

Artist Janet Echelman transforms urban space by creating voluptuous billowing sculpture as counterpoint to hard-edged cityscape.

Biography

Janet Echelman builds living, breathing sculpture environments that respond to the forces of nature — wind, water and light— and become inviting focal points for civic life. Exploring the potential of unlikely materials, from fishing net to atomized water particles, Echelman combines ancient craft with cutting-edge technology to create her permanent sculpture at the scale of buildings. Experiential in nature, the result is sculpture that shifts from being an object you look at, to something you can get lost in.

Recent prominent works include “*Her Secret is Patience*”, which spans two city blocks in downtown Phoenix, “*Water Sky Garden*”, which premiered for the 2010 Vancouver Winter Olympics, and “*She Changes*”, which transformed a waterfront plaza in Porto, Portugal. Her newest commission creates a “Zone of Recomposure” in the new Terminal 2 at San Francisco International Airport.

She has received fellowships from John Simon Guggenheim Foundation, New York Foundation for the Arts, Pollock-Krasner Foundation, Japan Foundation, Rotary International Foundation, Harvard Graduate School of Design Loeb Fellowship, Aspen Institute Henry Crown Fellowship, and a Fulbright Senior Lectureship. Echelman will serve as a 2011-2012 Resident in Visual Arts at the American Academy in Rome. She currently serves on the board of directors of the U.S. Fulbright Association.

Artist Janet Echelman – Brief Narrative

- Moves to Bali, Indonesia after graduating from Harvard. (1987)
- Robert Rauschenberg discovers Echelman's art in Asia and asks to curate one-person show in the United States. At the opening, Rauschenberg buys three canvases for his personal collection. (1989)
- After living in Bali for five years, a house fire destroys studio. Invited to teach at Harvard. Moves to Cambridge. (1992)
- Travels to India on a Fulbright to teach painting and give exhibitions. Painting supplies shipped via diplomatic pouch, never arrive. Decides to embrace the local surroundings and begins first sculptures using indigenous fishing nets. The nets pack small and expand for traveling exhibition. (1997)
- Establishes studio in New York City. (1999)
- Invited by Portuguese government to design first monumental permanent outdoor net sculpture in Porto to suspend above 3-lane highway roundabout. Inspired by traditional local lace-making, fishing traps, and striped smokestacks. (2001)
- Must engineer sculpture for hurricane winds and harsh conditions, but no engineering software exists. Enlists engineer of America's Cup boat sails. Commissions first software for porous, dynamically moving sculptures. Adapts industrial material used for astronaut's spacesuits to make long-lasting, color-fast twine. (2004)
- Commissioned to create sculpture icon for downtown Phoenix, Arizona. Project cancelled as the economy implodes; public protest reverses the city's decision. Arizona Republic headline: "Art Triumphs;" Newsweek article: "Art Attack." (2007)
- Seeking more complex, organic forms for Phoenix sculpture, works with roller-coaster manufacturer to bend metal armature. Incorporates new splicing techniques and programmable lighting that changes gradually through the seasons. (2009)
- For the 2010 Vancouver Olympic Winter Games speed-skating venue, the Richmond Olympic Oval, Echelman is selected for two plaza commissions and combines them to create *Water Sky Garden*. Works with team to shape visitors' path through the space, with sculptural events above and below. Designs "water drawing" fountains that also remediate run-off water. (2010)
- The Denver Office of Cultural Affairs selects Echelman as the commissioned artist to create a monumental temporary installation in Civic Center Park commemorating the first Biennial of the Americas. Titled *1.26*, this artwork engages issues of temporality and interconnectedness surrounding the 1.26 microsecond shortening of the day that resulted from the February 2010 Chile earthquake's redistribution of the earth's mass. (July 2010)
- Philadelphia's Center City District engages in an extensive search for an artist to create an iconic artwork for the redesign of Dilworth Plaza, the 2.8-acre site adjacent to historic City

Hall. Echelman is selected in March 2010. On October 19, Center City District announces that its application for federal funding for this redesign and renovation has been awarded a \$15 million federal Transportation Investment Generating Economy Recovery (TIGER) grant. (2010)

- TED Guest Curator, Juan Enriquez, invites Echelman to present a mainstage talk to his session, "Threads of Discovery," at TED2011 in Long Beach, California. (2011)
- Echelman's sculpture, *Every Beating Second*, commissioned by San Francisco Arts Commission, premieres in newly renovated Terminal 2 at San Francisco International Airport (SFO). Selected to create a "Zone of Recomposure" to provide travelers with a contemplative environment after security checkpoint, her first permanent, interior commission transforms the space and engages viewers with real and imagined natural forces. (2011)
- Echelman is named a Fellow of The John Simon Guggenheim Memorial Foundation. (2011-2012)

Echelman Technology Overview

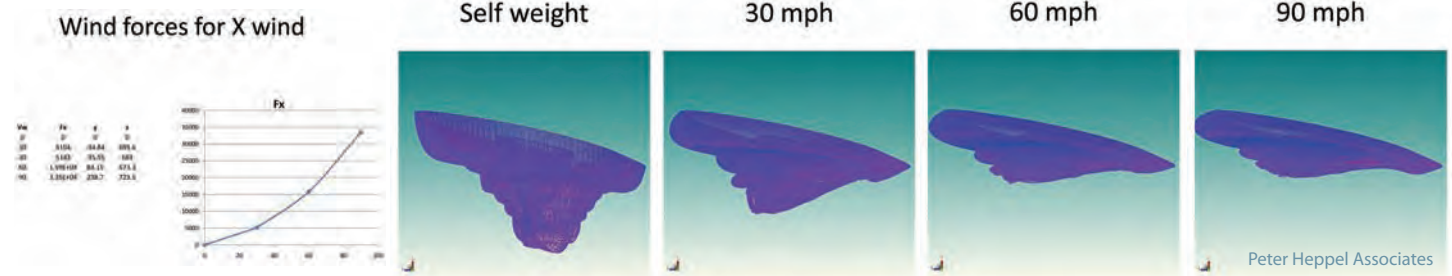
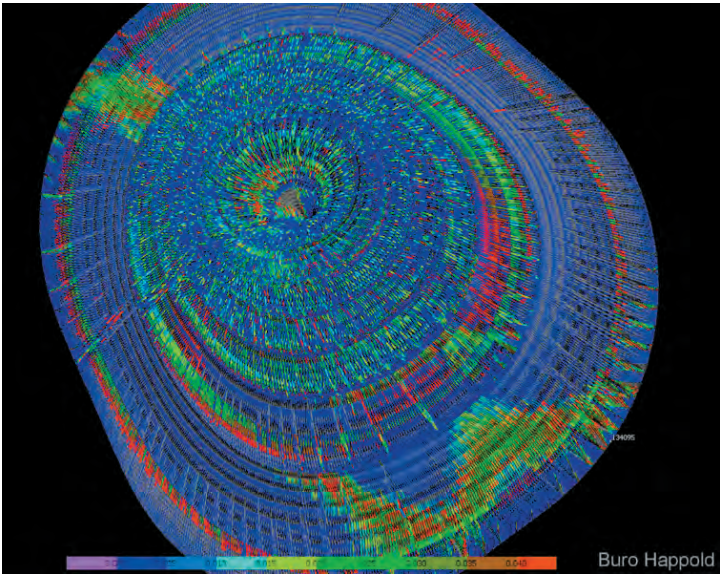
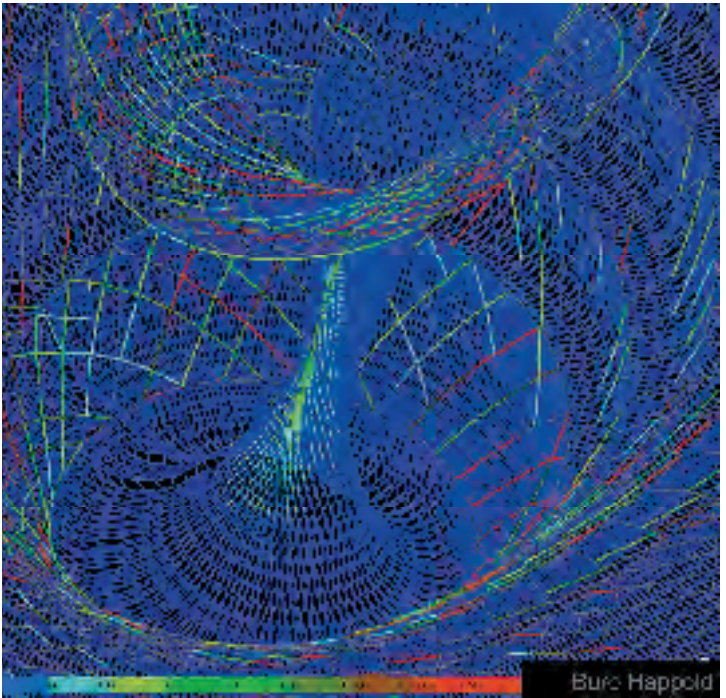
Artist Janet Echelman creates fluidly-moving urban sculpture that responds to environmental forces: wind, water, and light. These monumental artworks are collaborations of artist with a team of award-winning structural, aeronautical & computational engineers, computer scientists, architects, landscape and lighting designers, urban planners, and fabricators.



We satisfy building code to withstand hurricane winds, ice & snow loads, earthquakes, & UV exposure. Robust materials and fabrication methods are selected to minimize maintenance and prevent vandalism for each site's conditions.

Computational & Structural Engineering Process

Initial Form Description: Artist describes 3D forms in Maya.
Surface Resolution: Engineers import surfaces into Rhino, rebuild geometry, and define parameters to describe curvature.
Net Discretization: Engineers computationally construct and overlays netting as a series of line segments and node panels. Artist commissioned engineers to create netting software tool specifically for this application to incorporate fabrication process for net panels on loom & related technology constraints.
Form Finding: Engineers stitch together all the net panels that describe surfaces into a complete Rhino model; export that geometry to proprietary form-finding software that employs a sophisticated solver based on the principle of Dynamic Relaxation to find deflected shape of assembled net sculpture under the effects of gravity. Artist's critique creates feedback loop.
Wind and Structural Analysis: Engineers structurally analyze form-found model for non-linearities in deflection, loading and material properties. Analysis provides data to determine tenacity of the twine required for each loomed net panel. Engineer then reloads this data into the form-finding process as the stiffness of the twine affects the form-found shape, creating an analysis loop compounding the form-finding loop. Wind velocity and direction are analyzed with respect to netted form.
Design Documentation: Engineers developed additional computational tools for the automatic generation of Construction Documents that describe the exact looming patterns for net-panel fabrication and color for each individual bobbin.





Gates 50-59 ↑

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