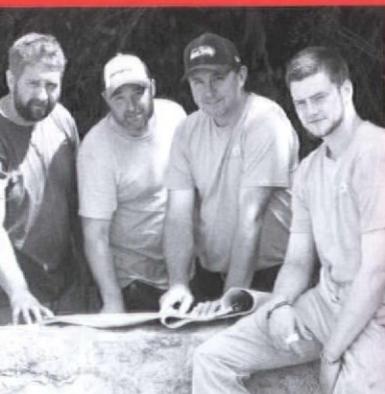
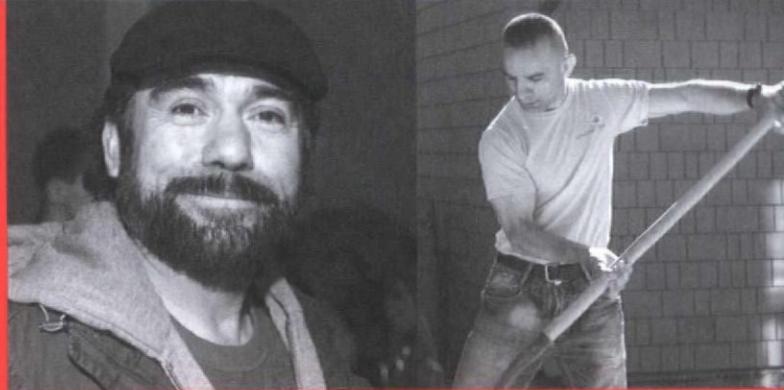


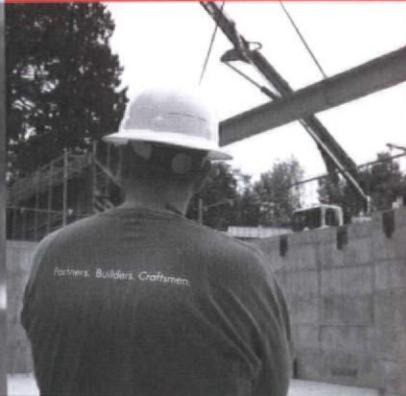



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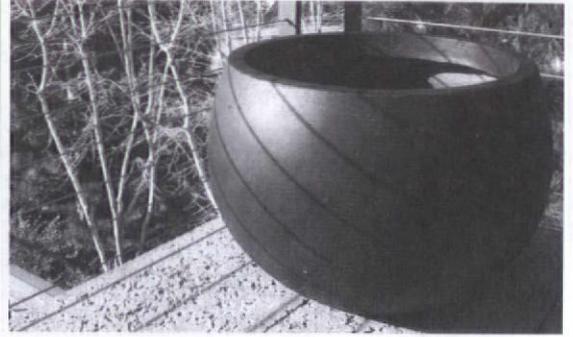
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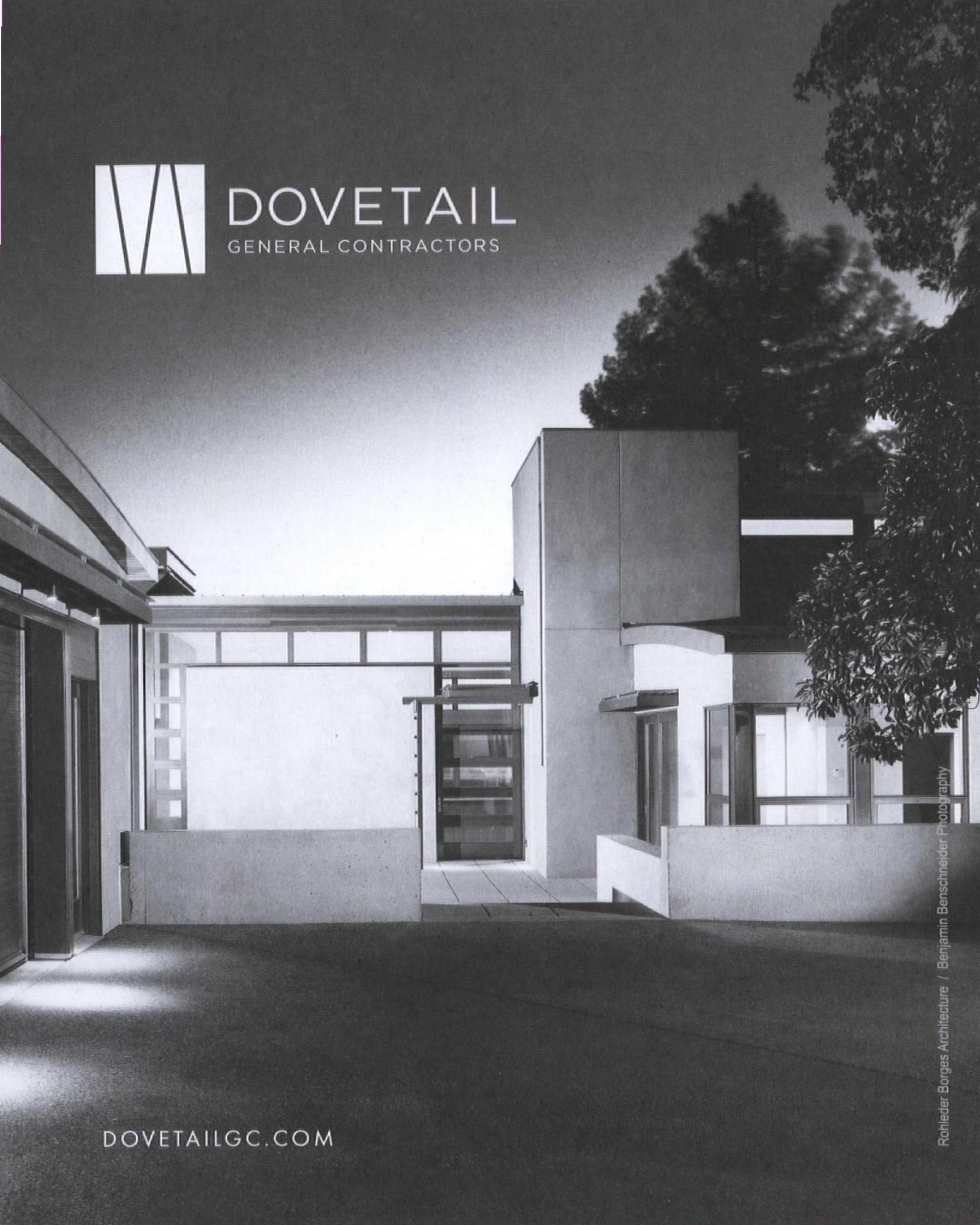
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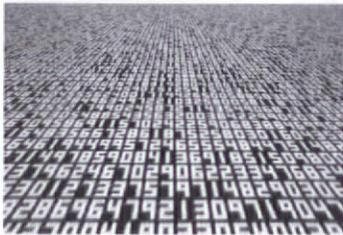
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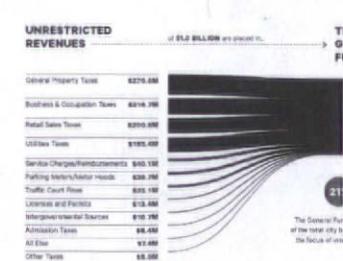
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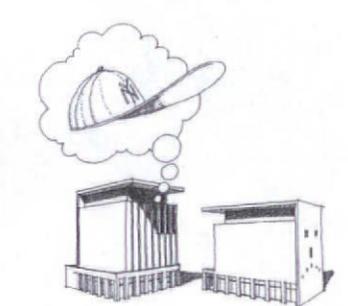
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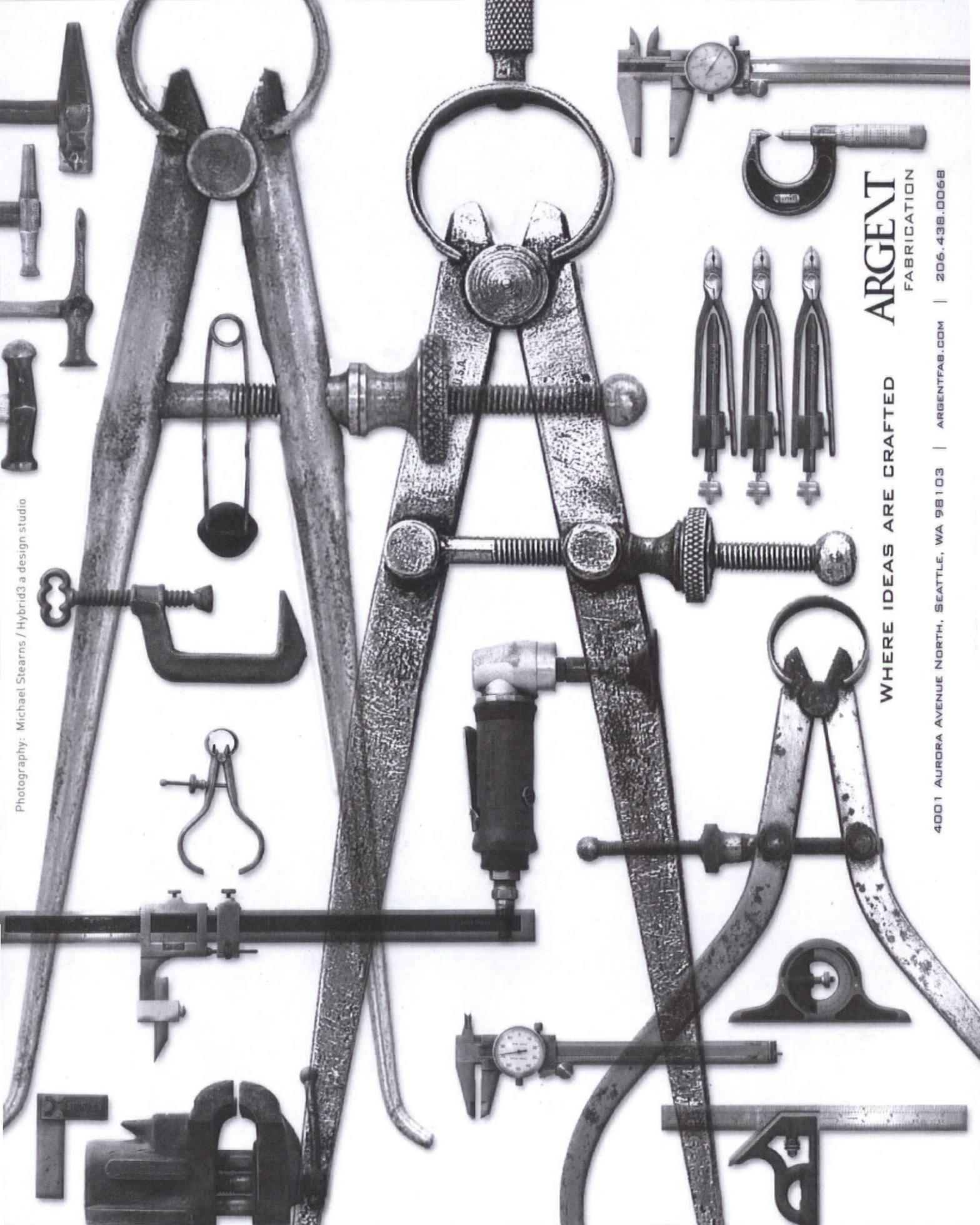
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Panelist Dan Pitera discusses the community engagement process for the Detroit Future City Strategic Framework plan that he helped develop. Photo: Steve Durrant

Detroit Resilience

Jeff Hou

"This is all I have seen, so I'm willing to take some risks," said architect Dan Pitera, quoting a Detroit resident's response to the planning framework he helped create. Pitera, executive director of the Detroit Collaborative Design Center (DCDC), presented as part of "Detroit Future City: Design for Rapid Change," a panel that took place last winter in Seattle. That January night, design and planning professionals, students, community members and University of Washington faculty gathered at the Frye Art Museum for an evening of conversation about Detroit. The presentations weren't so much about why Seattleites should be concerned about Detroit, or what lessons shrinking cities like Detroit could offer growing cities like Seattle. Instead, they focused on the struggles of Detroiters and their current, extraordinary efforts to lift the city out of decades of economic decline.

In addition to Pitera, the panel included Rainy Hamilton, an African American architect and Detroit native. Both Hamilton and Pitera have played central roles in the creation of the Detroit Future City Strategic Framework, a detailed, long-term guide for decision making on rebuilding the city. They were also joined by Eric Becker, a Seattle-based filmmaker; Becker studied Detroit as a fellow of the UW Runstad Center for Real Estate Studies, as did the panel moderator, Lisa Picard of Skanska USA.

In sharing stories about the city, the panel showed how the spirit and unrelenting efforts of many have sustained Detroit against the odds.

They discussed how, despite the public's initial skepticism, planners, designers and community activists orchestrated a planning effort through Detroit Future City, bringing together diverse stakeholders to plot strategies for the city's regeneration. More than any specific planning or design technique, the tenacity of Detroiters is what's most inspiring about the city's story—a story of resilience from within.

Looking forward, the panelists talked about how after decades of neglect and divestment, work is now underway in Detroit to grapple with the city's vast amount of vacant land, create jobs, attract investments and rebuild the urban fabric. These initiatives are coming from both the top and bottom of the social, economic and political hierarchy.

"The stars were aligned," commented Hamilton on the convergence of various initiatives, actors and resources after years of effort on multiple fronts.

Detroit's struggles are far from over, but momentum and hope are apparently there. Detroit gains strength through its people, the most important source of resilience in a city facing adversity and uncertainty.

"Detroit Future City: Design for Rapid Change" was organized by the UW Department of Landscape Architecture and its Professional Advisory Council, with support from ARCADE, the UW Department of Urban Design & Planning, the UW Runstad Center for Real Estate Studies, Swift Company, GGLO and the Frye Art Museum.

Jeff Hou is professor and chair of the Department of Landscape Architecture at the University of Washington.

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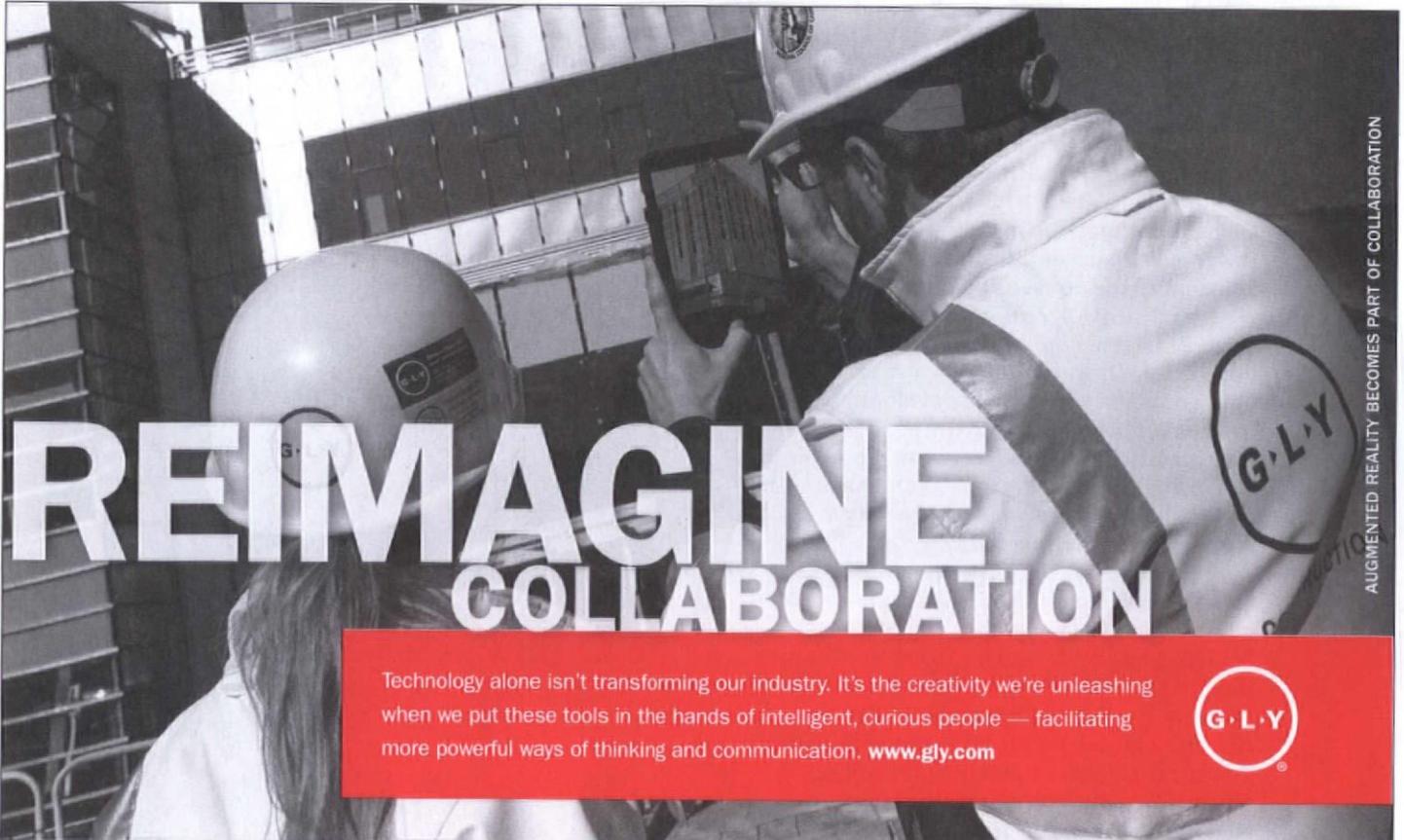
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What's Next for Tacoma?

Ko Wibowo

My first encounter with Tacoma was unexpected. Eighteen years ago, I was headed to a job interview at a firm I thought was in Seattle but soon discovered was not.

The driver picked me up from Sea-Tac Airport and, to my dread, went south. Heading to Tacoma, we took I-705, exited 21st Street and soon after passed the Tacoma Dome, driving along Pacific Avenue, Tacoma's main thoroughfare. The University of Washington-Tacoma (UWT) was not there yet—few stores were open, sidewalks were empty, and a blank wall of the Washington State History Museum faced the street. Turning onto Commerce, we passed a number of parking garages and a bus terminal. The streets were littered with paper, and plastic bags were flying around, reminding me of the dangerous streets of New York stereotyped in Hollywood movies.

I thought, "What have I gotten myself into?"

Eighteen years later Tacoma is a changed city and still evolving.

Tacoma's revitalization began when UWT moved in, steadily converting the south downtown portion of Pacific Avenue into a lively street. UWT sensitively used the existing industrial building stock, modernizing it into a pedestrian-oriented campus while preserving the character of the place. The transformation continued with the new Tacoma Art Museum, Museum of Glass, Chihuly Bridge of Glass, Thea Foss Waterway, and the Greater Tacoma Convention and Trade Center. Most recently, Yareton Investment, a local subsidiary of a Chinese company, is planning a mixed-use, two-tower high-rise over 30 stories tall for the site adjacent to the convention center and UWT.

The City of Tacoma continues to favor large-scale developments such as these, as the hope is that they may reshape the city in one fell swoop. But while these developments have collectively changed the look of the city, they have not impacted its urban life. Over the last few years, local entrepreneurs have been generating the signs of new, vital city living that are present in Tacoma today.

In addition to the large developments listed above, revitalization of a different sort has taken place in neighborhoods such as Sixth Avenue, Proctor, Old Town, the Theater District and North Pacific Avenue. Most recently, the Dome District, McKinley and Hilltop neighborhoods have benefited from local entrepreneurs and business-minded citizens who have opened small, one-of-a-kind restaurants, bakeries and bars. These

locally flavored, quirky establishments have gained national popularity, as many of them have appeared on the Food Network (Crown Bar, Southern Kitchen Restaurant and Dirty Oscar's Annex, for example). Similarly, a beer revolution hit Tacoma when a handful of local breweries sprang up, further adding to the city's renaissance. The contributions these businesses have made to the livelihood of the streets and neighborhood character have been tremendous; the streets are full of parked cars, and the sidewalks are full of people, day and night.

These neighborhood transformations are the result of local entrepreneurs working to energize and revitalize their community—not the City of Tacoma's planning, guidance or leadership. While the City continues to lure large developments, the key to Tacoma's transformation is in the smaller growth initiated locally by its citizens; although large-scale projects are important, they very often do not represent local character, as they're typically driven by budgets and politics.

Tacoma is experiencing significant revitalization, but still, it is not a complete city yet.



A section of McKinley Avenue in Tacoma.

It is a collection of small gems that are isolated from one another. It's suburbia. For example, along Pacific Avenue from UWT to the Old City Hall, vacant storefronts, parking lots and garages deaden the streets. The same is true between other neighborhoods. To help remedy this, the light rail opened in 2003, as Sound Transit endeavored to connect several neighborhoods within the downtown core, and the rail will expand to other areas in the near future, stitching together the outer locales. While exciting new developments are cropping up and filling out Tacoma's urban fabric, it still has room to grow.

As I reflect back on my first encounter with Tacoma, I more vividly remember my experience of the city at the street level than the image of

any of its architectural monuments. I believe Tacoma's future will be defined by those who change the streets, not the skyline, of the city. Small, local developments are imperative to a vital, prosperous city and as such should be given the same incentives as large-scale developments. Small, local developments represent citizens' dreams to create neighborhoods that reflect their communities and values. These are the kinds of developments Tacoma needs in order to create a dynamic city, spirit of place, genius loci: Tacoma's identity.

Tacoma is Tacoma, and it needs to be Tacoma, so let Tacomans resolve and shape their city.



Greater Tacoma Convention and Trade Center.

Ko Wibowo is an award-winning architect, urban enthusiast and educator. He currently works at McGranahan Architects in Tacoma and is a part-time faculty member of the University of Washington-Tacoma, Urban Studies Department. Ko is the founder of Conversations RE: Tacoma, an urban design lecture series. retacoma.com

Photography by Ko Wibowo.

THE NEW FRONTIER

YOUNG
DESIGNER-
MAKERS
IN THE
PACIFIC
NORTHWEST

Image: Knauf and Brown, *Flight Lamp*. Photo: Knauf and Brown
The New Frontier: Young Designer-Makers in the Pacific Northwest is organized by
Bellevue Arts Museum and co-curated by Charlie Schuck and Jennifer Navva Milliken.

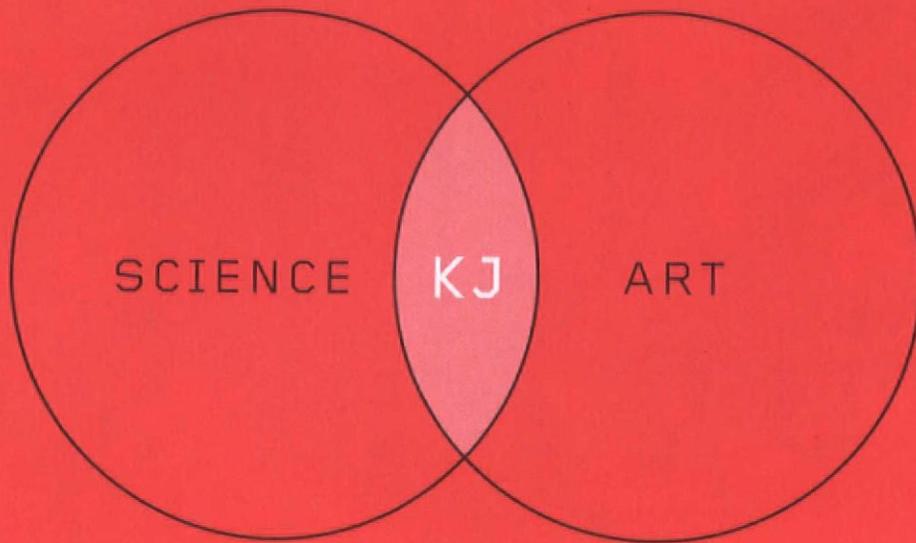


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Rebecca Belmore, *Wild*, 2001. Textile, fur, hair, wood. Gifted by the artist through the action "Worth (Statement of Defense)" on 11 September 2010 at the entrance of the Vancouver Art Gallery.

room, pink, space, Vancouver, poetics, art, corner, gallery, secluded, examine

Secluded Corner, Hirsute Bed, Doorless Entrance: Dwelling on the Vancouver Art Gallery's *The Poetics of Space*

Elissa Favero

"...[E]very corner in a house, every angle in a room, every inch of secluded space in which we like to hide, or withdraw into ourselves, is a symbol of solitude for the imagination; that is to say, it is the germ of a room, or of a house."
— Gaston Bachelard, *The Poetics of Space*

Carole Itter's *The Pink Room: A Visual Requiem* is the sad, chambered heart of *The Poetics of Space*, an exhibition about representations of space—physical and psychic—currently on view at the Vancouver Art Gallery. The show takes its name from French philosopher Gaston Bachelard's 1958 book, which meditates on images and experiences of intimate spaces, like drawers and wardrobes, nests and shells, miniatures and corners.

The Pink Room is installed around the corner from the show's main path. I peered in from the room's threshold at three pink walls and pink light shining down on a suspended collection of

texts, a chest of drawers surrounded by framed photographs of a girl at various ages and a hanging quilt. In lieu of a baseboard, patches of ruffled fabric border the walls. The rosy light and soft textures are haunted, though, by the story they cloak: the childhood sexual abuse, mental illness and eventual suicide of the artist's daughter. Itter offers up her heartbreaking story, but not completely. A cord strung waist-high keeps visitors from entering the installation. They can see into Itter's pink room, but they'll never examine its fragments up close or inhabit its secluded corners. Itter shelters memories in place of the daughter whom real rooms, real houses, couldn't keep safe from harm.

The Pink Room is in the show's second of three sections, "Psychic Weight of the Domestic." The exhibition is at its strongest here in the middle, where works, many by contemporary Vancouver artists, ask us to examine houses and



Christos Dikeakos,
*Looking southwest
 to the Georgia
 Viaduct - skwacháys,
 "hole in bottom,"*
 1993. Chromogenic
 print, etched glass.
 Collection of the
 Vancouver Art Gallery.
 Vancouver Art Gallery
 Acquisition Fund
 with the financial
 assistance of the
 Canada Council
 for Arts Acquisition
 Assistance Program.

the everyday objects with which we surround ourselves. It's here that the connections to Bachelard's book and his evocations of intimacy and memory are also greatest. The 21 graphite drawings that make up Alex Morrison's *Every House I've Ever Lived In Drawn From Memory*, another standout, are architectural evocations of transience. One is a simple box. Another is thick to the point of illegibility with layer upon layer of right-angled rooms. Photographers Karin Bubaš, Thomas Ruff, Myfanwy MacLeod, Reece Terris and James Nizam, meanwhile, recall absent owners and probe the subjects of waste, abandonment, consumerism and gentrification. Nearby, in Anishinaabe artist Rebecca Belmore's installation *Wild*, hair and fur adorn a four-poster bed, coupling the human and animal, the indigenous body and the spoils of the fur trade. Accompanying wall text quotes Belmore about her piece and its original setting, the master bedroom of Toronto's historic Grange House: "This placement of myself in the most private part of this house—an Indian woman in the white man's historic bed—is for me a vulnerable position and the warmth of my skin, unsettling to the careful composure of the household." The sensuous bed also unsettled the museum's rules about how to behave. Many visitors reached out to touch its hair and glossy coverlet.

Bookending these works about interior spaces, both physical and emotional, are two other sections of the exhibition. The first, "Fracturing of Form," features paintings that move away from the tools of illusion, like perspective, to render space abstractly. It's

an awkward appendage to the exhibition's dynamic middle. Aside from their tenuous connections to domestic space, the works here are not a cohesive group even on their own; most painters, after all, think about how to reconcile a three-dimensional world with a two-dimensional surface. However, a handful of more recent pieces, like Robert Young's watercolor *Infrared Scan of the Prince's Chamber*, help move between abstract space and domesticity.

"Mapping of Space," the final group of works, looks beyond Bachelard and the house to investigate the borders between the private and the public, between the built environment and the natural world. *Apartment #201*, Ron Tran's projection of the doorless entrance to his apartment, is an experiment in vulnerability and self-surveillance. Christos Dikeakos's etched glass and panoramic photograph pairings show how successive layers of industrialization and development have transformed the fishing and hunting grounds of local Coast Salish peoples into modern Vancouver.

In these sites of contest and conflict, the personal spills out past the sheltering confines of Bachelard's house. And just like that, I, too, stepped out from the security of the museum's circumscribed rooms and the interior space of my own quiet imaginings and into the ferment and jostle of the city.

The Poetics of Space
 Vancouver Art Gallery
 Through 24 May 2015
vanartgallery.bc.ca

Elissa Favero has worked in education and public programs at the National Museum of Women in the Arts and the Seattle Art Museum. You can read her essays about art, architecture and landscape on her blog, *Yellow Umbrella* (elissafavero.com/blog), and geek out with her about local art and art happenings at *Art Nerd Seattle* (art-nerd.com/seattle).



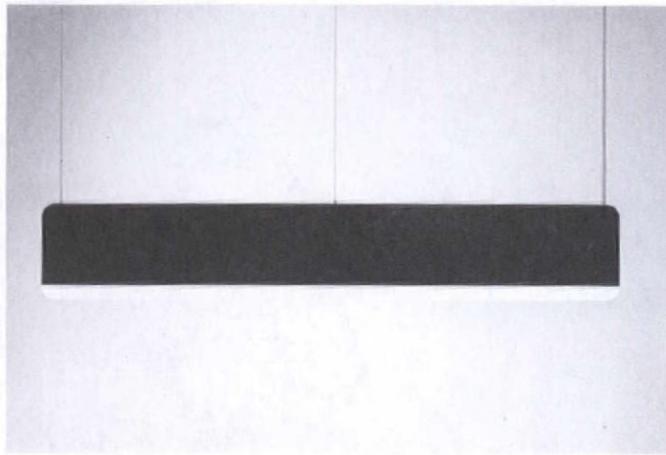
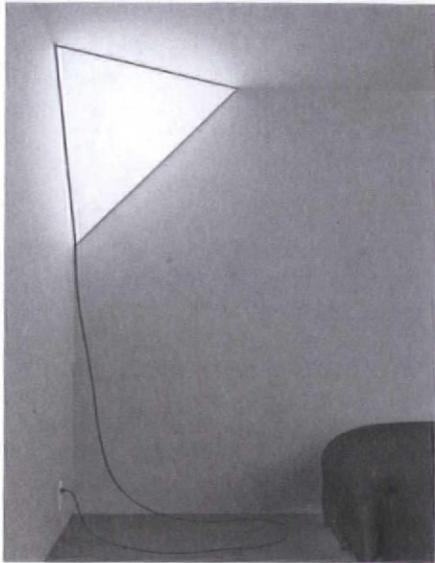
Something Like This Design, Eugene, OR. *Bryophytes*, 2013–ongoing; porcelain, moss, urethane gaskets; dimensions vary, maximum height of 9".
Photo: Trygve Faste

Design on the Frontier: Bellevue Arts Museum Presents an Exhibition of Local Designer-Makers

Jennifer Navva Milliken

In 2013, Charlie Schuck—a Seattle-based photographer and entrepreneur with a passion for design—approached Bellevue Arts Museum with a proposal for an exhibition that would represent one of the first surveys of design activity in the Pacific Northwest. *The New Frontier: Young Designer-Makers in the Pacific Northwest* is the realization of this vision, providing the most current, comprehensive presentation of design from this region seen in a museum exhibition. Displaying a broad selection of works by nearly 30 designers and studios from Vancouver, BC, to Oregon's southern border, the exhibition explores this area's burgeoning designer-maker field. Focusing on furniture, lighting, installations and sculptural objects, it asks how products are made here and how this activity is distinctively anchored in a region long considered a geographic and cultural frontier by those in industrialized centers to the east.

The narrative of the frontier, invoked in the drive to form a concrete, unified American identity, was encoded in the inchoate national consciousness by early American writers and historians. Frederick Jackson Turner's "Frontier Thesis" informed perspectives on the trajectory of American democracy for decades to follow (while neglecting to consider indigenous inhabitants of the "American forest," as well as any who did not fit the incipient pioneer archetype). Nearly 70 years later, John F. Kennedy elaborated upon this narrative, urging Americans to look beyond geographic borders to consider a "new frontier" accessible by knowledge and technological advancement. Taking cues from Kennedy and Sigmund Freud, whose "frontier concept" defines the liminal space between humankind's instinctual drive and its psyche, our understanding of the frontier is now metaphorical; it represents the limitless possibilities awaiting individuals



Left: Peter Bristol, Seattle, WA. *Corner Light*, 2009. Manufacturer: Established & Sons. Steel rod, light, cable, fabric; 36"×36"×36". Photo: Peter Bristol

Above: Lukas Peet / ANDlight, Vancouver, BC. *Slab Light* 210, 2013; wool felt and LEDs; 82.5"×13.75"×0.6". Photo: Lukas Peet

with the enterprise, drive and savvy to navigate the uncharted expanses of unfamiliar realms.

The Pacific Northwest is still considered by some to represent a geographic frontier, as well as a site of cutting-edge technological development impacting people worldwide. It is here in this temperate coastal region that a new maker culture is emerging, as designer-makers define the "new frontier" on their own terms. Through inventive studio practices, they capitalize on the entrepreneurial spirit inherited from westward-gazing pioneers and embrace new technologies. They also harbor a deep reverence for the area's abundant natural resources—a legacy instilled in the landscape by the region's indigenous peoples.

Designer-makers in the Pacific Northwest and beyond are resetting boundaries and establishing innovative, new models by operating studios that encompass all aspects of design and production (and often distribution). Revived from a craft-aligned movement that emerged in London in the 1970s, the designer-maker atelier comprises an all-inclusive studio enterprise that can be located anywhere, in part due to the extensive reach of online platforms and marketplaces, as well as the rapid-fire dissemination of images and commentary through blogs and social media.

The New Frontier exhibition focuses on studios and individuals who—with a design sensibility cultivated (in most cases) by higher

education in design, architecture or fine art—demonstrate a facility with production processes aligning them with maker culture. Their engagement with materials is an integral part of the discussion that the exhibition endeavors to spark. In addition to themes of sustainability and truth to materials, an ethic of community and collaboration resonates throughout the work seen in *The New Frontier*. These values link the participating designers to generations of natives and pioneers alike, as well as the cultural tropes and legends of the frontier, woven together over time.

The New Frontier: Young Designer-Makers in the Pacific Northwest

Bellevue Arts Museum
17 April–16 August 2015
Organized by Bellevue Arts Museum and co-curated by Charlie Schuck and Jennifer Navva Milliken
bellevuearts.org

Designers featured in *The New Frontier*: Omer Arbel Office / Bocci, Peter Bristol, Chadhaus, Landon Dix, Free Time, fruitsuper design, Gamla Studio, Aleph Geddis, Erich Ginder, Grain, Graypants, Caine Heintzman / ANDlight, John Hogan, Knauf and Brown, Iacoli & McAllister, Ladies & Gentlemen Studio, Greg Papove, Lukas Peet / ANDlight, Phloem Studio, Aleksandra Pollner, Rason Jens, Joel Sayre, Semigood, Something Like This Design, Standard Socket, Studio Gorm, urbancase, Matthew Philip Williams

Jennifer Navva Milliken is curator of craft at Bellevue Arts Museum. Before joining BAM, she established INTER ALIA projects, a private curatorial practice dedicated to generating independent initiatives that served to advance an interdisciplinary agenda focused on art, conceptual craft, design and new media in Tel Aviv. Now based in Seattle, she has participated on the creative teams of a number of cultural institutions and museums, including the Museum of Arts and Design (MAD) in New York, and The Israel Museum in Jerusalem.

new, frontier, design, studio, museum, arts, designer, Northwest, light, makers



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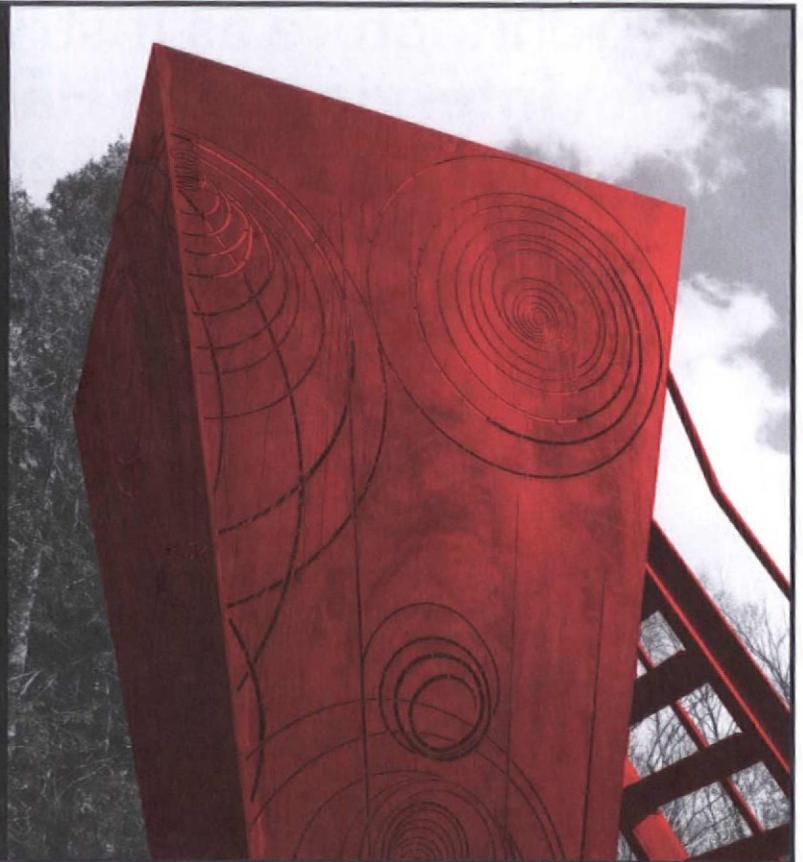
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Architecture as Instrument: An Interview with Håkan Widjedal, Arkitektstudio Widjedal Racki

BUILD IIc

Last fall, BUILD visited Stockholm and met with Håkan Widjedal of Arkitektstudio Widjedal Racki. They discussed the influence of traditional Swedish design on modern architecture, the importance of understanding a client's lifestyle, and how architecture can be a tool to interpret a site.

BUILD: The important relationship between structure and environment is very apparent in your work. What have some of your greatest challenges been when navigating between design and context?

HÅKAN WIDJEDAL: Nine out of ten clients who buy a piece of waterfront property to build on request that the broad side of the house face the water, and they want

windows that go from one end to the other to create a "wow" view. But this approach doesn't address issues of privacy or climate exposure. If you really want to live with a property, the house needs to help out.

For the H-House located south of Stockholm, we designed a courtyard, which creates a microclimate. It blocks the wind from the southwest, and when it's raining you can still sit outside under the covered area. There is also a fireplace for when it gets chilly in the evening. Since it's entirely covered, the area can be treated more like a living room with nicer furniture, and it gets used more often because it's semi-protected.

These kinds of design strategies allow the site to be experienced in a much

house, architecture, design, property, room, Stockholm, area, want, covered, site



H-HOUSE, Trosa, Sweden; outer room and courtyard.

richer way. The house becomes the right means through which to appreciate the place. The challenge is to address all of the environment's qualities and lift them forward in a functional and emotional way. Our houses are less objects and more tools for using the site and enjoying the location.

How does your architecture respond to the long nights and overcast skies of Swedish winters?

I think it's tempting to approach these characteristics as negative features. However, in the Rock House, for example, we used a glossy ceiling to reflect light off of the water, and it's marvelous in the summer as well as the winter. When it's cold, you can sit next to the concrete wall and the fireplace, both radiating heat, and watch the storms pass by. It's a room that's wonderful in good weather and bad. When you look at architectural renderings, the weather is always nice, the flags are always up and the kids are always playing. The challenge for architects is that this is not how the world works. Architecture has to work at all times of the year, and this depends on a few simple qualities. A house must communicate with the atmosphere of the site—it must be stable, secure and comforting.

Do you see common traits in your clients?

Our clients are genuinely interested in architecture. If you like nice things, you can simply buy a fancy sports car overnight, but you don't go through the process of designing an ambitious house with an architect if you're not interested in architecture. There's a commitment to design there. Our clients also usually have nice properties in remote areas and quite often on the water.

Have your clients always lived the curated lifestyles suggested by the photos on your website, or does the design enroll them in a clean and simple aesthetic?

We've designed a few projects that I certainly couldn't live in myself, just because the minimalist kitchen wouldn't tolerate a stack of dirty dishes—it's not practical for most people. We have clients who will take your coffee cup when you're done with it, clean it and put it back in the cabinet. Nothing is ever left on a countertop. They do this with everything without thinking, so a minimalist kitchen works for them.

What ruins architecture is when a design doesn't work for a client's lifestyle, requiring them to change how they live after the fact. We're extremely keen on understanding our clients. It's something we take very seriously. One of the things we're most proud of is that none of our houses have been remodeled or altered. This means the designs have been right for the clients.

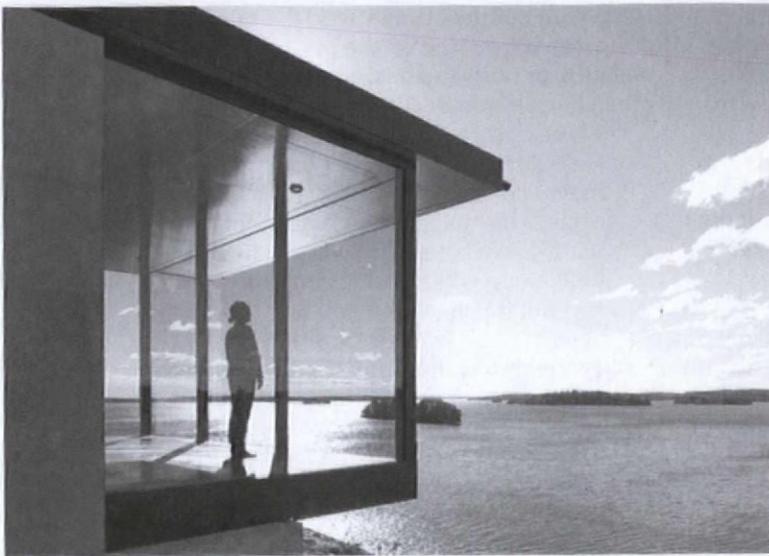
We're very deliberate about designing for a rural lifestyle as well. A design might include an outdoor closet for wet or dirty clothes and shoes, or a tidy storage area to keep the firewood dry. There is always a thoughtful solution for where to put your stuff. It makes me a bit angry to see inspiring images of architecture, and then go visit it in person and find it doesn't work. The photographs don't always represent the truth.

Do you think that the media has changed architecture?

I think that a lot of the architecture that people are familiar with today is rarely experienced firsthand. Their understanding is limited to what they see in books, magazines and newspapers. Yet earlier architectures are so important because of the experiences they provide. The paradigm shift that can occur when architecture is experienced in person can open up different possibilities for appreciating why the buildings are important; when you visit these buildings, you get a whole new level of experience. Today, the *idea* of architecture may have become more valued than the physical architecture itself. I think that media has turned the focus of architecture into something two-dimensional. The large supply of media has also pushed for making more "noise" in order to be seen. I sometimes feel that what could be called "headline architecture" gets too much notice. To me, architecture's most significant role is still physical.



H-House, Trosa, Sweden; courtyard detail.



Left: Rock House, Lake Mälaren, Sweden; living room and view.

Above: Entry and driveway.

work, Swedish, architecture, Sweden, traditional, wood, projects, design, floors

Given that you practice in a country with a rich architectural history, what effect has traditional Swedish architecture had on your work?

To be honest, when you're fresh out of school, you have identity issues. You're not going to be excited about what you grew up with. When I was younger, I fled from Sweden's local design thinking. I wanted to do what the rest of the world was doing. As I've become older though, I've actually become interested in looking at traditional Swedish design principles. There are always local factors that take design in certain directions, and more and more I'm influenced by the craftsmanship of the past. We've worked with massive timber construction, which is really an old way of building log houses, and the Villa Alba in Stockholm uses a wood corner detail that's based on a traditional method. There's so much information that you can get for free—architecture that's right in front of your eyes that you can build from.

One of my favorite architects is the late Ralph Erskine, who was actually born in England and then moved to Sweden to work. Because he was really looking at our local qualities and environmental issues objectively, his work is some of the most Swedish in my opinion. At the same time that he was designing, Swedish architects were blind to their environment because they wanted to practice international principles. Because he wasn't from Sweden, he could create architecture that was more authentically Swedish. As the saying goes, you never become a prophet in your own village.

There is a pleasant intersection between the roughness of nature and the refinements of architecture in your work. How much of this is situational and how much is planned?

It's very much planned. If we were designing a penthouse in Stockholm, it might not include much roughness at all. But with our rural projects, the roughness is quite practical. For instance, the rough concrete floors in many of our projects allow people to wear their shoes inside. If we had put expensive wood floors in some of our rural houses, clients would be constantly concerned about damaging them; that would not embrace the idea of relaxing and enjoying the site. In the bedrooms, we lift the floors up to separate them from the concrete so that there is a warmer and cozier feeling where it's appropriate.

How is the weathering of material planned for in your work?

We plan quite a bit for weathering. Most of our clients make it very clear that they don't want to spend their summers repainting windows. While there's no such thing as a house that doesn't require maintenance, we always focus on limiting the work required to keep up one of our projects. Once again, there is a tremendous amount to learn from traditional architecture here. There are wood churches from the 1200s that are standing perfectly fine because they are detailed and treated the correct way.



Villa Alba, Stockholm, Sweden; courtyard at rock.

Concrete cracks and wood expands. How do you set reasonable expectations with clients regarding the fact that there's no such thing as truly perfect?

It's about seeing the roughness as a quality. It's a mindset. It's good that it's rough, and once you have that outlook, the design can be more fully appreciated. Practically, setting expectations is also about visiting other residences and showing clients how we'd like to do something. A lot of the natural materials we use age beautifully. Choosing materials that will age nicely matters; it's hard to make a laminated desk-top age well.

Is there anything else you'd like to talk about?

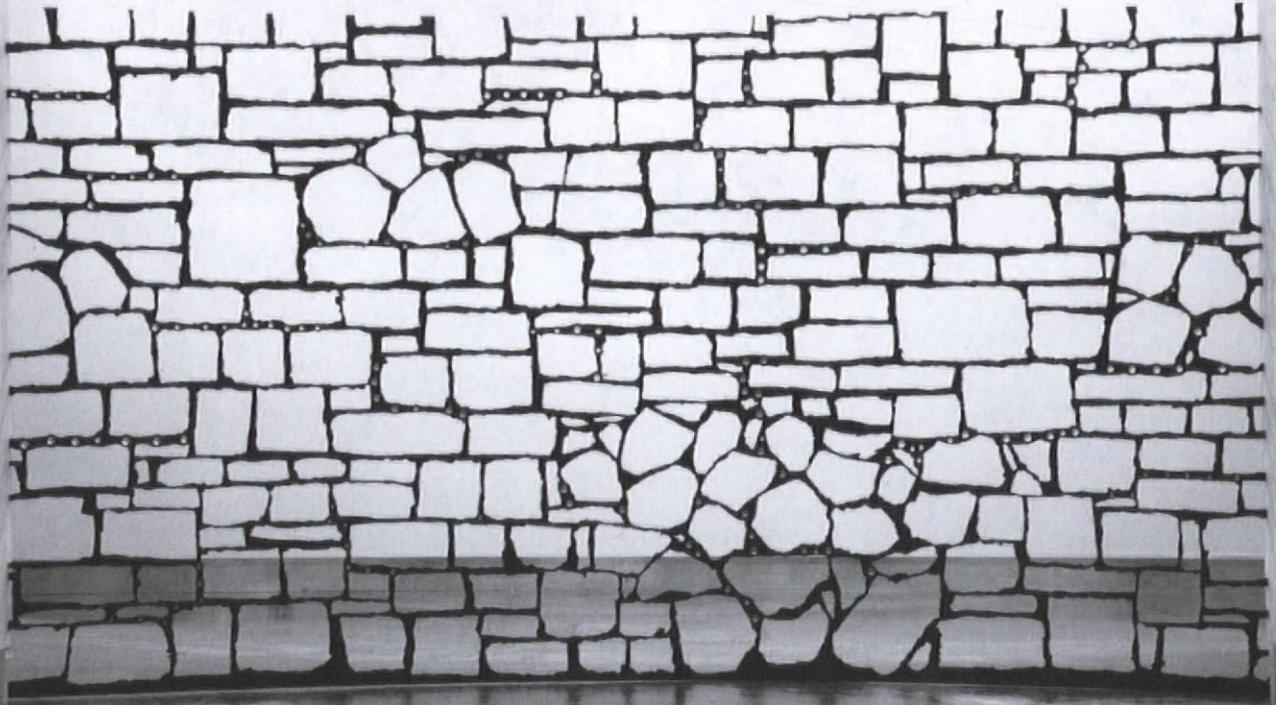
Although I don't like labels, a lot of people refer to our architecture as very modernistic. To their credit, we have been very influenced by the classic modernists, such as the architects involved in the Case Study House program. But it's important to point out that even the Case Study Houses were heavily focused on their environments. In the same way we work, the Case Study Houses were designed as methods to optimize their environments. This approach is less focused on style or expression and more about architecture as a tool. Buildings are not supposed to be symbols representing something. They're supposed to create atmospheres.

Håkan Widjedal started Arkitektstudio Widjedal Racki with Natasha Racki in 2000. The firm specializes in private residences and has taken part in several exhibitions. His work has received numerous awards, including the Swedish Wood Award, first prize. Håkan has taught at the Royal Institute of Technology in Stockholm and has lectured widely. wark.se

BUILD llc is an industrious design-build firm in Seattle run by Kevin Eckert and Andrew van Leeuwen. The firm's work focuses on permanence, sustainability and efficiency. BUILD llc maintains an architectural office and is most known for their cultural leadership on their [BUILDblog](http://BUILDblog.blog.buildllc.com). blog.buildllc.com

Photography by Åke E:son Lindman. © Åke E:son Lindman

LEO SAUL BERK: THE UNCERTAINTY OF ENCLOSURE



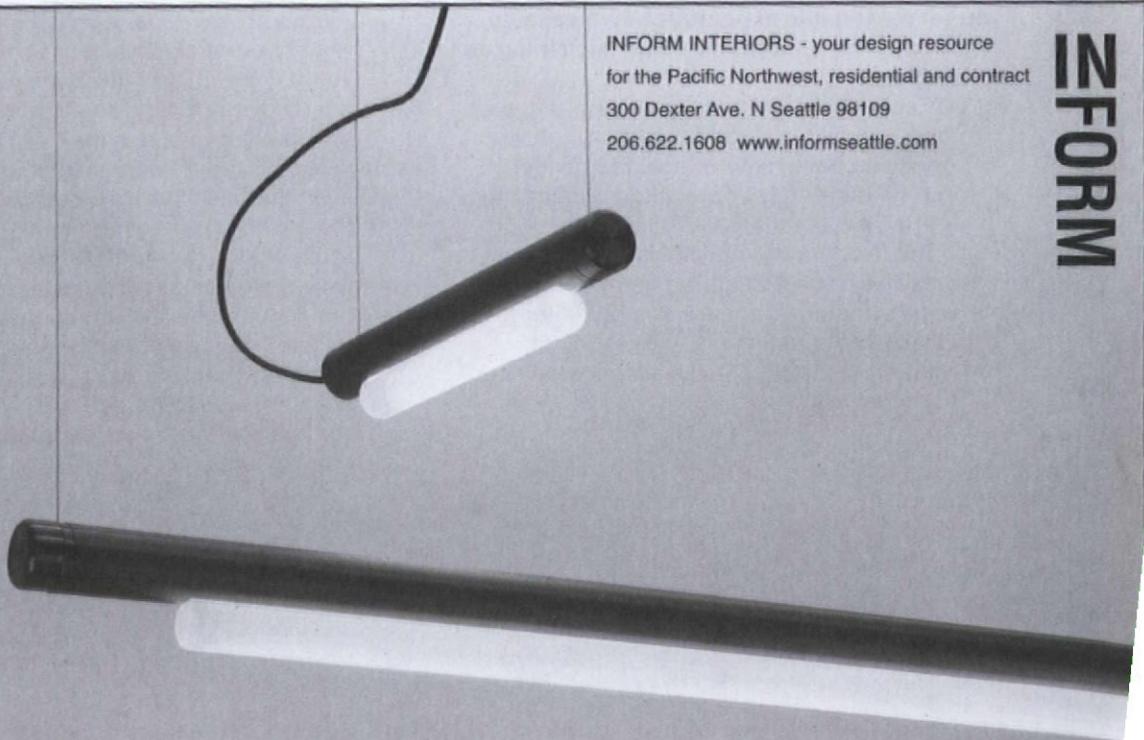
Leo Saul Berk, *Mortar and Marble*, 2014. Glass and Corian, 78 x 142 x 10 in. Photo: Paul Mitchell

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Data Culture

Christian Marc Schmidt

“In the future, everything will share data — our heartbeats will be recordable; everyday appliances like cars and refrigerators will stream data online; if a device processes information of any kind, it will soon have the ability to share it.”

— Aaron Koblin, head of Google’s Data Arts team (from thinkwithgoogle.com)

Data is on the ascent. In particular, the last decade has seen the dramatic rise of data in society. There is more digital information in the world than ever before, and we create more every day. Along with the exponential increase in computer processing power, the Internet’s explosive growth is fueling this new age of information, making it ever easier to collect and share data. As a result, quantification is infiltrating seemingly all corners of the world. Things that have never been measured before are now being converted into data, including aspects of life as amorphous as our personal relationships.

We are in the midst of a paradigm shift. Data’s rise and the effects of quantification are profoundly impacting our communities and our lives. We now create and consume large amounts of data in our personal lives through our use of search engines, fitness trackers and social networks. In society at large, data is driving new insights in sectors such as science, education, healthcare and business. As history has shown, societal shifts can be the cause of frictions that provide incentive for critical inquiry among artists and others. This ARCADE feature section will explore the ways in which data has infiltrated culture, including case studies of works that utilize data for critique or as a new method of generating artistic forms.

Four developments in particular characterize our current data-driven climate.

Big Data

One important development in recent years has been “big data.” The popular, almost catchphrase-like term refers to large and often semi-structured or unstructured datasets. Though difficult to analyze, big data

data, information, big, new, large, share, particular, quantification, create, culture

promises insights previously impossible to obtain. In healthcare, it will enable researchers to analyze millions of health records to provide new and more effective treatments for diseases. In education, governments and schools will be able to gain information about the learning abilities of millions of students. Practically every sector stands to benefit from insights gleaned from vast amounts of data.

Big data is made possible by the digitization of information. In 2000, only one-quarter of the world's information was digital; today only two percent is not. And not only is more of the world's information digital, there is also more of it overall, as the world's data doubles every two years. In 2013, the world's total data was equal to 4.4 zettabytes, or 4.4 trillion gigabytes, according to a study by EMC Digital Universe. By the year 2020, it will be close to 44 zettabytes — 44 trillion gigabytes of data.

Yet big data's value is not about quantity. It's about what we can do with it through the use of improved statistical and computational methods. We can learn things from large amounts of information that we can't from smaller datasets, but making sense of big data requires special skills, or at least the right tools.

With this in mind, Thomas Davenport and D.J. Patil wrote an article in the *Harvard Business Review* titled "Data Scientist: The Sexiest Job of the 21st Century," which describes the demand for specialists suitably equipped to harness the power of big data. Furthermore, business intelligence software is quickly gaining popularity, as products and services like Tableau and IBM's Watson Analytics promise to unlock insights in data without requiring a specialized skillset in data science. Through big data, quantification is becoming more and more ingrained in society, as we strive to measure and analyze anything from the nationwide performance of school children to government efficiency.

Data Journalism

The drive towards quantification is also apparent in the emergence of data journalism. Spearheaded by the *New York Times* and the *Guardian*, as well as newcomers *FiveThirtyEight* and *Vox*, the discipline combines traditional journalism with data analysis. Its objective is to use data and the design of quantitative information to inform the public about important issues, and data journalism is largely responsible for bringing data visualization to a mainstream audience.

Open data — datasets that are free to use, from government to crowdsourced information — has been instrumental in advancing data

journalism. In the 2013 *Wired* article “How the Global Open Data Movement Is Transforming Journalism,” Jeanne Bourgault of *Internews* writes that the success of early data journalism projects is helping to shift the media’s tone from “he-said, she-said sound bites to solid data sources.” An example she cites is Data Dredger, a platform that allows Kenyan journalists to download ready-to-use data and accompanying visualizations for their stories. The increase of data visualization in the media is fueling our desire for quantification by giving us information from which we may draw our own conclusions.

Social Media

Quantification has also permeated our interpersonal relationships. As Shea Bennett reports for *Adweek*, over 67 percent of Americans are now active on at least one social network, and over 58 percent use Facebook. Social media has become so pervasive that “likes” and “retweets” are a form of social currency, and Facebook friends and Twitter followers are new standards for popularity. These metrics have become a primary way by which we measure the worth of our friendships and social lives. And as social media plays an increasingly central role in our culture, its use is generating terabytes upon terabytes of unstructured data that, while challenging to analyze, promises fundamentally new insights for entire industries.

The Quantified Self

Perhaps one of the most widespread examples of quantification is the “Quantified Self,” a movement based on self-tracking that adheres to the motto “self-knowledge through numbers.” In addition to health and wellness, the Quantified Self also includes areas such as productivity and education. Although the movement was officially founded in 2007 by Kevin Kelly (creator of *Wired*) and journalist Gary Wolf, self-tracking or “life-logging” began as early as the 1970s. However, the field only started to gain mainstream acceptance once computing technology had progressed far enough to enable commercially viable, wearable devices supported by online services, which could store and visualize personal data.

From counting steps to measuring our sleep patterns, products such as FitBit, Nike FuelBand and more claim to help us improve our health by tracking our behaviors and giving us strategies for achieving better outcomes. Visualizing progress is a motivating factor for self-trackers, and an increased awareness of one’s behaviors can be the first step towards

positive change. In addition, the new Apple Watch promises to continue the widespread adoption of wearable technology. Wearables are one of the most vivid examples of how quantification is infiltrating society from the ground up. Quantification promises to help us control aspects of our lives that may have previously seemed elusive.

The Cost of Data

It is hard to recall any other time in history when we have been this infatuated with information and numbers. But with all the ways we capture and access new troves of data, are we becoming more knowledgeable? Or are we just processing more noninformation in search of insights that are increasingly hard to come by? Does data help us connect more with who we are as a society, or is it pulling us further apart?

While we may exuberantly welcome data's rise for the unprecedented possibilities it brings, our new data-fueled culture is also causing psychological discomfort and societal friction. In many respects, information technology is advancing faster than society can keep up.

Information Anxiety

Humans innately pursue knowledge. Curiosity is in our DNA. From our earliest days as children exploring our surroundings, we spend our lives building an understanding of what's around us. And yet, as we strive to understand, our world is growing increasingly complex, and its complexity is rapidly outpacing our capacity to comprehend it.

In his 1989 book, *Information Anxiety*, Richard Saul Wurman, founder of the TED conference, wrote: "Information anxiety is produced by the ever-widening gap between what we understand and what we think we should understand." Today, information overload and information anxiety are realities of contemporary life, due largely to the prevalence of the Internet. Search engines like Google have played the biggest role in connecting us to its seemingly never-ending stream of information, but while Google's PageRank algorithm is getting better and better at interpreting our queries, the quality of online material we encounter is as varied as ever. With such a sheer volume of information at our fingertips, it's increasingly difficult to separate signal from noise. As Wurman points out in a *Scenario Journal* article, "Information Anxiety: Towards Understanding," information anxiety is based not on too much information but, rather, too much noninformation, which in turn is leading to increasing friction in our lives.

Social Distancing

Most would agree that social media has had empowering effects for individuals. For many, however, social media also causes or increases anxiety. As journalist Alissa Quart reports in the PBS *Frontline* episode “From Gen X to Z: Teens and the New Cool,” an attachment to numbers and statistics is producing increasing competition for social media followers and friends, particularly among teenagers. Rivalry based on these new, astronomically high standards of popularity can quickly lead to anxiety as people strive to improve their rankings. Furthermore, Quart asks, in the quest to amp up their numbers of Facebook friends, are teens losing the understanding of what a friend really is?

Studies have also found that social media can actually make us lonelier. In the *Atlantic* article “Is Facebook Making Us Lonely?” Stephen Marche quotes MIT computer science professor Sherry Turkle: “The ties we form through the Internet are not, in the end, the ties that bind. But they are the ties that preoccupy.” According to Marche, Facebook use is correlated with a rise in narcissism — the flipside of loneliness. In all of our efforts surrounding self-presentation, are we losing the capacity to form meaningful connections with others?

Loss of Privacy

Privacy is another area of friction created by the rise of data, growing in importance every day. With its 1.62 billion users, Facebook is becoming increasingly valuable to marketers. Because of the information contained in people’s profiles and the content with which they engage, social media can target specific demographics better than other forms of online advertising. Similarly, as suggested by the 2014 Symantec study “How Safe Is Your Quantified Self?,” businesses, marketers and governments alike would find data from self-tracking quite valuable.

This raises questions about the privacy of personal information, a growing concern among Americans. As the Whitney Museum of Art’s director of digital media, Sarah Hromack, points out in the *frieze* article “Safety in Numbers?,” we are increasingly allowing ourselves to be defined by data due to our willingness to disclose personal information online. As a result, personal data can be used as a source of power and control. This is confirmed by the evidence published on WikiLeaks and through classified documents provided to the media in 2013 by former US National Security Agency (NSA) contractor Edward Snowden; among other things, the documents Snowden leaked showed that the NSA was collecting

millions of email addresses and searching email content, as well as tracking cell phone usage and locations globally.

As reported by Andrea Peterson of the *Washington Post*, Apple CEO Tim Cook warned about the consequences of giving up our privacy at the recent Summit on Cybersecurity and Consumer Protection in Palo Alto:

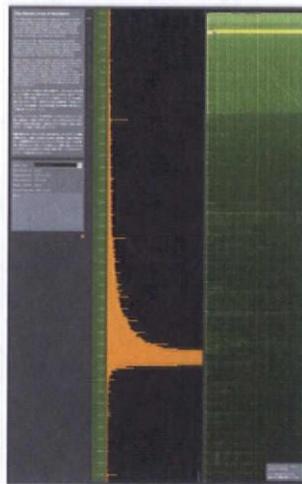
We still live in a world where all people are not treated equally. Too many people do not feel free to practice their religion or express their opinion or love who they choose. [We live in a] world in which [the protection of] that information can make a difference between life and death. If those of us in positions of responsibility fail to do everything in our power to protect the right of privacy, we risk something far more valuable than money. We risk our way of life.

The loss of privacy is one of the largest threats and sources of friction we face in our increasingly data-driven society.

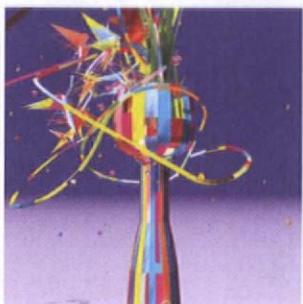
The Art of Data

The rise of data is disrupting the core of our society, impacting us deeply as both individuals and members of communities. Throughout history, frictions created as societies undergo change have spurred innovative responses in the arts. New artistic forms and statements examine the fabric of society as well as the role of the individual, and the artist, within it. The arts, and more broadly, all manner of cultural production, provide ways for society to process change. One particularly poignant example is the Italian futurist movement, which preceded the Bauhaus and modernism in its celebration of technology and the machine at the height of the industrial era. A more recent example is net art, an art form leveraging the web as a distribution channel and a response to the proliferation of the Internet. Poised as we are today at the dawn of the information era, we are witnessing the coalescence of another movement — data art.

The following five sections — Data as Narrative, Data as Mirror, Data as Truth, Data as Equalizer and Data as Interface — focus on the use of data in the arts to generate new forms of creative output as well as critique our data driven world. Despite the issues that data presents, many of the following projects represent the unexpected moments of humanity that arise from quantification. The work speaks to a shared human condition and proposes questions and observations that may help us come to terms with our changing society.



1 **MARK HANSEN** and **BEN RUBIN**, *Listening Post*, 2001.
Courtesy of the artists



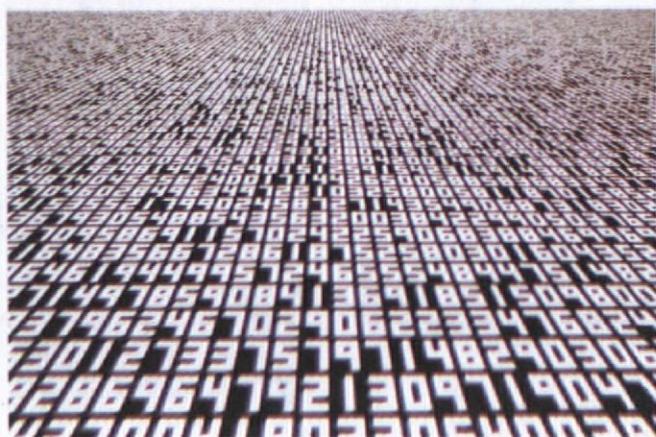
2 **DOUGLAS COUPLAND** with **PAUL HUMPHREYS** and **HELIOS DESIGN LABS**, *Electric Ikebana*, 2012.
Courtesy of Douglas Coupland

3 **GOLAN LEVIN**, **JONATHAN FEINBERG**, **SHELLY WYNECOOP** and **MARTIN WATTENBERG**, *The Secret Lives of Numbers*, 2002.
Courtesy of the artists

4 **MATTHIEU SAVARY**, *Pixel Is Data*, 2013–present.
Courtesy of the artist



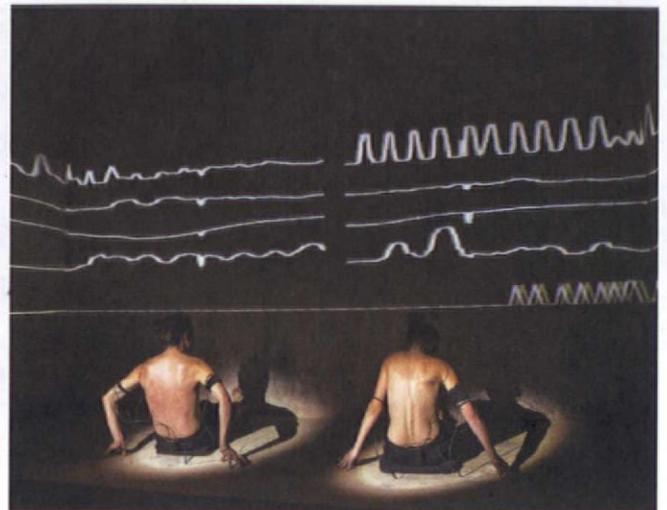
5.1 RYOJI IKEDA, *data.tron [8K enhanced version]*, audiovisual installation, 2008-09.
© Ryoji Ikeda. Photo: Liz Hingley



5.2 RYOJI IKEDA, *data.tron*, audiovisual installation, 2007.
© Ryoji Ikeda. Photo: Ryuichi Maruo.
Courtesy of Yamaguchi Center for Arts and Media [YCAM]



6 DANIEL ROZIN, *Time Scan Mirror*, 2004.
Courtesy of bitforms gallery, NY

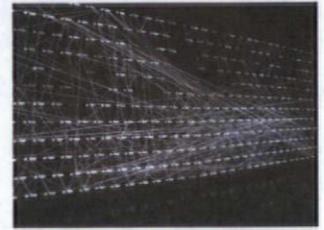


7 **BRIAN HOUSE**, *Quotidian Record*, 2012.
Courtesy of the artist

8 **ANTONY RAIJEKOV** and **KATHARINA KÖLLER**, *IOVE*, 2014.
Courtesy of Antony Raijekov



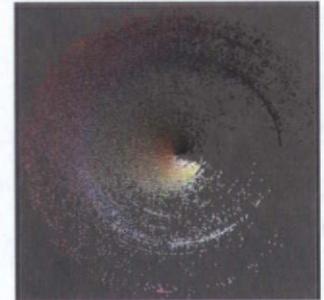
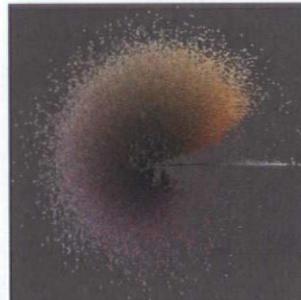
9 **WILLEM BESSELINK**, *iCal / uCal*, 2012-2013.
Courtesy of the artist



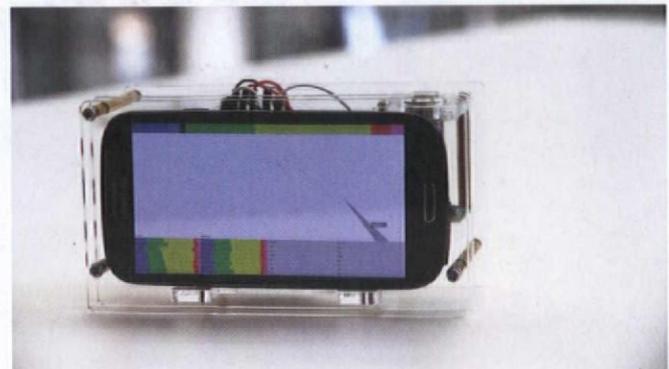
10 **GEORGE LEGRADY**, *Pockets Full of Memories*, 2003–2007.
Cornerhouse Gallery, Manchester, UK, 2005. Curated by Kathy Rae Huffman. Courtesy of the artist



11 **CASEY REAS**, *Signal to Noise*, 2012.
Courtesy of the artist and bitforms gallery, NY



12 **NADAV HOCHMAN, LEV MANOVICH** and **JAY CHOW**,
Phototrails, 2013.
Courtesy of Nadav Hochman, Lev Manovich, Jay Chow /
Phototrails.net



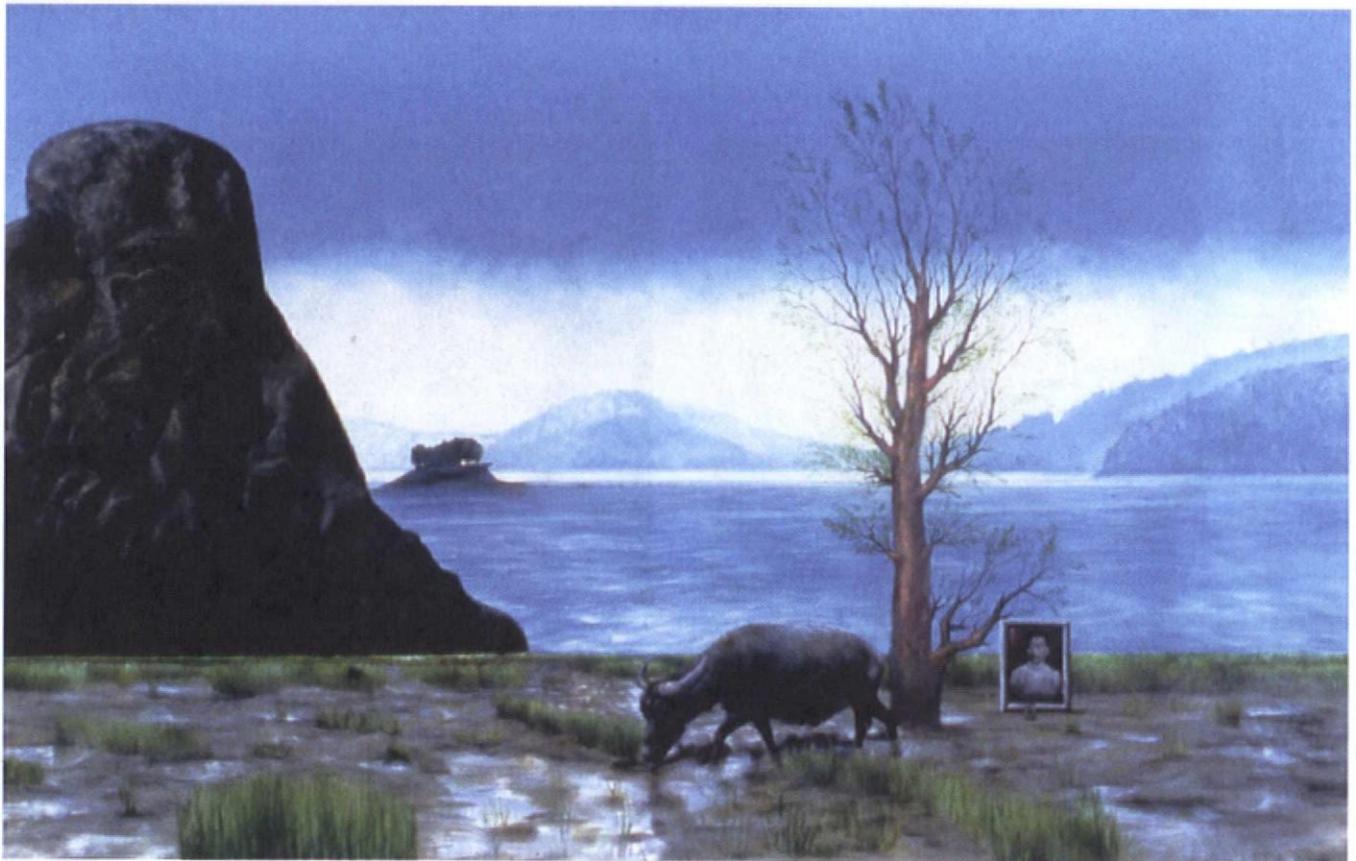
13 **MITHRU VIGNESHWARA**, *Aleph of Emotions*, 2013–2014.
Courtesy of the artist



14 **JASON SALAVON**, *Portrait*, 2009–2010.
Portrait (Hals), 2009, Digital C-print, 38.5"×31".
Ed. 7 + 2 APs. Courtesy of the artist and Ronald
Feldman Fine Arts, New York, NY



15.1 **KOMAR & MELAMID**, *Holland's Most Wanted*, 1994. Oil and acrylic on canvas.
All images courtesy of Ronald Feldman Fine Arts, New York, NY



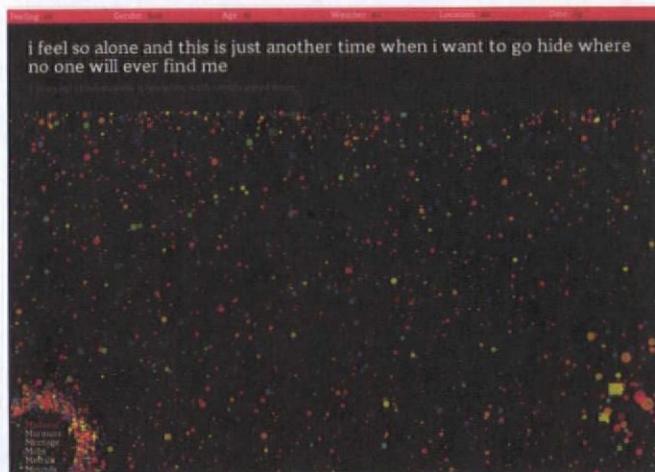
15.2 **KOMAR & MELAMID**, *China's Most Wanted*, 1994. Oil and acrylic on canvas.



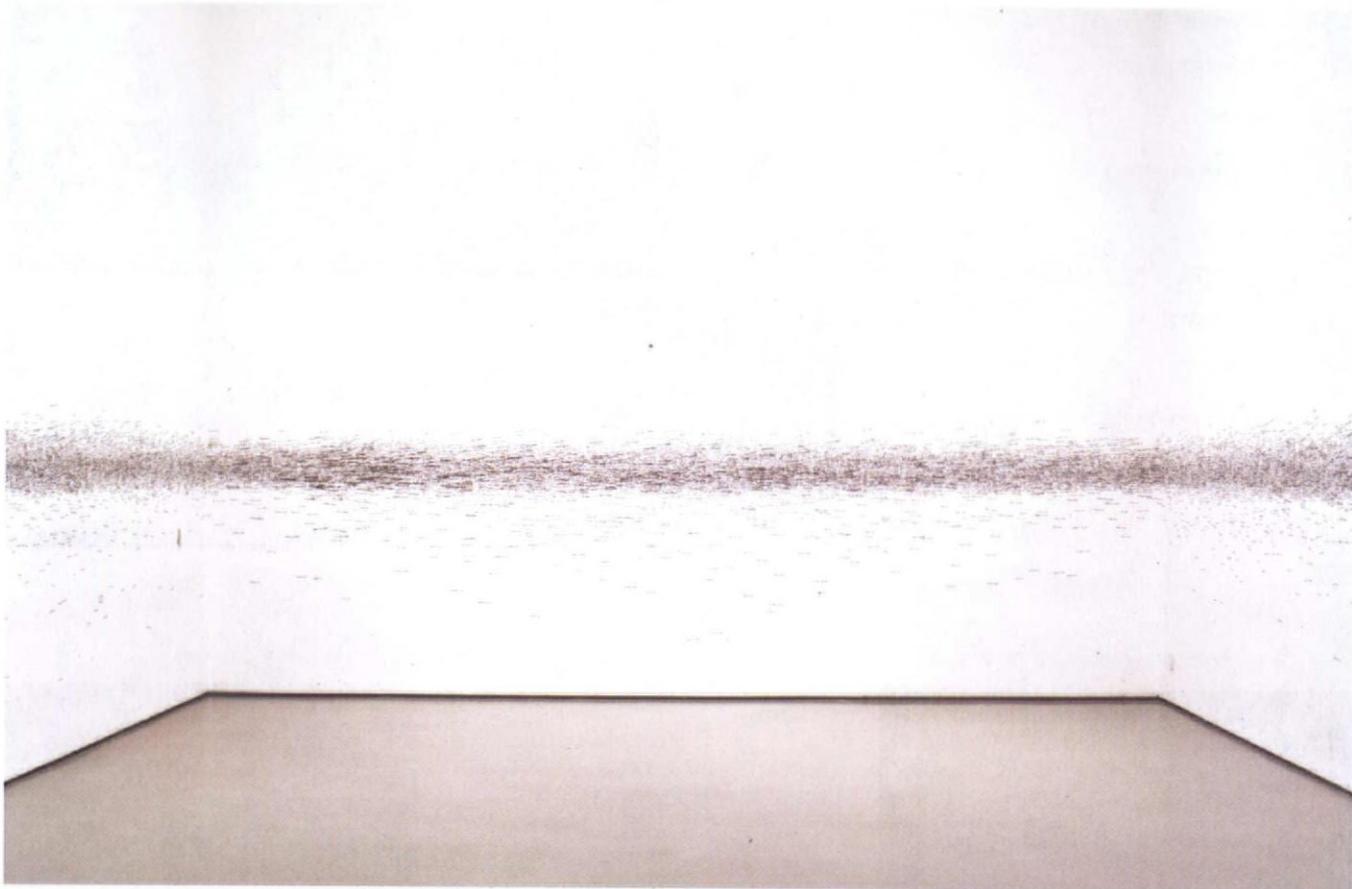
16 **JAMES COUPE and JUAN PAMPIN**, *Sanctum*, 2013–2015.
 Courtesy of RJ Sánchez | Solstream Studios



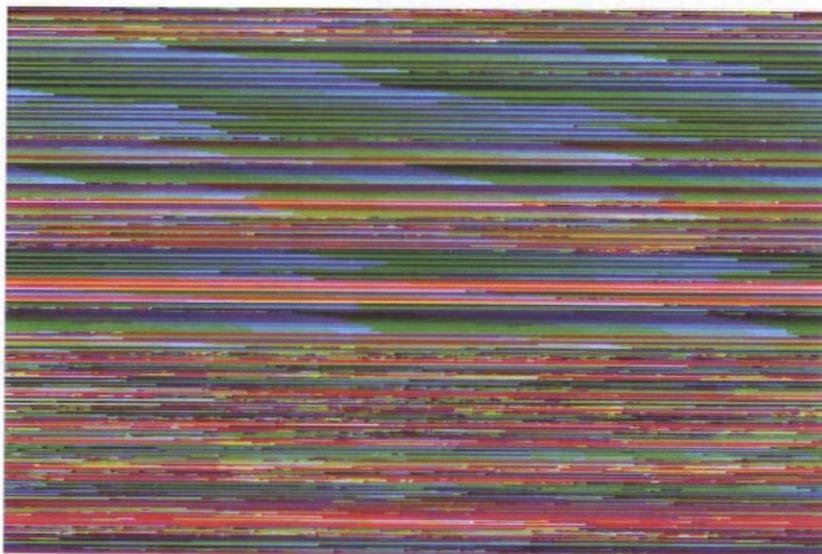
17 **CHRIS MILK** in collaboration with **AARON KOBLIN**,
The Johnny Cash Project, 2010–present.
 Courtesy of the artists



18 **JONATHAN HARRIS and SEP KAMVAR**, *We Feel Fine*, 2006.
 Courtesy of Jonathan Harris



19 **ROMAN ONDÁK**, *Measuring the Universe*, 2007.
Digital Image © The Museum of Modern Art /
Licensed by SCALA / Art Resource, NY



20 **LISA JEVBRATT**, *1:1*, 1999.
Courtesy of the artist

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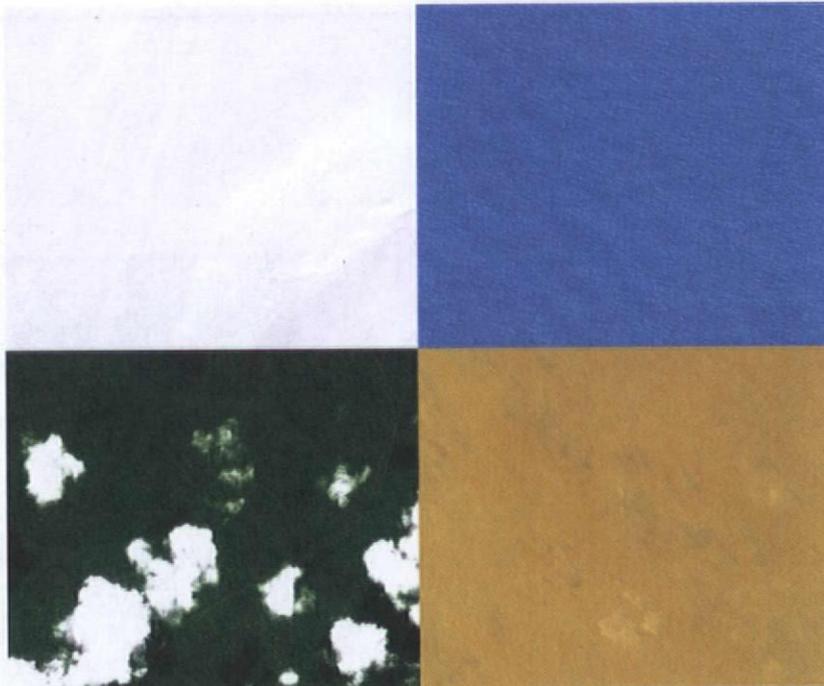
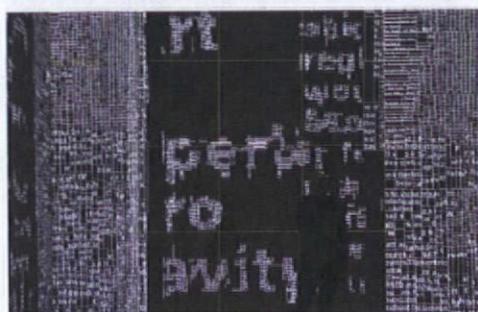
shares

View all comments



21 **BEN GROSSER**, *Facebook Demetricator*, 2012–present.
Courtesy of the artist

22 **EBRU KURBAK** and **MAHIR M. YAVUZ**, *News Knitter*, 2007.
Courtesy of the artists



23 **LUST**, *Type/Dynamics*, 2013–2014.
Installation with visitors.
Photo: Gert-Jan van Rooij

24 **LAURA KURGAN**, *Monochrome Landscapes*, 2004.
White: Acquired 7 April 2003, 21:12:49 GMT. Center coordinates Lat. 69.79985, Long. -144.54275. QuickBird satellite, 0.61m per pixel. Includes material © 2003 DigitalGlobe. All rights reserved.
Blue: Acquired 16 May 2003, 10:19:54 GMT. Center coordinates Lat. -0.00195, Long. -0.00045. QuickBird satellite, 0.61m per pixel. Includes material © 2003 DigitalGlobe. All rights reserved.
Green: Acquired 4 December 2001, 09:48 GMT. Upper left coordinates Lat. 3.21939, Long. 14.2077. Ikonos satellite, 1.0 meter per pixel. Includes material © 2001 Space Imaging LLC. All rights reserved.
Yellow: Acquired 30 March 2003, 07:32:10 GMT. Center coordinates Lat. 30.3136, Long. 46.3738. QuickBird satellite, 0.61m per pixel. Includes material © 2003 DigitalGlobe. All rights reserved.
Courtesy of the artist

Data as Narrative

Data can tell stories. Just like in traditional storytelling, data can unfold over time in a linear progression. However, a database allows narratives to move between different properties, pivoting effortlessly from time to other characterizing dimensions, such as location or category. The power of data narratives lies in breaking free from a singular viewpoint. Some data narratives make use of metaphors, allowing the information itself to tell the story. Others tell stories by drawing on a multitude of individual perspectives. Yet others involve the viewer directly, enabling people to find their own narratives by filtering and sorting information in a variety of ways. While this departure from traditional, linear storytelling can feel disorienting, it also opens the door to participation and representation of a community's voice. The following projects present different perspectives on data as narrative.

1 **Mark Hansen and Ben Rubin** *Listening Post*, 2001

A media installation by Mark Hansen and Ben Rubin, *Listening Post* consists of a suspended, curved grid of hundreds of small screens that dynamically display, in real-time, text fragments collected from Internet chat rooms. Simultaneously, a chorus of computer voices recites the content, accompanied by musical chords. The work cycles through a series of scenes that highlight different phrases and adopt various arrangements of sound and visual treatments.

Messages are organized into topic clusters based on content, causing a data-driven narrative to unfold that reflects the flow of communications on the Internet. Although the displayed text is determined algorithmically, at times it seems as if the screens are responding to one another. According to Rubin, the piece reflects an innate human yearning for connection. As he said in the *New York Times* article "Making an Opera from Cyberspace's Tower of Babel": "There are an untold number of souls out there just dying to connect, and we want to convey that yearning. I hope people come away from this feeling the scale and immensity of human communication."

o-c-r.org/portfolio/listening-post

2 **Douglas Coupland with Paul Humphreys and Helios Design Labs** *Electric Ikebana*, 2012

Electric Ikebana is a collaboration between *Generation X* author, Douglas Coupland, and Paul

Humphreys of the British synth-pop band *Orchestral Manoeuvres in the Dark*. The piece's concept is a musical track that interacts with Internet traffic data, resulting in visual artifacts—unique for each viewing—that reference Japanese flower arrangements called *ikebana*. Internet traffic is translated into particles, their shape, color and quantities varying depending on the type and volume of the underlying data. User location and time affects the outcome as well; for example, 12 colors are associated with various times of day, causing the environment to look different for every person viewing the piece.

The resulting experience gives voice and form to something as abstract as Internet traffic. The *ikebana* reflect the content of network activity and align it with the piece's soundtrack in a way that tells a different story with every viewing. *Electric Ikebana* references and humanizes the narratives contained in the Internet's constant stream of traffic data, suggesting new possibilities for expressing this data in a delightful, uplifting way.

heliosdesignlabs.com/project/douglas-coupland-electric-ikebana

3 **Golan Levin, Jonathan Feinberg, Shelly Wynecoop and Martin Wattenberg** *The Secret Lives of Numbers*, 2002

Numbers hold a certain fascination. They convey confidence and authority. But while numbers are considered objective and indisputable, they are actually a reflection of our culture—our ideas, our interests, our behaviors. *The*

Secret Lives of Numbers is an interactive Java applet by Golan Levin, Jonathan Feinberg, Shelly Wynecoop and Martin Wattenberg that visualizes the popularity of every number between 0 and 1,000,000. The work is based on an automated Internet search for all numbers in that range, counting the web pages that contain each.

Certain numbers are more popular because they are used as area or ZIP codes (212, 911, 90210), while others are used to represent years (2000, 2001, 2002, etc.). Some numbers are used frequently in technology specifications (286, 386, 486), while others are popular sales tools (98, 99). As the authors speculate, some numbers like 12345 or 8888 may be popular because they are simply easy to remember. *The Secret Lives of Numbers* tells countless stories through the lens of numbers, in essence forming a snapshot of our culture.

turbulence.org/Works/nums

4 **Matthieu Savary** *Pixel Is Data*, 2013–present

Pixel Is Data, created by Matthieu Savary, is a photo-taking application for iOS. Instead of representing photos as a program traditionally would, it can rearrange the image data based on a number of parameters. In addition to organizing pixels in their photographic order, the application can recompile them based on their red, green and blue components as well as in a variety of other ways, including a choice of pixel shape and the introduction of randomness via a noise slider. The application disrupts the narrative conveyed by a single photograph, enabling countless

interpretations by reorganizing the image's pixel structure. This project highlights data's potential to tell a multitude of stories in the hands of the user, who is given control to find new narratives from within a single data source.

smallab.org/pixel-is-data

5 **Ryoji Ikeda** *Datamatics*, 2006–present

Sound artist Ryoji Ikeda's work is concerned with sound in a raw state, as pure data. *Datamatics* is a series of artworks (including the two variations of *data.tron* featured here) that use data in audiovisual concerts. Visuals are rendered in stark, minimalist black and white with color accents, mirrored by a data-driven soundtrack. A variety of scenes cycle through visualizations of data from hard drive errors and code studies as well as mathematical processes. Data is used as texture to create spectacular, immersive landscapes and vistas that tell sonic and visual narratives. Ikeda's objective is to make visible and material the data that permeates the world. What does the invisible substance of data look like when given form? The artist interprets data as cold, distant and dystopian, enveloping the viewer and invoking an uneasy sense of the sublime.

ryojiikeda.com/project/datamatics

Data as Mirror

Data can reveal things about us that we didn't know were there. Quantification can provide evidence, which causes us to see our own behaviors from a different perspective. Data can act as the bridge between our inner and outer selves, allowing us to see and measure the impact we have on our surroundings and the people in our lives. This can be enlightening and sometimes uncomfortable as we discover things about ourselves that may be difficult to acknowledge. The following projects use data to cast reflections of ourselves relative to the world, bringing to the surface points of connection between individuals.

6 Daniel Rozin

Time Scan Mirror, 2004

Daniel Rozin, media artist and associate art professor at the Interactive Telecommunications Program (ITP) at New York University, creates reactive installations and sculptures that respond to the viewer's presence. His "software mirrors" reflect an image of the viewer in a variety of media, from wood to metal, causing focus to shift from the reflected subject matter to the technique used to scan and recreate the environment. *Time Scan Mirror* investigates time through the process of scanning a single vertical line of whatever crosses in front of the piece. The scanned line, one pixel in width, is continuously shifted horizontally, creating a visual log roughly 30 seconds in length.

smoothware.com/danny/timescan.html

7 Brian House

Quotidian Record, 2012

Through exploring alternative geographies and experimental music, media artist Brian House aims to deconstruct and make sense of what's happening in the world.

House's *Quotidian Record* is a manifestation of his interest in the rhythms of everyday life. A limited-edition vinyl recording, the piece translates an entire, continuous year of the artist's location data into music. Each rotation of the record is one day's worth of data, and a full year takes approximately eleven minutes to play. House created harmonies representing each place using latitude/longitude data. As places are converted into sound, routine translates to higher consonance.

House gathered the data for *Quotidian Record* via OpenPaths, an online service from the *New York Times* that allows users to track their locations via a mobile app. OpenPaths, to which House contributed, was created to give

people back agency over their personal location data, otherwise stored, analyzed and monetized by corporations, while the individuals it belongs to have only limited control. *Quotidian Record* capitalizes on the notion of agency through a highly personal and surprisingly resonant application that maps physical location to abstract data to sound, juxtaposing the tangible and intangible, the digital and analog.

brianhouse.net/works/quotidian_record

8 Antony Raijekov and Katharina Köller

LOVE, 2014

LOVE is an audiovisual

composition for two performers that converts and quantifies body signals, measuring how the individuals respond to each other as well as being in front of a live audience. During the performance, Austrian artist Antony Raijekov and performer Katharina Köller sit on stage, their backs turned to the audience. A custom apparatus tracks each performer's biosignals and translates them into sound and image. The performers' heart rates and other biosignals drive audible, rhythmic beats and sounds and a projection of oscillating waveforms, while movements in the audience are similarly captured via a motion detection system and turned into sound.

In *LOVE* the performers' bodily states are both the result of the act of performing as well as the show itself. The piece makes visible the emotional state shared between the audience and the performers as each influences the other. By measuring these "psychophysical" processes, *LOVE* also raises the question regarding the agency that data affords, in that it not only documents behaviors but also facilitates behavioral change. Here, that cycle is taken to the extreme, creating a real-time feedback loop

and a confluence of synergistic forces that exemplify the visceral impact that data can have.

raijekov.cc/10ve

9 Willem Besselink

iCal / uCal, 2012-2013

As stated on his website, the work of Dutch artist Willem Besselink investigates "natural laws and man-made rules, the regularities of the world and the exceptions to them." These parameters shape Besselink's art; he avoids making decisions based on his own subjective impulses, embracing work that quantifies his behaviors or external conditions, both of which result from structures present in the world.

iCal is a series of 52 paintings capturing the artist's daily activities, week by week, throughout 2012, meticulously documented using the iCal application. Activities are color coded according to six categories. In a parallel series, *uCal*, Besselink created paintings from similar data for 41 individuals, each based on a week of his or her choice. Together, both series visualize 2012 through recorded activities, enabling the comparison between individuals and how they spent their time. In the data's overlaps and differences, Besselink's work highlights patterns that define how our days are structured, describing the ways we choose to spend our time, not only as individuals, but also in a larger community.

willebesselink.nl/iCal-uCal

10 George Legrady

Pockets Full of Memories, 2003-2007

Pockets Full of Memories is a participatory installation dealing with the topic of memory through the lens of an archive. Created by George Legrady, professor of interactive media and director of the Experimental Visualization Lab at the University of California, Santa

Barbara, the installation reflects the voice of a community.

Visitors digitally photograph objects in their possession and add descriptions through a data collection station. The project's database, initially empty, fills over time as visitors add images. The archive is displayed on a large projection surface, and objects are continuously reorganized based on similarities defined by visitor descriptions and visualized according to several views, including their reorganization over time.

The result is a record of the exhibition, a specific event, including the visitor participants who are represented by the objects they chose to contribute. The piece forms a collective portrait built from personal memorabilia, yielding a unique composition every time the installation is shown. By creating a database of objects and associations, the piece demonstrates that the things we own constitute part of not only our individual but also our collective identity.

georgelegrady.com

Data as Truth

Most of us would say that we rate fact over opinion, and data appears to reinforce this. When we are presented with facts in the form of data, we often take them at face value. Of course, data itself is always interpreted — in order to create data, measurements are made, after which data is selected, structured, cleaned, filtered and finally represented, with decisions being made every step of the way. While showing correlations is easy, proving causation is the result of years of research. Some would say it is impossible — the German philosopher Immanuel Kant believed that though experience itself is founded on the assumption that causation exists, we can't ever prove that it's more than just that — an assumption we make in order to make sense of the world. But despite this metaphysical disconnect, we have never lost the desire to transcend the limits of our own experience. The following projects use data as a vehicle to propose essential truths about the world — truths that can sometimes be difficult to accept but also pave the way for shared understanding in certain cultures.

11 Casey Reas

Signal to Noise, 2012

Artist Casey Reas writes software to explore generative systems and forms. His program *Signal to Noise* treats television signals, captured from the air using an antenna, as a raw material. These signals are scrambled and re-arranged into new visual forms and structures using his custom-written software. The result, displayed as a screen-based media installation, is a complex geometric latticework, dynamically shifting and morphing between different views and compositions. By leveraging content from the major US TV networks, *Signal to Noise* highlights the visual patterns inherent in content we consume every day. It deconstructs and recombines these patterns into an infinite number of new forms that allow us to imagine entirely new narratives.

reas.com/signal_to_noise_s

12 Nadav Hochman, Lev Manovich and Jay Chow

Phototrails, 2013

Phototrails is a research project visualizing image data from locations around world. A joint project by researchers at the University of Pittsburgh, the California Institute for Telecommunication and Information, and the City University of New York, it investigates patterns in social media image data, focusing on the billions of photos shared by hundreds of millions of Instagram users every day. It aims to reveal social and cultural insights using a sample

of 2.3 million publicly shared Instagram photos from 13 cities worldwide. In one exploration, the software highlights the brightness and hue of photos, creating unique "visual signatures" that reveal the prevailing preferences of users in each location. Another looks at the frequency at which photos are uploaded, creating a "visual rhythm" that varies place by place. Further explorations focus on the daily routines of individuals based on their photo-taking activities.

Using methods developed in social computing, the digital humanities and software studies, *Phototrails* analyzes large sets of unstructured data from social media to create comparisons between locations, identifying patterns that capture a particular sociocultural essence of a place.

phototrails.net

13 Mithru Vigneshwara

Aleph of Emotions, 2013–2014

Aleph of Emotions, a project by Singapore-based creative technologist Mithru Vigneshwara, lets us see the world around us through the lens of feelings attached to places. According to writer Jorge Luis Borges, the Aleph is a point in the universe that allows anyone who looks into it to see everything else in the universe with perfect clarity. Vigneshwara uses the Aleph as a metaphor for an infinite archive of emotions. In this work, emotions are derived from geocoded Twitter messages, mapped to their corresponding

locations and made accessible through a camera-like device. The user can point the device in any direction, and the viewfinder screen will display a visualization of emotions attached to that place. *Aleph of Emotions* is compelling in that it links the physical environment to the emotions of others, which we can discover experientially as we move through the world. It contextualizes information that was previously abstract, revealing a hidden truth about the places around us.

mithru.com/works/aleph

14 Jason Salavon

Portrait, 2009–2010

A Chicago-based media artist, Jason Salavon develops software programs that look for patterns in varying forms of data, investigating relationships between the part and the whole, the individual and the group. Part of his *Amalgamations* series, *Portrait* involves a technique that combines a large set of images into a single rendering using point-by-point mathematical averaging. For this piece, Salavon's software averages the bulk of the portraits created by artists Frans Hals, Rembrandt Harmenszoon van Rijn, Anthony van Dyck and Diego Velázquez, resulting in four composite images, one for each artist.

Salavon describes the resulting images as "meta-portraits" — ghostly and shroud-like, they capture a particular essence of the source material. Comparing the four masters' images, it is easy to

see similarities in composition. Yet, the real insight lies in the subtle differences in lighting and framing that characterize each artist's style. Salavon's interpretation of the old masters helps us separate form from subject matter.

salavon.com/work/portrait

15 Komar & Melamid

The Most Wanted Paintings, 1994–1997

The *Most Wanted* paintings are the result of a poll conducted by the team of Russian-born artists Vitaly Komar and Alexander Melamid. The artists conducted an extensive market research survey in a dozen countries worldwide about aesthetic preferences and taste in the attempt to discover what a "people's art" would look like. The poll was later extended to their website.

This project raises the question: What would art look like if it aimed to please the largest number of people? The results of the project speak for themselves in suggesting that the most popular work may not be the most culturally valuable. Perhaps with all of our enthusiasm for data, we need to preserve space for things that are inherently qualitative.

awp.diaart.org/km

Data as Equalizer

Our actions have consequences. No matter how small we think our influence is in society, what we do matters. While the effects of our individual actions may seem minor, they can be truly breathtaking in aggregate. As a people, we are greater than the sum of our parts— together our different perspectives can create a pluralistic vision that lets us see beyond the present to where we may be headed. Data allows us to see both the forest and the trees— both the individual as well as the shared space we inhabit as a community. The following projects use data as an equalizer to identify points of overlap between the individual and the group, shedding light on shared experiences.

16 James Coupe and Juan Pampin

Sanctum, 2013–2015

Sanctum is a public art installation by media artists James Coupe and Juan Pampin, commissioned by the Henry Art Gallery in Seattle and installed on the façade of the museum. The installation consists of a grid of 18 screens and a series of video cameras that record people passing by while also identifying them by age and gender. As a person approaches the video wall, he or she becomes the installation's focal point, triggering automated readings and the textual display of Facebook status updates, contributed by participating individuals, that match the age and gender profile of the passerby.

Most of us are peripherally aware that social networks such as Facebook build profiles from our demographic information, behaviors and preferences. Online, we may take these activities for granted, giving away the rights to our personal data in exchange for access to services. When recontextualized in a public sphere, these activities seem grossly intrusive. Sanctum leads the viewer to question the effects of constant surveillance and the impact of personal information becoming public.

jamescoupe.com/?p=1740

17 Chris Milk in collaboration with Aaron Koblin
The Johnny Cash Project, 2010–present

The Johnny Cash Project is a collective online art project created by hundreds of participants worldwide. Participants make drawings based on a set of Johnny Cash-related source photos chosen by a software program at random. Contributed drawings are then sequenced by the software to become the individual frames of a constantly evolving music

video for the song "Ain't No Grave," Johnny Cash's final studio recording. Frames can be viewed in this linear narrative and also by visual characteristics, including frames with the most brushstrokes, frames that are rendered realistically or abstractly, frames that are gestural or pointillist, or frames that are rated highest by viewers.

Through these ongoing contributions, no version of the video is ever the same—it continues to evolve, referencing the themes of mortality and resurrection present in the song's lyrics. While every frame of the video is an expression of each participant's contribution, as a whole, the work becomes a shared tribute to Cash and a slice of popular culture.

thejohnnycashproject.com

18 Jonathan Harris and Sep Kamvar
We Feel Fine, 2006

We Feel Fine by Jonathan Harris and Sep Kamvar visualizes human emotions by gathering phrases from blog entries containing the phrase "I feel" or "I am feeling," amounting to approximately 15,000 feelings each day. These phrases are rendered as colored bubbles in an interactive, online visualization. The color of the bubbles represents the type of feeling—dark dots show sadness, while bright dots indicate happiness—and the size of the dot corresponds to the length of the phrase. The bubbles are presented in a variety of different views and visualized in clusters according to feeling type; by demographic information such as age, gender, location and weather; or based on photos that occur in the same source blog entry. This project resonates because it not only provides a platform for each individual voice but also a representation of the common emotions we all

share. It presents a portrait of how the Internet is feeling at any given moment in time.

wefeelfine.org

19 Roman Ondák
Measuring the Universe, 2007

Slovakian artist Roman Ondák's work involves viewers in the process of art making, aiming to bridge the divide between the work and the viewer. *Measuring the Universe* is an installation first exhibited at the Museum of Modern Art in New York. Over the course of the exhibition, attendants marked visitors' heights on the gallery walls using their first names and the date they were measured. The result is a dense pattern of thousands of black lines concentrated in the center of the gallery wall, framed by pure white space at the top and bottom. *Measuring the Universe* records both the presence of the individual visitor as well as the collective and alludes to the innate human desire to visualize the scale of the world.

moma.org/visit/calendar/exhibitions/980

Data as Interface

Access is a critical factor in relation to data. Since data is inherently abstract, giving form to and allowing people to interact with it can be a powerful, enabling force. This also raises issues about control and responsibility regarding who owns a given dataset and who is granted access. Our interactions with data also present opportunities to look beyond prevailing formats. For instance, transforming data from one mode of representation to another may call into question certain established conventions or protocols, lend permanence to something ephemeral, or show the boundaries of something that may be thought of as limitless. These projects present data interfaces that deal with the notion of access in a variety of different ways.

20 Lisa Jevbratt 1:1, 1999

Media artist Lisa Jevbratt explores the expressions that result from the protocols and languages of the Internet. Her project *1:1* consists of a database containing a reference to every website in the world in 1999. She wrote a program to index each website using crawlers that probed every possible Internet Protocol (IP) address, checking if a website was hosted there. Whether or not the site was accessible to the public, if a site was found, the address was stored in the database. The result is a comprehensive display of every website on the Internet.

Navigating the web using *1:1* is different from using a search engine. *1:1* presents the web as a space, a territory that can be navigated and traversed. It is at once a map and an interface—the title *1:1* refers to 1:1 scale, a metaphor famously explored in Jorge Luis Borges's essay "On Exactitude in Science," which describes a map the size of the territory it charts. While the Internet consists of servers connected to one another by infrastructure, the web doesn't have a physical dimension. By staking out the territory of the web, *1:1* is also, in a certain sense, the web as well.

128.111.69.4/~jevbratt/1_to_1/index.ng.html

21 Ben Grosser *Facebook Demetricator*, 2012–present

While other data-driven artworks give form to numbers, Ben Grosser's project *Facebook Demetricator* removes the numbers altogether. Most Americans use Facebook, the world's largest social network, every day. We have

become accustomed to the numbers strewn through Facebook's interface representing amounts of friends or likes a post has received. Numbers on Facebook have become a new form of social currency, placing emphasis on how many friends a person has or how many people like a status update rather than on who a person's friends are and the content of their messages.

Facebook Demetricator is a browser add-on that hides all numbers in the Facebook interface. For example, "16 people like this" becomes "people like this." Grosser's intent is to disrupt Facebook's social protocols and allow for interactions that are not dependent on quantification. This work raises questions as to why we value numbers the way we do and whether they indeed undermine our relationships and social interactions. Put differently: is quantification the cause of social anxiety, or is it merely the outcome?

bengrosser.com/projects/facebook-demetricator

22 Ebru Kurbak and Mahir M. Yavuz *News Knitter*, 2007

News Knitter by Ebru Kurbak and Mahir M. Yavuz gathers information from daily political newsfeeds and transforms them into clothing. Global news data is parsed within 24 hours of a particular timeframe, forming the basis for the creation of visual patterns unique to every sweater produced. The project essentially turns the process of designing garments into a worldwide collaboration—the sweaters become records of what happened in the world on a specific day or during a certain time period.

The project began with the desire to find an alternate medium for visualizing live data, as well as an interest in translating digital information into physical artifacts. As abstract data is converted into clothing, its significance changes. Clothing becomes the interface—data becomes style.

casualdata.com/newsknitter

23 LUST *Type/Dynamics*, 2013–2014

Type/Dynamics is a media installation by LUST, a Dutch graphic design studio working at the intersection of design and technology. Designed for the Stedelijk Museum, Amsterdam, the installation is a response to the work of designer Jurriaan Schrofer—in particular, his exploration of what he called "moving typography."

Type/Dynamics treats typography as a carrier of data. Projections covering the entire surface of the gallery walls depict constantly moving textual information fragmented by grids. The grid patterns are derived from Google Street View panorama images for specific locations in the news—for example, "Ground Zero" or "Tiananmen Square." The grids are then filled with real-time information about the locations. The projections respond to visitor movements in the space, selectively opening up typographic layers for inspection. As visitors approach a specific piece of information, the grids surrounding it open up, rendering it more legible.

The work is predicated on the idea that form is always unfinished and changeable. As an interface, *Type/Dynamics* is a vessel for a vast multitude of narratives all represented simultaneously. It is pure information overload. As the

designers explain on their website (lust.nl), the result is so overwhelming that you see everything at once without seeing anything at all.

lust.nl/#projects-5525

24 Laura Kurgan *Monochrome Landscapes*, 2004

Laura Kurgan's work explores the ethics and politics of mapping and the visualization of urban and global data. *Monochrome Landscapes*, a series of 40" by 84" digital prints, reflects the idea that places on Earth that appear as single colors when seen from above are also contested and fragile territories. The high-resolution satellite images in this series show almost nothing but snow, water, trees and sand. A white image shows the Arctic National Wildlife Refuge in Alaska, a protected space caught in the debate over whether or not it should be opened to oil drilling. A blue image depicts the Atlantic at the exact place where latitude and longitude are both zero. An image of an old-growth tropical rain forest in Cameroon, which has become a target for illegal logging, is green. The Iraqi desert is yellow.

In her book *Close Up at a Distance*, Kurgan describes working with the NGO Global Forest Watch, for whom she identified an illegal logging road traversing the rain forest in Cameroon. The road interrupts the continuous aesthetic of the green forest, prompting the viewer to ask questions about it. Here, and in the case of the other three prints, the image becomes an interface for the investigation of fragile environments.

100k.org/monochromes_proj

The Impact of Data

Quantification is quietly changing the world. The new kinds of analysis made possible with data's rise will lead to greater insight but could also result in greater predictability in all areas of life. Artist Martha Rosler writes in her contribution to the *frieze* article "Safety in Numbers?" that quantification is an "essential bureaucratic tool" delineating all aspects of human activity. She warns that quantification may be pushing the humanities into decline. What if the quality of TV programming was determined solely by audience share rankings? Or what if student achievement was determined on the basis of test grades alone? The insights data offers may be insufficient for the creation of meaningful cultural output, especially in those areas that are more nuanced — and human. Is the quantification of the world stifling free expression? Or, conversely, is it possible for quantification and the humanities to live side by side, even become intertwined? Could the production of data itself be a creative act? As data works its way deeper into our society, culture can be a powerful lens through which to view its impact on our changing world.

Christian Marc Schmidt is the founder of Schema, a research and design firm focused on turning information into action. Prior to Schema, Christian was a designer at Microsoft, an associate partner at Pentagram and an interaction designer at IDEO. Christian holds a BFA from Parsons School of Design in New York and an MFA from the Yale University School of Art. His work has received widespread recognition. Christian has taught at Cornish College of the Arts, the University of Washington and New York University, and speaks frequently about his work and design approach.

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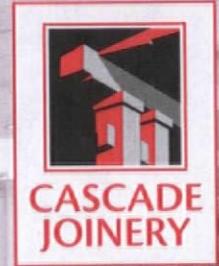


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Millennials Are Taking Over, One Bike Lane at a Time

Peter Trinh

Illustration by Michael Pullano

“You cannot be for a startup, high-tech economy and not be pro-bike.”

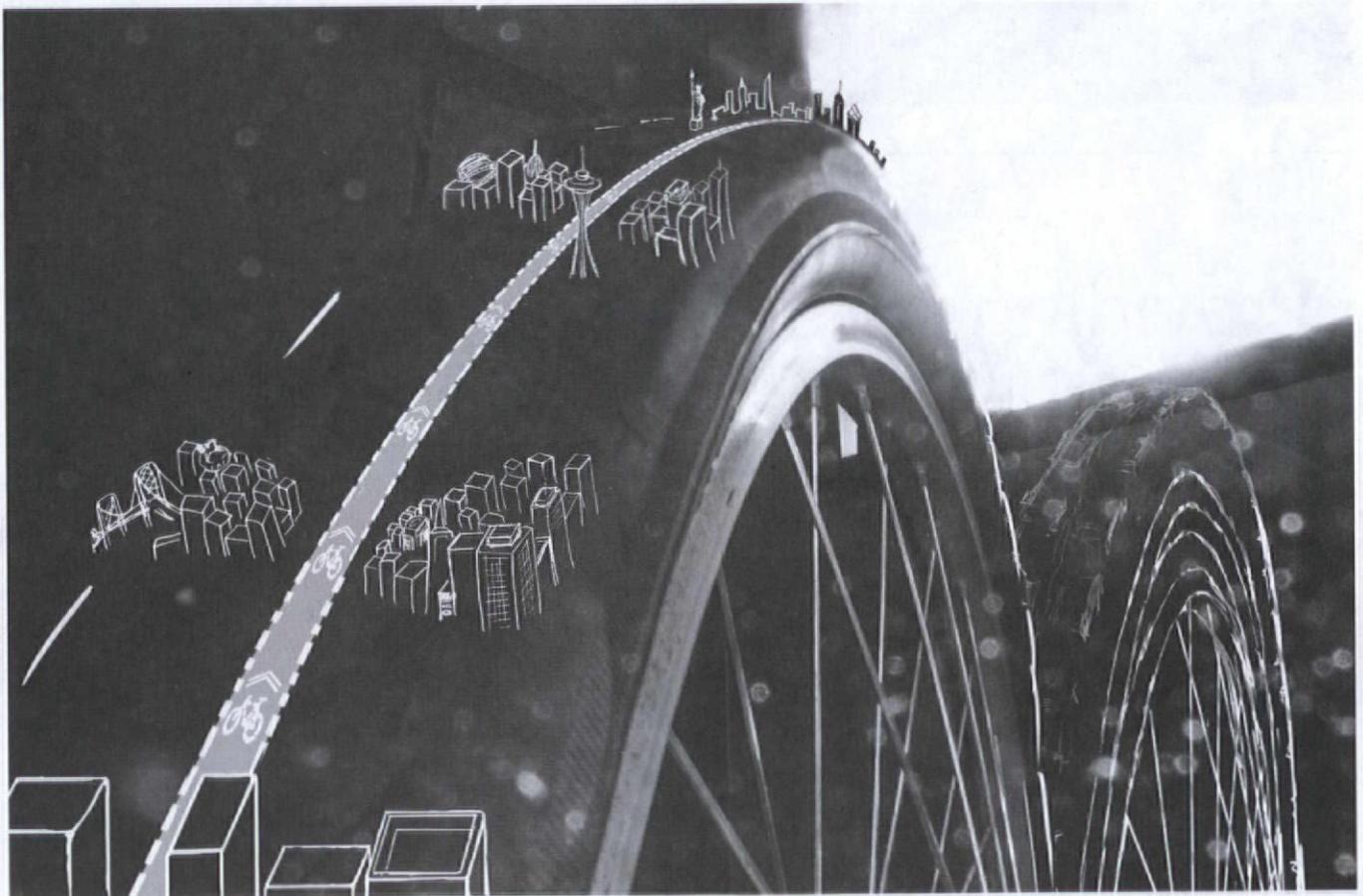
—Mayor Rahm Emanuel, quoted in “A Great Day in Chicago: Protected Bike Lanes Open in the Heart of the Loop,” John Greenfield, *Grid Chicago*

Millennials. They’ve been called a myriad of things: smart, lazy, entitled, selfish, independent and innovative. Generally identified as individuals currently between the ages of 16 and 34, millennials will forever be linked to smartphones, social media, craft beer, food trucks and driving up the price of renting a tiny apartment in many of America’s booming cities as the tech industry makes its mark.

But perhaps the most overlooked effect they are having on society is their impact on transportation. Millennials are completely changing how planners and engineers see our streets and how public construction dollars are spent.

Millennials have truly embraced the multimodal mindset of getting around cities, specifically by biking or walking. They are flocking to and filling highly walkable cities such as San Francisco, Seattle, Chicago, New York and Washington, DC — urban communities where bike lanes and being able to walk to work take priority over living space and parking. And in order to meet the millennial generation’s demands and continue attracting

parking, cities, bike, Chicago, lanes, America, tech, flocking, parking, craft



Millennials are flocking to the elite cities of America, where bike lanes are reshaping what these famous skylines look like at the ground level.

more transplants, cities are rethinking how they allocate funds for infrastructure. Instead of widening roads and improving highway interchanges, cities are adding bike facilities and better sidewalks. For the first time in history, bike lanes and walking scores are crucial to a city's economic development, as urban areas grapple with how to draw and keep new millennial residents.

Millennials no longer view driving a car as a necessity but rather a convenience. According to the US Public Interest Research Group's report "A New Way to Go: The Transportation Apps and Vehicle-Sharing Tools That Are Giving More Americans Freedom to Drive Less," millennials have shown a healthy decline in automobile use since 2000, driving 23% less. In the same time frame, bike commuting has increased by 60%, and 10% since 2011, potentially fueled by the large millennial population's desire to get to work without a car. In an effort to live greener, healthier lifestyles, millennials are much more likely than past generations to consider a wide variety of transportation options, most notably transit, walking or biking, reducing their carbon footprints. In addition, biking has become "cool" again — part of the new urban subculture for the hip and trendy.

The recent surge in bicycle commuting and walking correlates with the number of working millennials living in our urban cores, and the trend of funding bicycle and pedestrian projects has followed. According to the Federal Highway Administration website, since 2000 funding for bicycle and pedestrian projects from the Federal-Aid Highway Program has continued to rise. In 2000, \$296.7 million was obligated to 971 bicycle and pedestrian projects. By 2010, funding had surpassed \$1 billion, accounting for over 3,000 bicycle and pedestrian projects. Since then, funding has remained high, averaging approximately \$773 million each year since.

Perhaps the relationship between the growth of millennial populations and demand for bikable urban centers is most evident in one of the most booming US cities today. Known as a modern day millennial magnet, Seattle saw a 5.7% increase in residents aged 20 to 29 from 2010 to 2013, according to data from the US Census. Today, adults between the ages of 25 and 34 form the largest age group in Seattle, with millennials representing over 31% of the

population, well above the national average. Since 2005, bike commuting in Seattle has increased 78%; the number of people walking to work has increased 44%, while driving alone has decreased 14%. It's no coincidence that these changes have coincided with a major portion of the millennial generation graduating from college and entering the workforce. With Seattle leading the charge with new protected bike lanes, greenways, trails and bike sharing, Washington also has the highest percentage of transportation projects benefiting bicyclists and pedestrians in the nation.

Besides Seattle, cities such as Chicago, San Francisco and Washington, DC, have announced plans to increase spending on biking infrastructure due to demand (see the "Bicycling" section on the City of Chicago's website and Will Reisman's *San Francisco Examiner* article "San Francisco Lays Out \$200 Million in Bike Projects in Next 5 Years," for example). These cities share important commonalities: They've made tremendous strides in recent years to ramp up bicycle facility improvements, and they plan to add more. They also rank among the cities with the best bicycle commuter rates and have larger than average millennial populations that continue to grow.

There is support for and opposition against bicycle projects in every city, but one thing is clear: today, the most desirable, progressive, thriving US cities are multimodal and implement innovative solutions for bicyclists. Even cities not known for their bicycle commutability, like Los Angeles, are feverishly planning to install more bike lanes so that they don't become outpaced by other millennial boomtowns.

Millennials are trendsetters. They are constantly both an inspiration and annoyance to society. However you look at it, they have become a major force in shaping our cities, policies and planning decisions, and they are a prime consideration when cities decide how to spend money on transportation infrastructure. Perhaps that's the one trend that will not be going out of style any time soon.

Peter Trinh is a native Californian, born and raised in the San Francisco Bay Area. He is currently a multimodal engineer for the City of Seattle, Department of Transportation, designing bicycle and pedestrian facilities throughout the city. His previous experience includes transportation design projects throughout California, including the Permanente Creek Trail.

Michael Pullano is a filmmaker and artist based out of New York City.



Photo: Brady Harvey/EMP Museum

museum, EMP, time, gallery, science, worlds, space, imagination, fiction, infinite

World Within Worlds: Inside EMP Museum's New *Infinite Worlds of Science Fiction* Gallery

Jen Petersen

When EMP Museum's sci-fi gallery reopens this spring, visitors will experience a universe unbounded by space and time. A massive airlock-style door opens into *Infinite Worlds of Science Fiction*, the spaceship-like exhibit space, as if it has plunged right through the metal panels of Frank Gehry's sculptural exterior, burrowing harmlessly down to the museum's lowest floor. There, greeted by ambient noise reminiscent of how 1970s science-fictioners imagined time travel sounded, voyagers browse intergalactic artifacts assembled across time, displayed in

every nook and detail of the spacecraft's fuselage. Although they won't see and hear the machinations behind this transporting gallery, the process of filtering imagination through unique time and spatial constraints set the stage for all of it. At EMP, the culture of producing a new space is as important as the experiences of culture it produces.

Brooks Peck, a former entertainment journalist, supplied the imagination behind the gallery renovation. An EMP curator now in his 11th year at the museum, his journalism background makes him a pro at the studied,

topical deep-dive, and his storytelling through experiential media commands an audience. Peck honed his vision for the renovation of the sci-fi gallery through a writing exercise. To guide the gallery's design team, he penned a short news-style piece which opens with a comet chaser's discovery of the "Corvus Object," an anomaly spotted near β Crv. Observed from afar, the global astronomical community is beguiled by the specimen. When a space crew is sent to investigate, rather than a comet they discover a travel-battered spacecraft. Upon entering the vehicle, the crew discovers a cabin full of time travel artifacts gathered from pop culture portrayals of space travel across many decades (and the millennia they imagined). EMP visitors are beckoned to explore the gallery as if members of the spacecraft's crew.

Visitors would never guess the challenges its designers and engineers confronted while translating Peck's vision. Modestly sized at 4,000 square feet, the gallery comprises a large room and two smaller alcove-like areas. Before the renovation, low ceilings and bulky rectangular columns hemmed the space, as did a raised floor, covered HVAC unit and bathroom. In his renderings of Peck's concepts, working closely with the facilities team, gallery designer Eli Stillson transformed obstacles into key mobilizers of theme and experience. He designed display cabinets to sheath the columns, creating four-sided viewing holds for time's artifacts. The team installed hundreds of LED bulbs beneath sections of the raised floor, sending up diffuse light through its seams, simulating limitlessness beneath visitors' feet. They exposed the HVAC unit to add to the mechanical nature of the spacecraft's look and also the sounds of time and space travel. In one section the designers peeled away the drop ceiling to open up additional "galactic" space, now filled with a planetary projection globe. Standing at a computer screen mounted podium, explorers may set the ship's sights on many possible projected, rotating planets — those known within our galaxy as well as those imagined in earlier pop culture portrayals. The bathroom, an artifact from when the building's lower level housed administrative offices, has been removed.

Since he joined the museum as an audio engineer in 2000, James Vegas, EMP's head of facilities, notes that these sorts of structural evolutions have been constant as

the museum grows. For Vegas and facilities supervisor Teni Leist, managing growth within the undulating Gehry exoskeleton is an engaging curatorial challenge all its own. Whether an exhibit is under installation or in their ongoing stewardship, the team balances infrastructure considerations with curatorial imagination in an open and collaborative way. Far from simple technicians, the members of this team are part of EMP's vital creative force fostering its experiential purpose.

"I see this building as a living organism, and every day you come to work, you'll be challenged with something — operationally, mechanically," noted Vegas in a February interview. "It's a unique building, and I feel a lot of pride in it, meeting the challenge to keep it looking great."

Leist agreed: "A huge part of our purpose is to work the Gehry materials, moods, shapes into everything we do inside the building."

Among the museum's three galleries of the fantastic (the others tackle horror and fantasy), the new sci-fi gallery immerses visitors in a world of time and space travel through smell, touch and sound. However, the collaborative work it took to create this small marvel is cleverly hidden by the team's success in creating a space that is truly "out of this world."

For those interested in the overlap between spatial and organizational design, the subtleties of the team's successes within constraints may be the more interesting exhibit: a creative process that began with writing and study yielded to rendering and consideration of materials and forms that will last, followed by Tetris-like installation maneuvers as gallery infrastructure was readied. Each step required collaboration across teams. Each step supported immediate and long-term considerations for the building's stewardship. And, each step ultimately advanced one part of EMP's mission: to explore science fiction in a way no one has ever done before.

Jan Petersen is an urban sociologist and a member of Gensler Consulting's Seattle-based studio. Her work there is dedicated to supporting resilient growth within cities and organizations. Her research interests include infrastructure transformation in and between these different scales. She lives in Pioneer Square, Seattle.

Innovation Bubbles: How Tech Companies Are Reshaping Cities from Kansas to Kenya

Stefan Kaiser

South Lake Union's inclusion in "The Rise of Innovation Districts," a 2013 report by the Brookings Institute, is flattering to John Schoettler, Amazon's global director of real estate. Once home to dilapidated industrial warehouses, Seattle's South Lake Union neighborhood owes its rejuvenation to area resident Amazon and its well-compensated workforce. "Innovation is central to our core values," Schoettler says. "The vision isn't to create a campus so much as become integrated with the neighborhood." But along with colorful new restaurants and retail stores, Amazon has also attracted sky-high rents, growing income disparity, traffic congestion and other problems.

In short, the influence of innovative technology companies on urban environments is transformative — sometimes for both better and worse.

Twitter relocated its headquarters to San Francisco's Mid-Market district in 2011. In exchange for promising to revitalize the neighborhood, the City granted Twitter payroll tax exemptions. But by the account of San Francisco planning director, John Rahaim, Twitter and its employees have failed to live up to expectations: "I am concerned with the tech companies that are taking a suburban mindset while relocating to the city. They are basically putting up walls around their offices in the

Market district." Eateries are shunned in favor of on-site food service, and buses are scorned because private shuttles are more convenient.

Twitter and other insulated tech companies have electrified an already bitter debate about urban development in San Francisco. For one, longtime residents' fears of density and height have limited apartment construction, contributing to a housing shortage as new tech workers move to town. "We have been underbuilding housing in this city for 20 years," says Rahaim. "What we find now is the pace of change is what causes the most pushback [against increased density]." US Census data shows that the median rent price in San Francisco has reached almost \$1,500, forcing artists and blue-collar workers to flee to Oakland and sprawling cities beyond.

The tech industry is also influencing Kansas City, but in ways that are potentially more positive overall than in San Francisco. Coworking tech spaces like Sprint Accelerator and ThinkBIG are repurposing historic brick buildings in the near-downtown Crossroads District and advocating for a walkable, vibrant urban core. However, the burgeoning community's efforts conflict with a City planning agenda facilitating suburban development in farmlands and demolition of downtown structures to provide parking lots. Current construction of a streetcar linking tech hubs to

tech, city, San Francisco, companies, district, Twitter, Amazon, neighborhood, urban, construction



Left: In Seattle, Amazon's three Denny Triangle towers are under construction, adding 3.3 million square feet of office space.

Right: In Kansas City, a renovated, 1903 ice-storage building is now home to Sprint Accelerator, one of many innovative tech offices in the Crossroads District.



Left: The Twitter headquarters office in San Francisco's Mid-Market district is adjacent to NEMA, a new luxury apartment building.

Right: The community working space at iHub in Nairobi is often full of local technology workers who live nearby.

surrounding areas is the first step in fostering the neighborhood's rebirth. "Tracks in the ground have the ability to drive development decisions [and] the resulting new development often brings new uses and amenities to vacant and underused parcels," says Josh Boehm, an urban planner at Kansas City architecture and design firm BNIM.

According to Jase Wilson, CEO of the Kansas City startup Neighbor.ly, divestment in the city's downtown is a product of money-lenders' profit motives, but he is working to change that. By bringing crowdfunding to the municipal bond market, his company allows people to invest in civic projects they care about—like Kickstarter for new schools and hospitals. Neighbor.ly will undoubtedly influence cities around the US, Kansas City included. With a steady influx of new tech workers seeking an urban lifestyle, the revival of a diverse, livable downtown is on the horizon for Kansas City.

Across the world in Kenya, government and international investors look to build the \$14.5 billion, master-planned Konza Techno City in the savannah 37 miles south of Nairobi. The country's Ministry of Information and Communications Technology reports the project will support 100,000 people at universities, hospitals, technology headquarters and business offices by 2030. But locals aren't convinced the funding will stimulate Nairobi's existing technology industry. "I think there is so much energy already that it's possible we will already have a tech city before 2030," says Jessica Colaço,

director of partnerships at the coworking space iHub in Nairobi.

Spaces like iHub have proliferated to service the rapidly expanding market of consumers recently connected to the Internet, and real estate developers are renovating buildings around these tech zones, providing housing and office space. Most of Nairobi is filled with low-rise masonry buildings built by individuals. The government could underwrite the creation of taller buildings, promoting investment in Nairobi's communities instead of contributing to the sprawl with a habitat-disturbing new city. This would encourage grassroots efforts, prioritizing Kenyan entrepreneurship over foreign companies and their financial incentives.

The struggle to mediate urban development with demands from the technology sector is a major issue in each of these cities. Turf battles, demographic shifts and income disparity accompany economic growth in San Francisco and Seattle. In Kansas City and Nairobi, technology hubs lack essential density and political agency. Government plays a central role in how cities respond to the tech industry's influence—both in creating equitable density or, on the other hand, stimulating sprawl. Effective policy making is at the root of maintaining balance between companies and the neighborhoods they inhabit.

Stefan Kaiser is an associate at Encore Architects in Seattle. He can often be found on running trails or walking the city with camera in hand. The research in this article was completed thanks to AIA Seattle and their Emerging Professionals Travel Scholarship. An exhibition of the project is on display at AIA Seattle Gallery through 1 May 2015.

Photography by Stefan Kaiser.

city, Nairobi, new, technology, Kansas, Seattle, tech, government, cities, iHub

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Where Does the Money Go? Two Visualizations of City of Seattle Data

Karen Cheng

Fifteen years into the new millennium, we can safely say that the US government has fully embraced the concept of open data—the idea that data should be freely shared, used and distributed by anyone without restrictions. It has been six years since the federal website data.gov was created, and the catalog has grown from an initial collection of 47 datasets to a repository of more than 124,000—encompassing contributions from 83 federal agencies and subagencies. Following the federal government's lead, 39 states have also launched their own data portals, as well as 46 counties and cities, including Seattle (data.seattle.gov).

Of course, prior to the launch of these websites, both federal and local governments were already providing much of their information to the public. However, datasets were often embedded in electronic reports that made extraction difficult, and some information could only be acquired via slow-moving FOIA (Freedom of Information Act) requests.

The new online data portals consolidate information into centralized locations and, often, optimize data for machine reading. This means that users can write software programs that retrieve the most current information from government databases; these software programs can also further analyze and visualize the requested data.

The most idealistic motivation behind the government's push for open data is transparency. As the official US data evangelist, Jeanne Holm, states in a *Scilogs* interview by Shannon Bohle, "[Data.gov] has always been about open government and transparency—transparency as to understanding the government, and evaluating the performance of government."

It's very encouraging to see our government providing these resources. However, while anyone can now access and analyze public data, it seems unlikely that many private citizens will have the time, interest and ability to do so. In fact, many government agencies admit that they themselves lack the resources to make sense of their own data.

Therefore, a secondary goal of these government data portals is to crowdsource. By openly sharing their information, government officials hope to attract and enlist the help of

data scientists from universities, think tanks, non-profit organizations and corporations. The following two information graphics are examples of this kind of effort; both projects were designed by students from the University of Washington's Division of Design using public data.

The first infographic, "How We Spend It," visualizes the 2015 Seattle budget. The designer, Catherine Lim, demonstrates how the City gets its money (via taxes, fees and fines) and where the money goes (into two streams: Restricted Funds that must be spent on specific programs and a General Fund that can be spent more freely). The value of this visualization is in how it shows the type and amount of funding that is allocated to each City service.

The second infographic, "Who's Policing Overtime," examines overtime billing in the Seattle Police Department. The designers, Melissa Leith and Karlie Grasle, accessed the Washington State Salary Database and visualized the average base salary and overtime billings for each position. The results show that overtime billing occurs most often for units with few employees—for example, the bomb squad. Additionally, specific officers are increasing their annual salaries 41–54% via overtime. Because overtime is billed at time and a half, it would be far less expensive to hire additional officers rather than relying on overtime shifts. This practice would improve public safety (by reducing officer fatigue) while also reducing future costs, since retirement pensions are based on the highest paying five years of previous employment.

These data visualizations are interesting efforts to simplify and clarify complex subjects. However, it's worth noting that while numbers don't lie, they can't always show the whole truth. Bias is inherent in both what and how we measure; distortions can result from sampling errors, flawed comparisons, and even our desire to confirm a specific hypothesis. Perhaps the biggest danger is the classic problem of not knowing what you don't know. It is critical for information designers to work closely with subject experts to avoid overlooking correlations that a specialist would understand and identify; for these projects, the design team was advised by Ben Noble, director of the City of Seattle Budget Office.

Karen Cheng is professor of visual communication design at the University of Washington, where she teaches information design and data visualization.

The City of Seattle receives most of its money via taxes, fees and fines.

This revenue is divided into two different streams—1) a restricted fund that must be spent on mandatory categories, as determined by existing laws and regulations, and 2) a general fund that can be spent more freely.

UNRESTRICTED REVENUE

of \$1.0 BILLION are placed in...

THE GENERAL FUND

General Property Taxes	\$270.8M
Business & Occupation Taxes	\$216.7M
Retail Sales Taxes	\$200.6M
Utilities Taxes	\$193.4M
Service Charges/Reimbursements	\$40.1M
Parking Meters/Meter Hoods	\$39.7M
Traffic Court Fines	\$33.1M
Licenses and Permits	\$13.4M
Intergovernmental Sources	\$10.7M
Admission Taxes	\$8.4M
All Else	\$7.4M
Other Taxes	\$5.0M

21%

The General Fund is only 21% of the total City budget, but it is the focus of intense scrutiny.

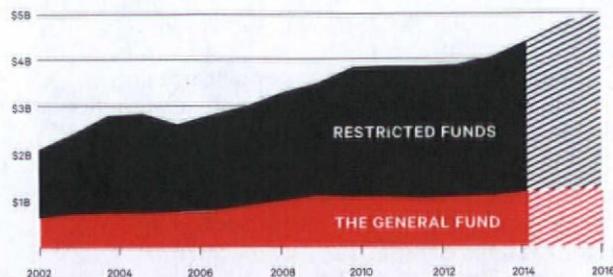
RESTRICTED REVENUE

of \$3.8 BILLION are placed in...

RESTRICTED FUNDS

Restricted revenue also largely consists of taxes, fees and fines.

However, existing laws/regulations require this income be spent on specific city projects and services. Due to spending caps and tax limits, the General Fund grows slower than Restricted Funds (see below).



How We Spend It

THE 2015 SEATTLE CITY BUDGET

Designed by Catherine Lim, M. Design candidate, University of Washington, with Prof. Karen Cheng, Division of Design. Data from seattle.gov/financedepartment.

In 2015, **\$4.8 BILLION** will be spent on...

ALL EXPENDITURES

10%	Seattle Police Dept.	\$293.1M
	Seattle Fire Dept.	\$178.4M
	Finance General.....	\$58.1M
	Seattle Municipal Court.....	\$29.3M
	Criminal Justice Contracted Services.....	\$24.2M
	Law Dept.....	\$23.7M
	Dept. of Human Resources.....	\$15.4M
	Legislative Dept.....	\$14.4M
	Dept. of Neighborhoods.....	\$5.9M
	City Budget Office.....	\$5.6M
	Office of the Mayor.....	\$5.4M
	Office for Civil Rights.....	\$4.6M
	Office of Sustainability/Environment.....	\$3.3M
	Office of Intergovernmental Relations.....	\$2.6M
	Office of City Auditor.....	\$1.6M
	Community Police Commission.....	\$0.8M
	Ethics/Elections Commission.....	\$0.7M
	Office of Hearing Examiner.....	\$0.6M
	Civil Service Commission.....	\$0.5M

	Office of Immigrant/Refugee Affairs.....	\$1.5M
	Neighborhood Matching Subfund.....	\$4.0M
	Office of Economic Development.....	\$9.1M
	Judgment/Claims Subfund.....	\$17.7M
	Firemen's Pension.....	\$18.6M
	Police Relief/Pension.....	\$20.4M
	Bonds Debt Service.....	\$32.0M
	Seattle Center.....	\$43.0M
	Office of Housing¹	\$52.2M
	Dept. of Education/Early Learning²	\$53.5M
	Seattle Public Library³	\$68.9M
	Dept. of Planning/Development.....	\$78.0M
	Dept. of Information Technology.....	\$82.7M
	Dept. of Health/Human Services.....	\$130.0M
	Dept. of Parks/Recreation.....	\$165.0M
	Finance/Administrative Services.....	\$235.0M
	Seattle Transportation⁴	\$429.4M

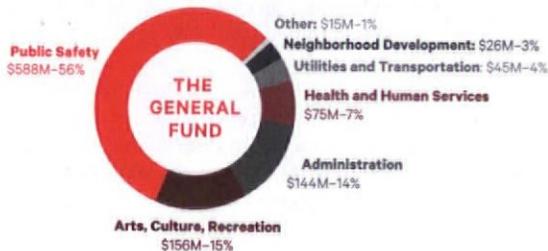
48%	Seattle Public Utilities.....	\$1.0B
	Seattle City Light.....	\$1.3B

UTILITIES AND LIGHT ARE ALMOST HALF OF THE ENTIRE SEATTLE BUDGET

Personnel Comp. Trust Subfunds.....	\$227.3M
Employees' Retirement System.....	\$22.0M
School Zone Camera Fund.....	\$10.8M
Parking Garage Fund.....	\$9.2M
Seattle Streetcar.....	\$9.1M
Office of Arts/Cultural Affairs.....	\$9.0M
Cumulative Reserve Subfund.....	\$3.4M
Central Waterfront Improvement.....	\$2.8M
Municipal Jail.....	\$182K
Fiber Leasing Fund.....	\$171K

SPENDING THE GENERAL FUND

The largest portion (56%) of the General Fund is spent on public safety. Public safety includes the Seattle Police and Fire Departments and their associated pension and relief funds, as well as Judicial Services such as the Municipal Court and Jail, the Law Department, and Criminal Justice Services.

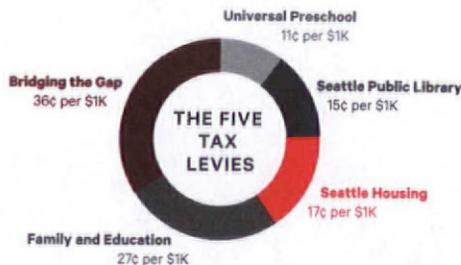


36% (\$380M) of the General Fund is used to supplement departments that need additional revenue. For example, the budget for the Department of Health and Human Services draws from both Restricted Funds (51%) as well as the General Fund (49%).

SEATTLE'S FIVE PROPERTY TAX LEVIES

Seattle property owners currently pay five property tax levies that were approved by voters in 2005-2014. Revenues from these levies are restricted to the highlighted funds at left.

2006-15	\$365M	Bridging the Gap Transportation Levy ⁴
2010-17	\$145M	Seattle Housing Levy ¹
2012-19	\$231M	Family and Education Levy ²
2013-20	\$123M	Seattle Public Library Levy ³
2015-19	\$58M	Universal Preschool Levy ²



The City of Seattle's property tax authority is limited to charging \$3.60 per year for each \$1K worth of assessed property value. These five levies create an additional charge of \$1.06 per year (also per \$1K of assessed value.) Because the 2015 median property value of homes sold in Seattle is \$432K:

FIVE PROPERTY TAX LEVIES COST +\$458 PER YEAR [\$38/MONTH] FOR THE MEDIAN SEATTLE HOMEOWNER.

WHO'S POLICING OVERTIME?

2013 SALARIES AND OVERTIME IN THE SEATTLE POLICE DEPARTMENT

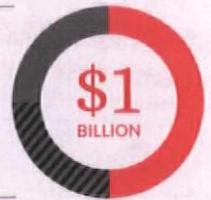
In 2013, the SPD was allotted 46% of the overall public safety budget, with \$14.4M provided for overtime. However, the SPD billed an additional \$7.5M, exceeding the budget by 52%. Because overtime is charged at time and a half, it would be more efficient to hire more staff rather than relying on overtime.

The following salary chart shows which employees generated the most overtime. The greatest percentage of overtime was allocated to smaller, specialized groups, such as DWI enforcement, motorcycle units, the police academy and the bomb squad. Specific groups of detectives, sergeants and officers were also high overtime earners.

THE GENERAL FUND

PUBLIC SAFETY
\$542M

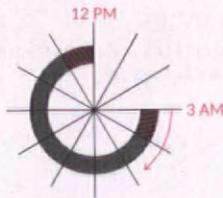
POLICE DEPARTMENT
\$252M



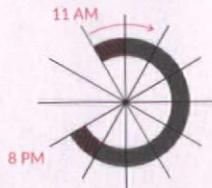
The highest paid group of Parking Officers (the top 25%) earned an additional 41% (\$23K) through overtime.

SPD SHIFT SCHEDULE

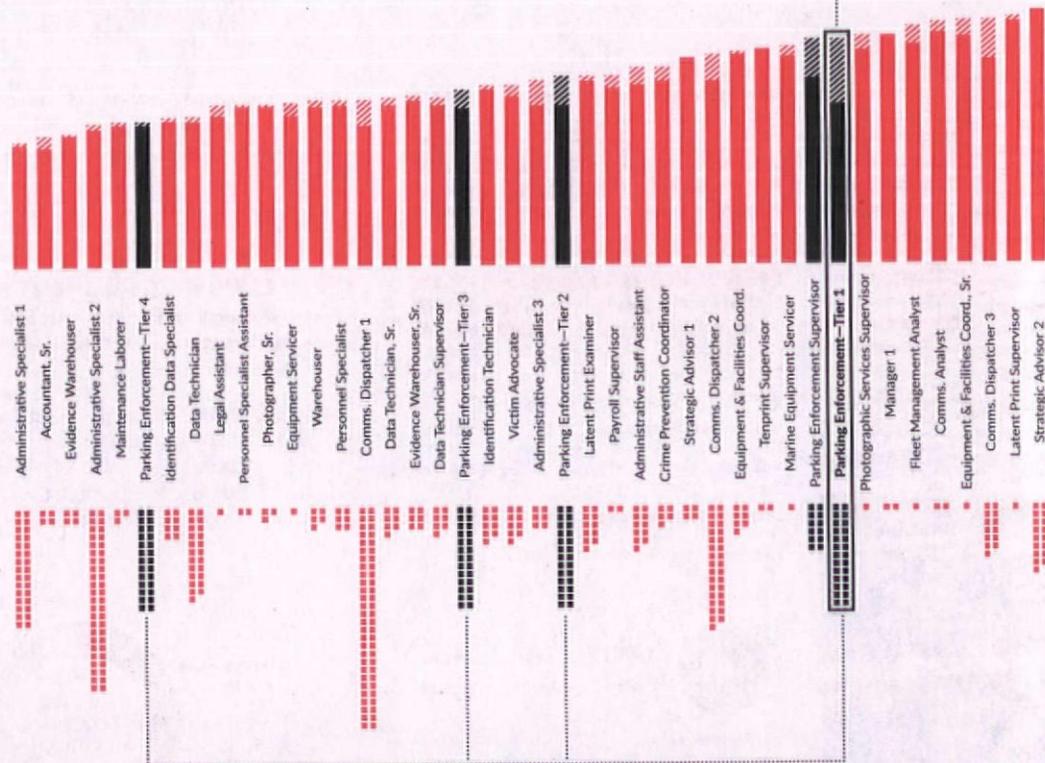
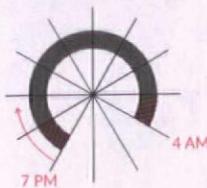
FIRST WATCH
the crack of dawn



SECOND WATCH
the longest day



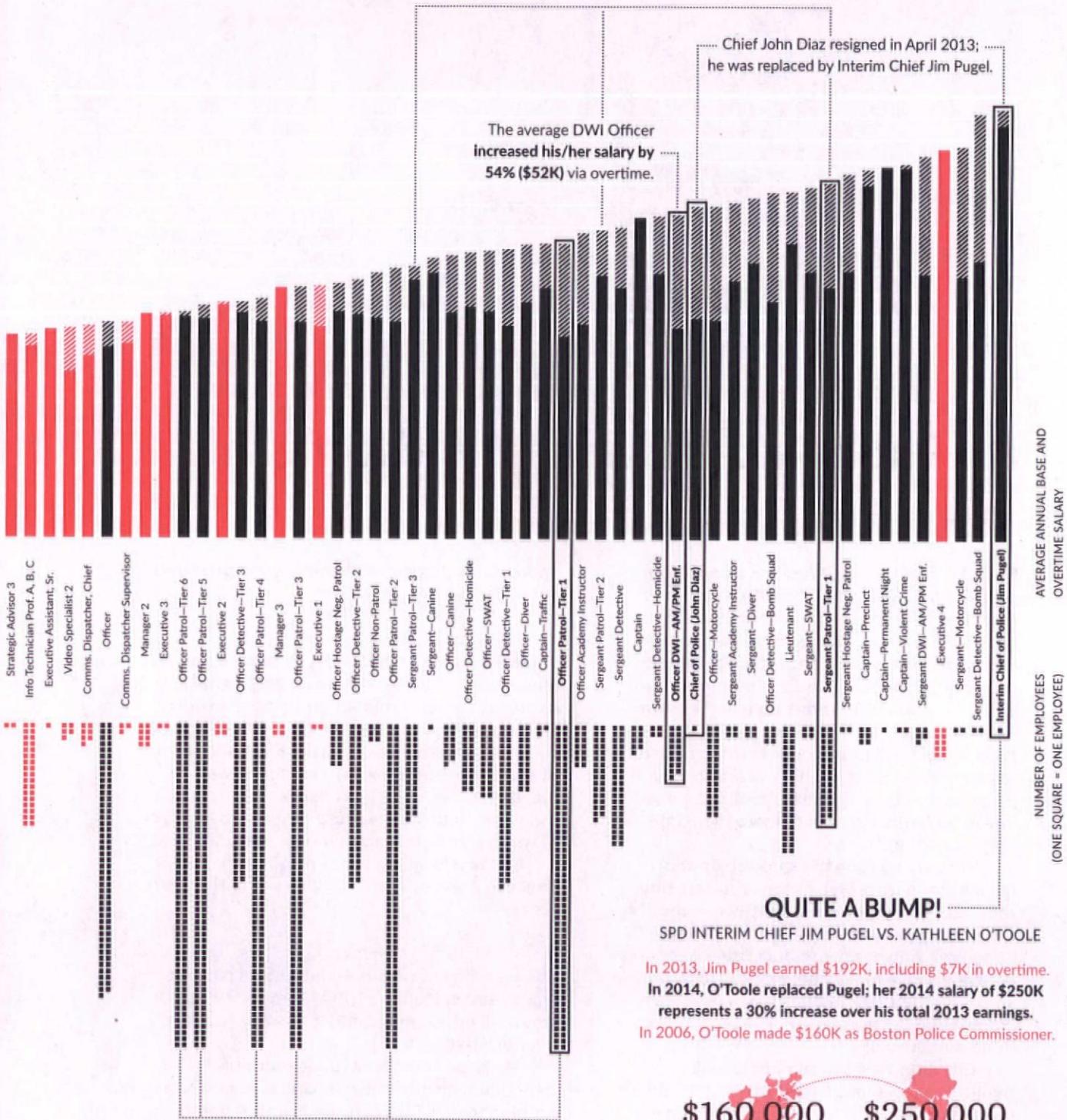
THIRD WATCH
the dead of night



In 2013, there were 104 Parking Enforcement Officers. Seattle Parking Enforcement Officers held the lowest paid officer position, earning a base salary of approx. \$55K per year.

- OFFICERS (shown in black)
- ADMINISTRATORS / STAFF (shown in red)
- ▨ OFFICERS' OVERTIME (shown in black pattern)
- ▨ ADMINISTRATORS' / STAFF OVERTIME (shown in red pattern)

Officers can be promoted to sergeant after five years.
 In 2013, there were 93 Patrol Sergeants, and their average base salary was \$115K.
 The average Patrol Sergeant earned an additional 21% (\$24K) via overtime.
 The highest paid group (the top third) earned an additional 42% (\$47K) via overtime.

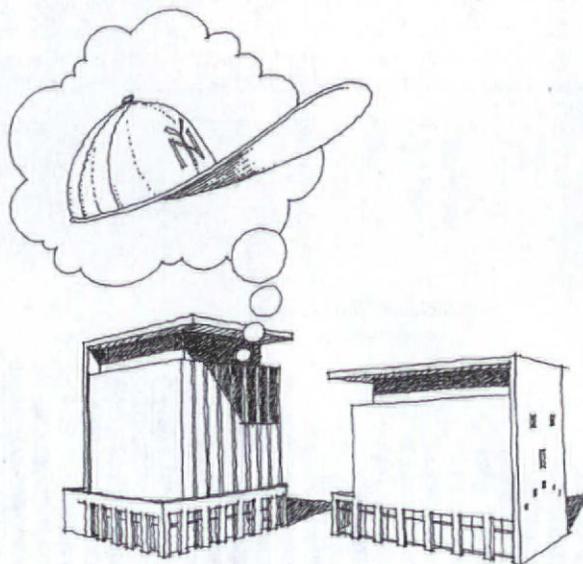


In 2013, there were 630 Patrol Officers, and their average base salary was \$96K.
 The average Patrol Officer earned an additional \$17K in overtime.
 The highest paid group (the top 16%) earned an additional \$42K in overtime.

QUITE A BUMP!
 SPD INTERIM CHIEF JIM PUGEL VS. KATHLEEN O'TOOLE
 In 2013, Jim Pugel earned \$192K, including \$7K in overtime.
 In 2014, O'Toole replaced Pugel; her 2014 salary of \$250K represents a 30% increase over his total 2013 earnings.
 In 2006, O'Toole made \$160K as Boston Police Commissioner.



Designed by Melissa Letth and Karlie Gracie, B. Design candidates, University of Washington, with Prof. Karen Cheng, Division of Design. Sources: thenewtribune.com/wa-state-salaries, the City of Seattle and The Boston Globe.



Stylistic Redundancy Syndrome

Ron van der Veen

Illustrations by Steve Cox

Each day in my inbox, I receive emails from several design blogs such as *Archdaily* and *Architizer*. I'm so inundated with them that I hardly look at my *Architectural Records* anymore! After years of scanning the explosive proliferation of published architecture from around the world, I'm starting to suffer from Stylistic Redundancy Syndrome (SRS). This psychological disorder occurs when a designer experiences such a plethora of architectural projects that they all start to look the same. The mind begins to amalgamate them into one single building.*

Not only do I see the same aesthetic moves made from Marrakesh to Akron, but they're everywhere in the Northwest, too. They are employed by virtually every architect, encompassing every project type—the design equivalent of a really cool but WAY overplayed song. And before you think I'm being overly judgmental, let me say that I've been there, done that, myself.

This Side Yard installment is really a public service announcement about avoiding the design traps that are contributing to our region's growing SRS epidemic. Here are three particularly egregious symptoms—design

approaches that are well intentioned but need to take a rest:

The Roof/Wall

The whole folded plate strategy baffles me. This might seem obvious, but a roof isn't a wall and a wall isn't a roof. I remember using the roof/wall motif years ago for a large project. Because walls are thin, roofs are usually filled with a lot of stuff, and the idea was to *make the wall turn into a roof*, the whole exercise was enormously awkward. Roof stuff was crammed into all sorts of weird places to make it look ... natural.

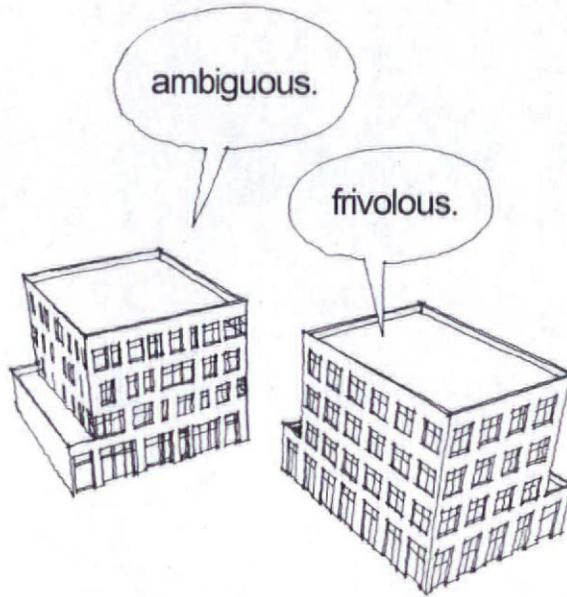
The roof/wall is just counterintuitive. AND I believe it will be out of style in about five more years.

The Staccato Window

The first time I saw this architectural pattern was in Rafael Moneo's 1994 Murcia City Hall. It was brilliant, complex and innovative ... over twenty years ago!

My issue with the staccato window is that it is hedonistically self-referential. It really has nothing to do with expressing what's going on inside. As a matter of fact, in many cases the staccato window is a detriment to the interior.

*It has been brought to my attention by a coworker who actually studied psychology that I have, in fact, made up this condition.



It just seems to be screaming, “Hey, look at me, I’m idiosyncratic! That makes me complex!”

What the staccato window *can* do is make an otherwise boring façade look less boring. It seems to have become the cliché fallback position for dull walls. But I’m not so sure it will be out of style in five years.

The Boxy Box

In my Seattle neighborhood—Columbia City—the last few years of home construction led me to believe that only layered boxes were allowed in residential design. And the more layers, and the less rational they are, the better! I had to read over the zoning code to make sure gables, sheds and hip roofs were still permitted.

The predominant building component in these structures seems to be painted HardiePanel. To add a bit of flare, the outermost box—usually around the entrance—is slatted in a natural wood material to give it that classy look. What they all tell me is: “We make up for in corners what we lack in good materials.”

A close relative to the layered box is the *shifty box*, a newer fad in commercial buildings. They look like Rubik’s Cubes that only move around the y-axis. In Seattle, the shifty box seems almost *anti-contextual*. How unnerving

that these buildings remind us that we live on dangerous fault lines and that the whole city will look like them after it falls into Puget Sound after the “big one”!

My guess is that the boxy box motif will soon implode.

So what’s the cure for SRS? I see three simple therapies one might employ:

- 1 Technological: do a Google search for “new architecture in China, India, Europe, US and Africa.” Wait, I just did, and it all looks the same!
- 2 Cold Turkey: abstinence from all visual architecture media for up to 12 months.
- 3 Naturopathic: at the risk of sounding old and boring, maybe stuff like, oh: function, climate, context, materials, light and composition serving as design provocateurs.

There’s no easy way out of SRS. It will take communal strength to ensure that next year’s Washington AIA Awards ceremony won’t slide us into a trance of subliminal stylistic sameness. But it’s worth our collective creativity.

Resisting the incessant tug of superfluous architectural fads, Ron van der Veen is a timeless designer and principal at NAC|Architecture. His work defies both category and temporal style. rvanderveen@nacarchitecture.com

Steve Cox is a principal and owner of Shoemith Cox Architects. Steve is also a timeless designer and possibly even more immutable than Ron.

37.49"

Average amount of precipitation per year

7,782

Average amount of people per square mile in Seattle

540

Calories in a Dick's Deluxe burger, added to the Dick's Drive-In menu in 1971

40%

Upper estimate of Seattle homeless youth (ages 13-25) who identify as LGBTQ

11,722

Average amount of people per square mile in the trendy Seattle neighborhood, Capitol Hill

15,000

New jobs in Seattle added from 2012-2013

203

Number of languages spoken in Seattle public schools

81,600

Circulation of the Seattle alternative weekly, the *Stranger*

\$11

Minimum hourly rate Seattle small businesses must pay their workers starting 1 April 2015, as part of the city's \$15 minimum wage plan

2.8%

Increase in Seattle population between 2012-2013, making it the fastest growing city in the U.S.

261,438

Circulation of the weekday *Seattle Times*

33%

Increase in average rent for a one bedroom apartment in Seattle from 2000 to 2014

1.8%

Increase in white non-Hispanic population from 2012-2013. Seattle is the 5th whitest city among the 50 most populous in the U.S.

0:26:12

Average travel time to work in minutes

2

Number of earthquakes indirectly caused by Marshawn Lynch of the Seattle Seahawks

6,200

Acres of Seattle land dedicated to its 430 parks (11% of the city's total land area)

\$5-7

Uber trip estimate from Schema studio on 12th & Pine to ARCADE offices on Pier 56

5

Major trophies won by the Seattle Sounders since joining MLS in 2009, including 4 U.S. Open Cups (2009, 2010, 2011, & 2014), and one Supporter's Shield (2014)

153,000

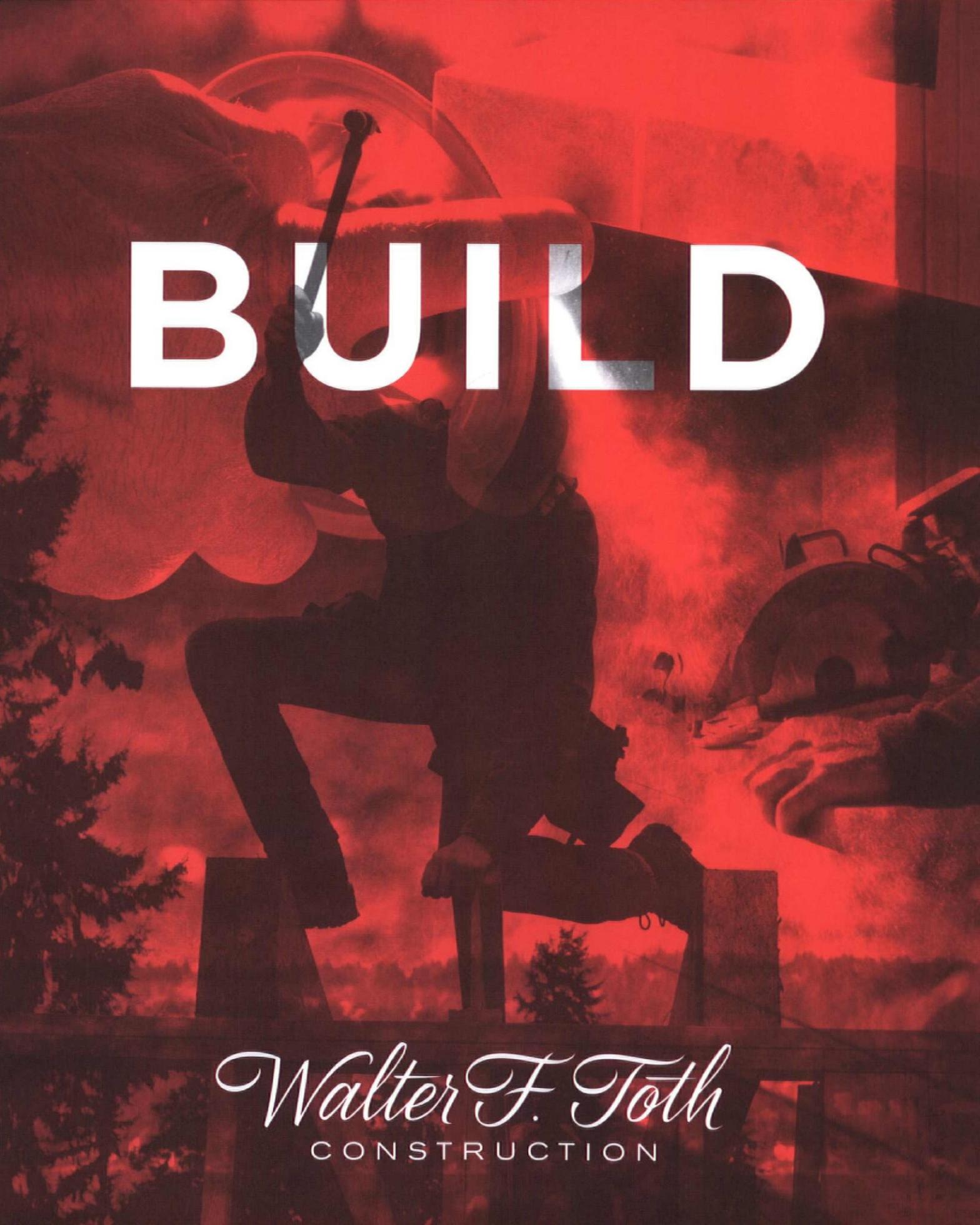
Dogs in Seattle

16,200

Number of twitter followers for Bertha, the tunnel-boring machine stalled under Seattle's downtown since December 2013

0

Major trophies won by the Portland Timbers since joining MLS in 2011



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