the Bank's behalf, creating partnerships, establishing relationships with the Silicon Valley ecosystem, and new product creation as well as investing in start-ups that are strategic to the Bank. Previously, she was the Founding Partner of G&B Partners, an investment and advisory firm focused on technology companies. She also served as a Venture Partner for Almaz Capital, an Adviser to Pilot Growth Equity and as a Venture Adviser to SRI where she helped SRI conceive of, launch and incubate new ventures. Ms. Druyan served as Vice Chair of the Board of Trustees and Chair of the Investment Committee for the City of San Jose’s Federated Employee Retirement System (a $2B pension plan) for six years. Previously, she was an Investor in Residence at US Venture Partners and a General Partner for over a decade with early-stage venture capital firm, Alegis Capital. Lara also worked at Silicon Graphics as a product manager in its heyday and released a dozen software products while at SGI. Ms. Druyan has led many investments and served on numerous boards of directors and advisory boards. Some of the companies in which she has invested or served as an adviser include: Xactly (XTLY), Powerset (MSFT), Skout (MEET), Xlink, Ironcloud, Galvanize Labs and Krome Photos. In 2016, she was named as one of the “Silicon Valley Investors You Need to Know” by Inc.
Brendan Fitzgibbon, Senior Director for Global Policy, VISA

Brendan oversees Visa’s response to global regulatory and government activity as it pertains to the payments industry, with expertise in a variety of areas, including fintech, financial inclusion, economics of payments, innovative payment products, and the benefits they bring. In addition to advising the business on policy development, Brendan has led notable engagements alongside renowned research firms, including ESI Thoughtlab’s Cashless Cities study and the Economist Intelligence Unit’s Government e-Payments Adoption Ranking. Prior to joining Visa, Brendan spent several years in corporate strategy, leading a number of engagements as a project leader for Audi’s strategy group, including driving the brand’s first connected vehicle launch in the U.S. Additionally, he spent several years in global strategy consulting supporting multi-national clients across a variety of industries, including pharma, med device, energy and technology. Brendan began his career with the National Endowment for Democracy, based in Washington, DC, leading government-based nation building efforts in multiple countries. Brendan has a BA in Political Science from Duke University and a MBA from the Thunderbird School of Global Management at Arizona State University. He currently resides in the San Francisco Bay Area with his wife and three daughters.

Helene Kim, Managing Director, Lexbridge LLC

Helene is an incoming Director for the Advisory Board of Stanford University's Disruptive Technology and Digital Cities Program. She is Managing Director of Lexbridge LLC (San Francisco), and has extensive experience advising top executives of leading U.S. and Asian multi-national enterprises on Global Innovation Strategy and Business Model Innovation. Ms. Kim is an Advisor to the SK Group, one of South Korea’s leading conglomerates, and also serves on the Advisory Board of one of South Korea’s most prominent private equity firms (over $20 Billion AUM). Ms. Kim previously served as founding Executive Director of International and Executive Legal Education, and Lecturer in Global Innovation at UC Berkeley. Ms. Kim has also worked as a management consultant and international lawyer with McKinsey & Co. and prominent Bay Area law firms. Ms. Kim holds degrees from Harvard Law School (J.D.), Harvard College (A.B. summa cum laude).

Michael Loeb, Diamond Wealth Strategies

Michael Loeb is a serial entrepreneur and venture investor. After an 8-year corporate tour at Time Inc., Michael’s first entrepreneurial endeavor was Synapse Group which revolutionized the marketing and sustaining of magazine and newspaper subscriptions worldwide by leveraging its patented continuous service business model. Synapse was sold to TWX in 2006. Incubated inside of Synapse was Priceline, which was founded by Synapse’s co-founder, Jay Walker, and co-funded by Michael. In 2007 Michael founded Loeb Enterprises (LE) with partner Rich Vogel. LE, and its lab Loeb.nyc, has been described as a ‘company factory’ – our ideas, our capital, our talent - developing both home-grown and early-stage external businesses. Today Loeb.nyc is building 20 companies.

Rob Ruyak, Global Lead, VC & Startups Business Development, Amazon Web Services

Rob Ruyak leads business and partnership development efforts with venture capital, commercialization firms and startups for Amazon Web Services in the global public sector group. He specializes in topics related to aerospace, smart/digital cities, cybersecurity, blockchain, and AI/ML. Rob has an M.B.A. from the University of Maryland Robert H. Smith School of Business and a B.A. in economics from Georgetown University.
Tara Prakriya, Co-Head, Azure IoT Mobility division, Microsoft

Tara Prakriya is the Co-Head of the Azure IoT Mobility division focused on the Microsoft Connected Vehicle Platform and Azure Maps. Along with a very deliberate ecosystem including the world’s leading mobility and transportation companies such as Volkswagen AG, Renault-Nissan-Mitsubishi Alliance, TomTom, Moovit and others, Azure is working to reshape the automotive industry taking advantage of the simultaneous landscape shifts of connected vehicles, artificial intelligence, shared ownership, user mobility and electric vehicles business models. She rejoins Microsoft after a fun ride as CPO of a startup in enterprise AI, Maana, from seed to just before the close of series C. Prior to that she worked at Microsoft cumulatively for 15 years in Windows and Bing. She also had roles at Merck and Scantron. In her various roles she has tackled machine learning, enterprise AI, big data analytics, content management, handwriting recognition, ink / touch and new hardware, educational LMS systems and online advertising. She’s an AI pragmatist and believes the most important part of any solution is identifying and decomposing the right question.

Marcus Shingles

Marcus is a social-impact minded executive with over 20 years of management and leadership experience working with senior executive teams across premier global organizations, governments, and prominent startups, specializing in innovation and digital transformation, organizational change, and emerging and disruptive technology. Marcus was recently the CEO of the XPRIZE Foundation, the global leader in incentive competitions used to crowdsourced innovation and disruptive technologies to solve the world’s grandest challenges facing humanity. Prior to XPRIZE, Marcus was a Partner at Deloitte Consulting leading the Innovation Group where he worked with Fortune 100 corporate executive teams and Government leaders to prepare for the opportunities and threats associated with disruptive innovation. Marcus helped establish and co-led the Innovation Partnership Program, a venture with XPRIZE and Singularity University to curate and support a membership-based community of Fortune 200 executive teams with their innovation strategies and digital transformation. Marcus is part of the Singularity University guest speaker faculty, and on the Board of Advisors for Stanford University School of Engineering-Global Project Center’s Disruptive Technology & Digital Cities Program. Marcus has appeared/been interviewed on national and global broadcasts as a thought leader, including on NBC’s The Today Show and CNBC’s Squawk Box, as well as being featured and/or contributing to leading publications such as The Wall Street Journal, Los Angeles Times, Forbes, and Wired Magazine. In addition, Marcus has provided keynotes on the topic of disruptive innovation for the CEO’s executive team summits at leading organizations and several Governors and their cabinets, as well as opening keynotes at leading conferences and universities, including Kellogg Northwestern University, Purdue University, Singularity University, and co-hosting the United Nations Summit on Innovation with the President of the U.N. at the UN HQ in NYC, and “AI for Good” Summit in Geneva. Earlier in his career, Marcus ran the Consumer Products CRM consulting practice at Ernst & Young consulting, and started his career in industry at the Kellogg Company in Sales & Marketing, Global IT, and Customer Strategy teams. As a passion project, Marcus has pioneered a program in partnership with the public school system in Los Angeles to bring “exponential entrepreneurial” training to high school students in currently underserved communities.
Grant Stevens, Managing Director, Global Construction & Development, Prologis

Grant Stevens leads Prologis’ worldwide construction and development activities as well as the company’s Sustainability initiatives that include environmental, social and governance (ESG) programs. Grant is also responsible for the Global Energy and Development initiatives that include installation of over 180 MW of solar energy installations, 233 sustainability building certificates and the retrofit of LED light fixtures in operating buildings around the world. Prior to joining Prologis, Grant worked at Hines Development for over 30 years as a development executive in numerous cities around the world. During his tenure at Hines Grant managed the development of over 22 million square feet of diverse real estate investments including commercial, retail, mixed use and residential. His professional experience includes cities across America, Canada, Western and Eastern Europe, Russia and India. He has an exceptional record of recruiting, training and managing multi-national teams that cultivated collaboration and respect for the best of all cultures. Grant’s contributions to industry innovation started over 20 years ago when he participated with Ray Levitt at Stanford’s Collaboratory for Research on Global Projects. Grant earned his BA in Organizational Communications from the University of Utah and his Master of Science in Construction Engineering and Management from Stanford University.

Don Strickland, Founder, Strickland & Associates

Don’s career has been both successful and rewarding. He was the visionary behind the world’s first consumer digital camera, which he developed at Kodak and launched at Apple. This camera disrupted the traditional imaging markets and led the way to a new industry in digital imaging. As Apple’s Vice President of Imaging and Publishing, Don led the re-architecture of the Apple platform from traditional print publishing to “new media” including music, video and the Internet. Don left Apple to head a Silicon Valley startup company, PictureWorks Technology, which was one of the first companies to implement its technology as a “Software as a Service” (SaaS) deployment. His company invented and patented the familiar “drag and drop” interface for uploading images, music and video to websites. He sold his startup company to a public company, IPIX Corporation, and became its CEO. Over the course of five years He led the company to become an early pioneer of the “Web 2.0” business model with its interactive imaging technologies. He now heads Strickland & Associates, which consults with some of the world’s most successful companies on business model innovation and corporate entrepreneurship. He also serves as Adjunct Professor, Innovation and Entrepreneurship, Imperial College London. Education has played an important role in Don’s career. He holds a Master of Science degree in Physics (University of Notre Dame), a Master of Science degree in Optics (University of Rochester), a Juris Doctor degree in Law with a specialty in Intellectual Property (George Washington University), and attended Stanford University as a Sloan Fellow.
Craig Criddle  
*Professor of Civil and Environmental Engineering and Senior Fellow, by courtesy, at the Woods Institute for the Environment*
Craig Criddle is Professor of Civil and Environmental Engineering at Stanford University. He is also Director of the Stanford Codiga Resource Recovery Center and Senior Fellow (by Courtesy) in the Woods Institute for the Environment at Stanford. His research interests are biotechnology for recovery of clean water, renewable energy, nutrients, and safe biomaterials.

Catherine Gorlé  
*Assistant Professor of Civil and Environmental Engineering*
Catherine Gorlé’s research interest is the development of predictive flow simulations of the natural and built environment to support sustainable design and policy decisions. She focuses more specifically on coupling large- and small-scale models and experiments to quantify uncertainties related to the variability of boundary conditions, and developing uncertainty quantification methods for low-fidelity models using high-fidelity data.

Rishee Jain  
*Assistant Professor of Civil and Environmental Engineering*
Rishee’s research focuses on the development of data-driven and socio-technical solutions to sustainability problems facing the urban built environment. His work lies at the intersection of civil engineering, data analytics and social science. Recently, his research has focused on understanding the socio-spatial dynamics of commercial building energy usage, conducting data-driven benchmarking and sustainability planning of urban buildings and characterizing the coupled dynamics of urban systems using data science and micro-experimentation.

Mike Lepech  
*Associate Professor of Civil and Environmental Engineering and Senior Fellow at the Woods Institute for the Environment*
Lepech’s research focuses on the integration of sustainability indicators into engineering design, ranging from materials design, structural design, system design, to operations management. Recently his research has focused on the design of sustainable high performance fiber-reinforced cementitious composites (HPFRCs) and fiber-reinforced polymers (FRPs), the impacts of sustainable materials on building and infrastructure design and operation, and the development of new life cycle assessment (LCA) applications for building systems, transportation systems, water systems, and consumer products.
Michelle Anderson
Professor of Law
Michelle is a public law scholar and practitioner focused on state and local
government, including urban policy, city planning, local democracy, and public
finance. Her work combines legal analysis with the details of human experience to
understand the local governance of high poverty areas, both urban and rural, and the
legal causes of concentrated poverty and fiscal crisis. Her current research
explores legal restructuring for cities and counties in distress. Prior to joining Stanford Law
School in 2014, Anderson was an assistant professor of law at Berkeley Law School.

Philip Levis
Associate Professor of Computer Science and of Electrical Engineering
Phillip is an Associate Professor in the Computer Science and Electrical
Engineering Departments of Stanford University. He heads the Stanford
Information Networking Group (SING), co-directs the Secure Internet of Things
Project, and holds the Fletcher Jones Faculty Development Chair. His research
focuses on the design and implementation of efficient software systems for
embedded wireless sensor networks; embedded network sensor architecture and design;
systems programming and software engineering.

Dan Boneh
Rajeev Motwani Professor in the School of Engineering and Professor of Electrical
Engineering
Professor Boneh’s main research area is applied cryptography and network security.
His focus is on building security mechanisms that are easy to use and deploy. He has
developed new mechanisms for improving web security, file system security, and
copyright protection. He contributed to the security and performance of the RSA cryptosystem
and contributed to the study of cryptographic watermarking.

Jure Leskovec
Associate Professor of Computer Science
Jure is assistant professor of Computer Science at Stanford University where he is a
member of the InfoLab and the AI lab. He joined the department in September 2009.
In 2008/09 he was a postdoctoral researcher at Cornell University working with Jon
Kleinberg and Dan Huttenlocher. Jure completed his Ph.D. in Machine Learning
Department, School of Computer Science at Carnegie Mellon University under the
supervision of Christos Faloutsos in September 2008.
Oussama Khatib  
Professor of Computer Science  
Oussama Khatib received his Doctorate degree in Electrical Engineering from Sup’Aero, Toulouse, France, in 1980. He is a Professor of Computer Science at Stanford University. His work on advanced robotics focuses on methodologies and technologies in human-centered robotics including humanoid control architectures, human motion synthesis, interactive dynamic simulation, haptics, and human-friendly robot design. He is Co-Editor of the Springer Tracts in Advanced Robotics series, and has served on the Editorial Boards of several journals as well as the Chair or Co-chair of numerous international conferences. He co-edited the Springer Handbook of Robotics, which received the PROSE Award. He is a Fellow of IEEE and has served as a Distinguished Lecturer. He is the President of the International Foundation of Robotics Research.

Marco Pavone  
Assistant Professor of Aeronautics and Astronautics  
Dr. Marco Pavone is an Assistant Professor of Aeronautics and Astronautics at Stanford University, where he is the Director of the Autonomous Systems Laboratory. Before joining Stanford, he was a Research Technologist within the Robotics Section at the NASA Jet Propulsion Laboratory. He received a Ph.D. degree in Aeronautics and Astronautics from the Massachusetts Institute of Technology in 2010. His main research interests are in the development of methodologies for the analysis, design, and control of autonomous systems, with an emphasis on autonomous aerospace vehicles and large-scale robotic networks. He is a recipient of a PECASE Award, an ONR YIP Award, an NSF CAREER Award, a NASA Early Career Faculty Award, a Hellman Faculty Scholar Award, and was named NASA Niac Fellow in 2011.

Ram Rajagopal  
Associate Professor of Civil and Environmental Engineering  
Professor Ram Rajagopal is an Associate Professor of Civil and Environmental Engineering and by Courtesy, of Electric Engineering. Rajagopal’s primary research focus is on advancing the design, optimization and data-driven modelling of electric power systems. His work involves creating novel sensing and control platforms, robust data processing algorithms and dynamical statistical decisions Methods. He has also worked extensively on sensing infrastructure systems and transportation networks.

Silvio Savarese  
Associate Professor (with Tenure) of Computer Science  
Silvio Savarese is an Associate Professor (with tenure) of Computer Science at Stanford University and director of the SAIL-Toyota Center for AI Research at Stanford. He earned his Ph.D. in Electrical Engineering from the California Institute of Technology in 2005 and was a Beckman Institute Fellow at the University of Illinois at Urbana-Champaign from 2005–2008. He joined Stanford in 2013 after being Assistant and then Associate Professor of Electrical and Computer Engineering at the University of Michigan, Ann Arbor, from 2008 to 2013. His research interests include computer vision, robotic perception and machine learning. He is recipient of several awards including a Best Student Paper Award at CVPR 2016, the James R. Croes Medal in 2013, a TRW Automotive Endowed Research Award in 2012, an NSF Career Award in 2011 and Google Research Award in 2010.
**Fu-Kuo Chang**

Fu-Kuo Chang has a primary research interest in the areas of multi-functional materials and intelligent structures with particular emphases on structural health monitoring, intelligent self-sensing diagnostics, and integrated health management for space and aircraft structures as well safety-critical assets and medical devices. He received his PhD from the University of Michigan.

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**Kwabena Boahen**

*Kwabena Boahen*

*Professor of Civil and Environmental Engineering and Senior Fellow, by courtesy, at the Woods Institute for the Environment*

Kwabena Boahen uses silicon integrated circuits to emulate the way neurons compute, linking the seemingly disparate fields of electronics and computer science with neurobiology and medicine. His group is at the vanguard of a profound shift in computing, away from the sequential, step-by-step Von Neumann machine towards a parallel, interconnected architecture more like the brain's. He received his PhD from California Institute of Technology in 1997. Before joining Stanford in 2005, he was on the faculty of the University of Pennsylvania.
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