

Enter the mesmerizing world of visual artist Jason Krugman '01, whose creative studio is the nucleus for technical innovation, imaginative vision and the boundless potential of light.

STORY AND PHOTOGRAPHY BY BEN HEIDER

# The Light Sculptor

# The workshop in the Brooklyn Navy Yard is bursting with energy.

LED meshes sit on tables, countertops and shelves. They hang from pegs, hooks, ceiling struts. Simple diodes and soldered wires are woven into grids, wrapped into cylinders, rounded into spheres. Elegant copper and gold struts connect into flexible triangular lattices. Bins of tape, baskets of pliers, spools of wire and sleeves of straws are always within arm's reach.

Jason Krugman '01 is the mastermind behind this nook of neatly ordered chaos. His structures have names reminiscent of fantasy, science, mathematics and nature: basket, flying carpet, toroid, reef, helix, gyroid, firefly. Krugman is a light sculptor, a visual artist who creates large-scale public installations, commercial real estate centerpieces and high-end residential light fixtures.

Krugman's mother, a painter, and aunt, a potter, exposed him to artwork from a young age. At Nobles, he took advantage of the strong arts programming and athletics, crediting the Swayzes, Bob Freeman and other legends with orienting his artistic passions. "I started out doing a lot of scrapbooking, journaling and drawing because it really helped me to organize my ideas and abstract the physical world and the emotional world," recalls Krugman.

After studying economics and studio art at Tufts, with an immersive year abroad in Barcelona, he found himself "trying the Wall Street thing" at Goldman Sachs and Merrill Lynch. Processing credit default swaps in the lead-up to the financial crisis, he resisted the inertia toward a career in securities law and realized his answer to the question "How long is this going to take before I can be an artist?" was "Why wait?"

Still in tune with the art world, he attended a *Wired Magazine* tech showcase and was blown away by the ways artists were combining projection mapping, LED technology and interactive sensors. Wanting to learn these emerging technologies for himself, he entered the Interactive Telecom-

munications Program at NYU's Tisch School of the Arts. "When I was there, I had just a furious amount of energy," says Krugman. "Just so much energy, because I wanted to be an artist so badly, and was so immersed in it." At ITP, he developed a mantra: "If you want to successfully make an artwork to garner attention, you can make things that look like people, you can make things that move, or you can make things that are big. If you do those things, it's hard for people not to pay attention to it, particularly if you do all of them." So, with no budget and rudimentary skills, he dabbled in creating large light-up humanoid sculptures with recycled materials and Christmas lights, and dispersed them in random trees throughout the city.

For his ITP thesis project, he built an 8'x8' array with about 1,000 LEDs, each controlled by its own wind-sensitive switch that transformed gusts of wind into visual propagations of light. It was a hit that piqued the interest of the MoMA. "It went viral before that was even a thing. A music festival art director saw it online and commissioned me to make another version of it to show at different music festivals," recalls Krugman. "It wasn't a giant commission, but it was enough to invest some more money in one of my ideas and launch out of school into making my own commissioned artwork."

Off and running, Krugman soon began his signature style of soldering LEDs into grids and making sculptures with them. "This was a new way that people hadn't really done before," says Krugman, "and I really liked it because it shared something with drawing in that it was very repetitive. You get into this flow state—just focus on making a good solder joint. I would solder hundreds or thousands of these things into these big grids. I was making my own medium, essentially."

Krugman is always experimenting and working to develop systems that he can mold into new shapes and structures. In recent years, he's patented a system

of thin custom-printed copper and gold-plated circuit boards with LEDs built in and concentric circles that serve as both the structural and electrical contacts. By sandwiching together layers of power, ground and addressable data channels, they can be connected in parallel to build three-dimensional illuminated artwork.

He likes playing with the idea of serendipitous emergence, where he sets the stage for something beautiful to happen and selectively controls variables to see what grows organically. "Light is a perceptual medium, and it's an energetic medium," says Krugman. "The way I've developed my thinking about my own artwork is by basing my work around the development of systems and investing repeatedly in the same thing, so that all of the learning and work builds upon itself." Whether he's wrapping one-inch-square grid wire meshes, bending five- and six-valence triangular cell webs, fabricating steel tubing, or designing LED strips for a 200-foot-tall construction crane, there's a cohesive thread that runs throughout his work that can be seen and experienced.

Krugman's business is irregularly cyclical, going through phases of intense fabrication and installation interspersed with periods of design and proposal applications. With commissions in skyscrapers, cruise ships, hospitals and vacation homes, he's able to employ a team of a few full-time fabricators plus a set of long-term contractors who are highly skilled craftsmen with day jobs as software engineers and circuit-board designers. Most of his works are large, so the team builds them in pieces and ships them to the site for final assembly and installation. While he's constantly working toward grander sculptures and permanent installations where the margins are greater, he appreciates the comfort of a vibrant studio and a tight team. "I try to balance my lifestyle with my business, so I'm not necessarily trying to scale as big as possible as quickly as possible," he says. "I'm just trying to sustainably build the business up and do better and better work."



Vast amounts of pliers, crimpers, screwdrivers, sockets, spools of wire and LED components

The hub of Jason Krugman Studio is this workshop where designs are prototyped and smaller sculptures are created. Krugman and his team use a metal shop and warehouse spaces to weld and fabricate custom pieces for larger installations.

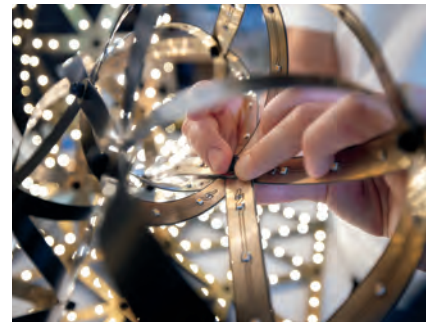




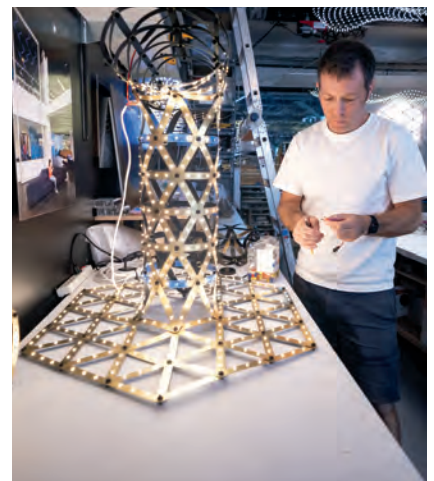
Krugman installs *Figure 8*, a straw mesh sculpture with over 2,500 LEDs commissioned for a private residence.



LEFT: A *Flying Carpet* light sculpture made of Krugman's signature unshielded square LED mesh



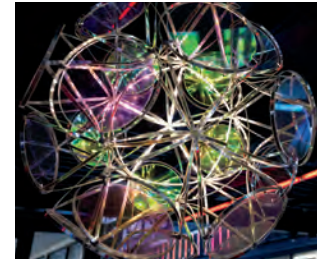
RIGHT: With his flexible proprietary LED struts, Krugman is working to transform flat electrified meshes into surfaces with curvature.



A nearly unlimited number of Krugman's patented printed circuit board LED struts can be connected in any position through a shared axis.

**LEFT:** *Jupiter Sphere* with an interior reflecting balloon

**RIGHT:** Two LED meshes connected with plastic straws



**LEFT:** *Gyroid*, a triply periodic minimal surface that tiles in three dimensions

**RIGHT:** *Bubble Seed*, a pendant light, where triangles of the central icosahedron transition into circular columns capped with dichroic reflectors

