

# FUTURE OF DESIGN



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CITY

 IABSE  
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EDUCATIONAL ALLIANCE  
LOWER EAST SIDE

# Future of Design 2017

NEW YORK CITY, USA

The International Association of Bridge and Structural Engineers (IABSE) was founded in Zurich in 1929. It is an international organization with members from 80 countries and including the world's leading bridge and structural engineers. IABSE aims to facilitate the exchange of information on all aspects of structural engineering and organizes regular symposia, conferences and workshops.

The IABSE Future of Design Conference is a one-day event for engineers, architects, academics, students, contractors, fabricators and other professionals working in the built environment. The purpose of the conference is to facilitate conversation about topics that are of importance to our industry now and in the future. It seeks to energize, educate and inspire the next generation of designers.

In order to maximize interaction among participants, the conference includes panel discussions, short lectures and a hands-on workshop. Accomplished designers and researchers will pair with emerging and innovative designers to present ideas on what the future holds for structural engineering. We will also discuss the future of our practice and how we adapt as designers to ever changing contexts with increasing complexity. Future of Design provides a unique opportunity to learn about cutting edge design work, discuss the future challenges of our profession, and to work together collaboratively.

## SCHEDULE

 Follow live event updates @fodnyc

| Time          | Title                         | Topic              | Speaker  | Company/University   |
|---------------|-------------------------------|--------------------|--|--|
| 08:30 - 09:00 | Registration                  |                    |  |  |
| 09:00 - 09:10 | Welcome                       |                    | Lee Franck<br>Salvatore Di Bernardo  | Guy Nordenson and Associates<br>IABSE Representative   |
| 09:10 - 10:50 | 10 + 10 Talks                 | Future of Design   | Glenn Bell<br>Antonio Rodriguez<br>Eric Long<br>Luca Frattari<br>Sigrid Adriaenssens<br>Bill Washabaugh<br>Guy Nordenson<br>Julian Rose<br>Michael Stein<br>Anand Babu | Simpson Gumpertz & Heger<br>Leslie E. Robertson Associates<br>Skidmore, Owings & Merrill<br>Altair<br>Princeton University<br>Hypersonic<br>Guy Nordenson and Associates<br>Artforum<br>schlaich bergermann partner<br>Sidewalk Labs |
| 10:50 - 11:15 | Q + A                         |                    |  |  |
| 11:15 - 11:45 | Coffee                        |                    |  |  |
| 11:45 - 13:00 | Panel Discussion              | Future of Practice | Elizabeth Mahlow<br>Christopher O'Hara<br>Josh Lobel<br>Aaron Forrest<br>Ben Tait<br>Paul Kassabian  | Nous Engineering<br>Studio NYL<br>C.W. Keller + Associates<br>Ultramoderne<br>UAP<br>Simpson Gumpertz & Heger  |
| 13:00 - 13:45 | Lunch sponsored by PBDW       |                    |  |  |
| 13:45 - 14:00 | Dessert Talk                  |                    | Rebecca Buntrock<br>Leonard Leung  | Silman<br>PBDW Architects  |
| 14:00 - 15:30 | Presentations                 | Future Contexts    | Eliza Montgomery<br>Matt Carter<br>Jennifer Anna Pazdon<br>Simon David   | Ennead Architects<br>Arup<br>Cast Connex<br>BIG  |
| 15:30 - 16:00 | Coffee                        |                    |  |  |
| 16:00 - 18:00 | Design Workshop               | A Resilient Future | Ted Segal  | Hofstra University   |
| 18:30 - 20:00 | Reception sponsored by Silman |                    |  |  |

## SPEAKERS & PANELISTS



**GLENN BELL**  
SIMPSON GUMPERTZ & HEGER

Glenn Bell, a Senior Principal, joined SGH in 1974. He has worked closely with architects and contractors on the design of structures and building enclosure systems, seismic design and risk assessment, materials analysis, and investigation of distress and failure of building systems. Glenn has lectured and published papers extensively on technical, managerial, and professional practice in structural engineering and has served on many professional committees and boards, including for the American Society of Civil Engineers and the Building Seismic Safety Council. From 1995 through 2016, Glenn served as Chief Executive Officer of SGH.



**ANTONIO RODRIGUEZ**  
LESLIE E. ROBERTSON ASSOCIATES

Antonio has been with LERA since 2006. He holds a Master's Degree in Numerical Methods for Design and Analysis in Engineering and a Postgraduate Degree in Structural Design and Analysis, both from the Universitat Politècnica de Catalunya (Barcelona, Spain), as well as a Bachelor's Degree in Mechanical Engineering from the Universidad Simon Bolivar (Caracas, Venezuela). Antonio guides the efforts of LERA Immers, a Virtual Reality consulting service that uses custom VR design and coordination tools to enhance the design process. He focuses his work on developing projects with complex geometries using advanced techniques, such as parametric design, computational methods, digital fabrication and VR.



**SIGRID ADRIAENSSENS**  
PRINCETON UNIVERSITY

Adriaenssens is a structural engineer and associate professor at the Department of Civil and Environmental Engineering at Princeton University, where she directs the Form Finding Lab. She worked as a project engineer for Jane Wernick Associates (London) and Ney + Partners (Brussels) where she found the form for the courtyard roof of the Dutch National Maritime Museum in Amsterdam (2011). At Princeton, she co-curated the exhibition 'German Shells: Efficiency in Form' which examined a number of landmark German shell projects. She is first author of Laurent Ney: Shaping Forces (2010) and Shells for Architecture: Form Finding and Optimization (2014). The pursuit of better structural urban forms runs as a Leitmotif through her research and teaching.



**ERIC LONG**  
SKIDMORE, OWINGS & MERRILL

Eric is a Director of Structural Engineering in SOM's San Francisco office. He incorporates innovative structural engineering design concepts to drive new solutions in building design and construction. Eric is involved in teaching an integrated architectural studio class, focusing on the creative collaboration of architecture and structural engineering with students from Stanford University, the University of California, Berkeley, and others.



**LUCA FRATTARI**  
ALTAIR

Luca Frattari has a Ph.D. in Architecture and Industrial Design. He joined Altair as an employee in 2011 and is currently the Global Director for Architecture Engineering and Construction. He continues to pursue his passion to create and innovate through his involvement with some of the greatest design projects happening across the globe, using Altair's technology to help people transform their creative intuitions into structural reality. At Altair Engineering, Frattari has worked for a company that has more than thirty years of experience in lightweight design, innovation and simulation technology. His effort is directed to helping teams deploy the software and methodologies developed at Altair in order to solve complex problems.



**BILL WASHABAUGH**  
HYPERSONIC

Bill Washabaugh uses art, science, and technology to explore the world around and within us. He is the founder and creative director of Hypersonic, a studio that creates new media sculptures and interactive environments. For the past six years, Hypersonic has created sculptures inspired by the movements and forms found in nature. Prior to founding Hypersonic, Bill designed aircraft systems for a large airplane company. Bill has a B.S. in aerospace engineering, and has been a guest lecturer at RISD, NJIT, and Parsons the New School. He was recently a visiting research fellow at the Cadre Lab for New Media Art at San Jose State University.



## GUY NORDENSON GUY NORDENSON AND ASSOCIATES

Guy Nordenson is a structural engineer and professor at Princeton University. He established the New York office of Arup and was a director until 1997 when he began his independent practice, Guy Nordenson and Associates. Current projects include the expansion of the Museum of Fine Arts Houston with Steven Holl and the National Museum of African American History and Culture in Washington. He serves as Commissioner of the NYC Public Design Commission and member of the NYC Panel on Climate Change and the board of the Jamaica Bay-Rockaway Parks Conservancy. His research project "On the Water | Palisade Bay" won the 2007 AIA Latrobe Prize, and served as the inspiration for the MoMA workshop and exhibition "Rising Currents."



## JULIAN ROSE FORMLESS FINDER

Julian Rose grew up in Colorado and New York City. He received his Masters of Architecture from Princeton University where he was awarded the School of Architecture History and Theory Prize. Prior to attending Princeton he earned his BA from Harvard University in Art and Architectural History. He has worked for AMO on Rem Koolhaas's proposal for the State Hermitage Museum in Saint Petersburg, Russia, and for the American firm LTL Architects on various buildings, installations, and exhibition designs, including projects sited at Lincoln Center and the Architectural League of New York. Rose's writing on both art and architecture has been published internationally in such publications as Domus, Log, and Artforum.



## AARON FORREST ULTRAMODERNE

Aaron Forrest (AIA, NCARB) is co-principal of the award-winning architecture practice Ultramoderne. He received both his Bachelor's Degree and Masters in Architecture from Princeton University. Aaron is an Assistant Professor of Architecture at RISD, with previous teaching experience at University of Pennsylvania and Princeton University. Prior to founding Ultramoderne, he practiced in New York with Bernheimer Architecture and Guy Nordenson and Associates Structural Engineers, and in Madrid with Ábalos & Herreros Arquitectos. He was also a designer-in-residence at MoMA/PS1 for the Rising Currents exhibition.



## PAUL KASSABIAN SIMPSON GUMPERTZ & HEGER

Paul Kassabian joined Simpson Gumpertz & Heger Inc. (SGH) in 2003. He is experienced in structural design and investigation on a wide range of structural systems from buildings for architects to projects on the cutting edge of both structural systems and materials. He focuses on developing innovative methods of design and construction using SGH's in-house materials lab, computational design approaches, and digital fabrication techniques. Paul was a lecturer at MIT in the fall semester to graduate structural engineering students and currently lectures at Harvard GSD in the spring semester to the graduate architecture students.



## MICHAEL STEIN SCHLAICH BERGERMANN PARTNER

In his 20-year long career with schlaich bergermann and partner, Michael Stein has designed projects around the world. He believes in the creative skills of engineers and the potential benefits of an integrated design approach for construction projects. In 2004 he founded the New York office and leads U.S. operations as Managing Partner. Michael's experience in North America includes serving as Engineer of Record for the 450ft high WTC Tower 1 spire. He was Project Director during the design and construction of the Consol Energy Wingtip (Boy Scouts) Bridge in West Virginia. Michael's projects have received numerous awards, such as the SEAO NY Award for Excellence in Structural Engineering 2014 for the Boy Scouts Bridge in West Virginia.



## ANAND BABU SIDEWALK LABS

Anand Babu is Chief Operating Officer for Sidewalk Labs. He previously led efforts in Google's Special Projects team focused on cities and transportation and led product incubation within Google's Machine Intelligence team. Prior to Google, Anand led platform strategy for Opower, a software company using real-time analytics to help utility customers save energy. He also led product for SkyDrive at Microsoft, growing it to 200 million consumer and enterprise users, and launched Azure, Microsoft's cloud platform for developers. Previously, he worked as a venture investor at Crosslink Capital, where he led investments in cloud infrastructure and solar energy. Anand started his career as a consultant at Bain & Company.



## JOSH LOBEL CW KELLER + ASSOCIATES

Josh Lobel is Director of Engineering at C.W. Keller + Associates. C.W. Keller + Associates work hand in hand with architects, designers, and contractors to design, fabricate and deliver custom visions within a defined budget, effect, and performance.



## ELIZABETH MAHLOW NOUS ENGINEERING

Liz is a Principal at Nous Engineering in Los Angeles who envisions a new kind of engineering practice combining social understanding with technical and design skill. Liz has 9 years of professional experience in the construction industry, focusing on high-rise concrete construction, seismic design and special structures. She has managed large-scale, fast-track projects within the US and internationally.



**CHRISTOPHER O'HARA**  
STUDIO NYL

O'Hara is the facade director for the Skins Group, a division of Studio NYL. The Skins Group was established to provide full service facade design specializing in thermal modeling, moisture/condensation analysis, in-depth detailing and more. They are known for their progressive approach to designing architectural structures, and are often sought out by those who need assistance with challenging systems. Although Studio NYL is recognized for its skins work with cutting edge glass and glazing, their team also specializes in digitally fabricated metal skins and facades, GFRC, reinforced polymers, stone, ultra high performance concrete, fabrics, terra cotta and traditional precast. O'Hara is currently working on multiple facade projects in the Boston area.



**BEN TAIT**  
UAP

Ben Tait is President of UAP North America. As part owner of UAP's global business and President of its North American arm, Ben holds over 20 years of experience in organizational leadership and specialized construction. Since the early days of UAP Ben has been instrumental in its transformation from a small Brisbane studio into a multinational operation.

In 2014 Ben established UAP North America and now leads the company's quickly growing US business head quartered in New York City. He contributes to the groups global strategy as a member of the UAP board.



**MATT CARTER**  
ARUP

Matt Carter joined Arup in 1997 and leads our Long Span Bridge business in the Americas region. He is a civil engineer with extensive experience in the conceptual and detailed design of long-span and complex bridge structures in North America, East Asia, Europe, Africa, and Australia. Through his work on major bridge projects, Matt has developed significant skills in seismic and aerodynamic design of bridges as well as marine foundations and ship collision risk. Matt has been involved in numerous design-build projects and public private partnerships with both owners and contractors as clients, gaining unique insights by working from different perspectives.



**JENNIFER ANNA PAZDON**  
CAST CONNEX

Project Engineer Jennifer Anna Pazdon provides management and technical support to local CastConnex staff, as well as technical support for brick maker capacity-building, and lead new project start-ups as needed. Jennifer earned her MSE from Princeton University and has over 9 years' experience as a structural engineer in new construction and renovations, primarily in the NY/Northeast area of the U.S.



**LEONARD LEUNG**  
PBDW ARCHITECTS

Leonard Leung has over 20 years of design experience and has contributed to the firm's design vocabulary and aesthetics, especially its educational and institutional projects. He has worked on designs for the Mellon Foundation, the Poly Prep's Lower School in Brooklyn, and the Educational Alliance's flagship building. His current projects include the design of a new natatorium, student center, and gymnasium building for Riverdale Country School, and the design for a new television production and office building for DeSales Media Group in Brooklyn. Mr. Leung currently teaches a design studio as visiting professor at Pratt Institute School of Architecture, is an adjunct Associate Professor of Architectural Design at the New York Institute of Technology, and acts as a design critic at Pratt, NYIT and the City College of New York.



**ELIZA MONTGOMERY**  
ENNEAD ARCHITECTS

Eliza Montgomery is a designer at Ennead Architects. Current projects include the Peabody Essex Museum Expansion and the Arizona Center for Law and Society. She also co-leads Ennead Lab's Rethinking Refugee Communities project. In collaboration with the United Nations High Commissioner for Refugees, this AIA NY Honor Award winning project is an initiative to design more cohesive, dignified and sustainable planning solutions for refugees and internally displaced people around the world. Montgomery has lectured on the project at a number of events including the 2014 Humanitarian Innovation Conference at Oxford and the UN Habitat 2016 Conference at the UN Headquarters. She also teaches on the subject jointly with Don Weinreich at Pratt Institute.



**SIMON DAVID**  
BIG

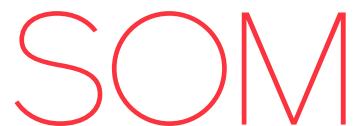
Simon David joined BIG in 2015, and is a Senior Urban Designer. Simon began his career in 2004, and has interdisciplinary experience in architecture and landscape architecture, with an emphasis on urban design. At BIG, Simon is Project leader on Phase 1 of the BIG U, and has led urban design and roofscape projects. Prior to joining BIG, Simon was Senior Project Manager and Designer at Michael Van Valkenburgh Associates. Projects include the winning submission for the Miami Convention Center competition, the headquarters for an international sports company in Portland, OR, and Pier 6 of Brooklyn Bridge Park. Simon has also been project designer for the Hudson Yards Plaza and Streetscape in NYC, and the Guggenheim Museum Sculpture Garden in Venice, Italy.



**TED SEGAL**  
HOFSTRA UNIVERSITY

Ted is an Assistant Professor in the Department of Engineering at Hofstra University. His current work focuses on developing sustainable solutions for civil engineering applications by analyzing, designing, testing and optimizing structures constructed from unconventional synthetic and natural materials. Previously, Ted worked at SGH in New York City, where he designed glass and metal enclosures.

## THANK YOU TO OUR CONFERENCE SPONSORS



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## ORGANIZING COMMITTEE

Lee Franck, Guy Nordenson and Associates  
Powell Draper, Schlaich Bergermann and Partner  
Julia Chapman, Ennead Architects  
Victor Charpentier, Princeton University PhD  
Alex Alaimo, PBDW Architects  
Rebecca Buntrock, Silman  
Shinjinee Pathak, Silman  
Ryan Miller, Silman  
Evan Speer, Kathmandu Valley Preservation Trust  
Tracy Huynh, Knippers Helbig



LEE FRANCK



POWELL DRAPER



JULIA CHAPMAN



Victor Charpentier



ALEX ALAIMO



REBECCA BUNTROCK



SHINJINEE PATHAK



RYAN MILLER



EVAN SPEER



TRACY HUYNH

### JULIA CHAPMAN

Julia is an architectural designer at Ennead Architects and a registered architect in New York. She holds an Arts Bachelor and a Master of Architecture degree from Princeton University where she received the Henry Adams AIA Medal and the Suzanne Kolarik Underwood Prize for excellence in design. Previously, she was the Project Manager for Structures of Coastal Resilience, an interdisciplinary project featuring design proposals for coastal communities vulnerable to sea level rise and storm surge.

### VICTOR CHARPENTIER

Victor is a PhD student in the Department of Civil and Environmental Engineering at Princeton University. His thesis work combines reducing energy consumption of buildings and elastic deformation of shell structures. In particular he is designing shading systems for active façade aiming at optimizing both energy consumption and user comfort. A specialist of shape shifting structures, he got a MSc at Ecole Nationale des Travaux Publics de l'Etat in Lyon, France.

### ALEX ALAIMO

Alex serves as a Director at Large for the AIA National Associates Committee where he promotes engagement among emerging professionals. Alex served as Co-Chair of Emerging New York Architects of the AIANY chapter. There he initiated the ARE workshop a peer to peer study group and MakinGOODesign, as well as three City of Dreams Pavilion's and the ENYA Biennial Ideas Competition. He founded Operation Resilient Long Island a post Sandy ideas accelerator. He is currently employed by PBDW Architects in New York.

### LEE FRANCK

Lee is a structural engineer working for Guy Nordenson and Associates in NY. She has previously worked for Arup in London as a building and bridge engineer. She works closely with architects on projects such as museums, sculptures and footbridges. She enjoys being a visiting lecturer and tutor to engineering and architecture students at the AA, RCA and Bartlett in London and Princeton and Columbia in the US. She is an active member of IABSE and started the Future of Design in London in 2012.

### REBECCA BUNTROCK

Rebecca is a Senior Project Engineer at Silman, with a focus on existing buildings and preservation. She holds a Bachelor of Engineering from McGill University and a Master of Engineering degree from MIT. She was the sixth Robert Silman Fellow for Preservation Engineering at the National Trust for Historic Preservation. She is currently the vice president of the APT Northeast Board of Directors and a member of IABSE Working Commission 7, Sustainable Engineering.

### SHINJINEE PATHAK

Shinjinee Pathak is a senior structural engineer at Silman. She began her career working on an iconic new construction project. Since then her focus has transitioned more to existing building renovation. Her projects range from museums to renovations of educational and religious institutions. Shinjinee is an active member of the Structural Engineers Association of New York (SEAoNY) and served as the Excellence in Engineering Awards committee chair from 2014-2016. She has written articles for Civil Engineering Magazine and Modern Steel Construction.

### RYAN MILLER

Ryan Miller is a structural engineer at Silman, working on a wide range of project types and sizes, including new construction, existing structures, and special structures. Ryan has also been involved with the local design community, serving as Chair of the Programs Committee for the Structural Engineers Association of New York (SEAoNY) and as co-organizer for the annual City of Dreams temporary pavilion design-build competition.

### POWELL DRAPER

Powell is a structural engineer and Director of Operations for the NY office of schlaich bergermann and partner. He has worked on advanced structural engineering projects, including gridshells, complex bridges, and glass structures. His PhD dissertation in structural engineering from Princeton University provided the basis for a chapter he coauthored in Felix Candela: Engineer, Builder, Structural Artist. He is an Adjunct Associate Professor in the Irwin S. Chanin School of Architecture at the Cooper Union.

### EVAN SPEER

Evan serves as seismic/structural engineering & operations consultant at the Kathmandu Valley Preservation Trust in Nepal. He works on a variety of building design projects with a focus on historic preservation and adaptive reuse. He holds a Bachelor of Civil Engineering from the University of Vermont and a dual Master of Structural Engineering from the University of Minho and the Czech Technical University. He was the 8th Robert Silman Fellow for Preservation Engineering at the National Trust for Historic Preservation.

### TRACY HUYNH

Tracy received a Bachelor of Science in Civil Engineering at Rice University (Houston, TX) and a Master of Science in Structural Engineering at Princeton University. She joined Knippers Helbig in 2016 where she has worked on a variety of projects and competitions involving complex geometries and innovative technologies with a creative and passionate team. She makes an effort to stay involved in the design community by creating graphics for shirts and posters for various organizations.

## NOTES

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