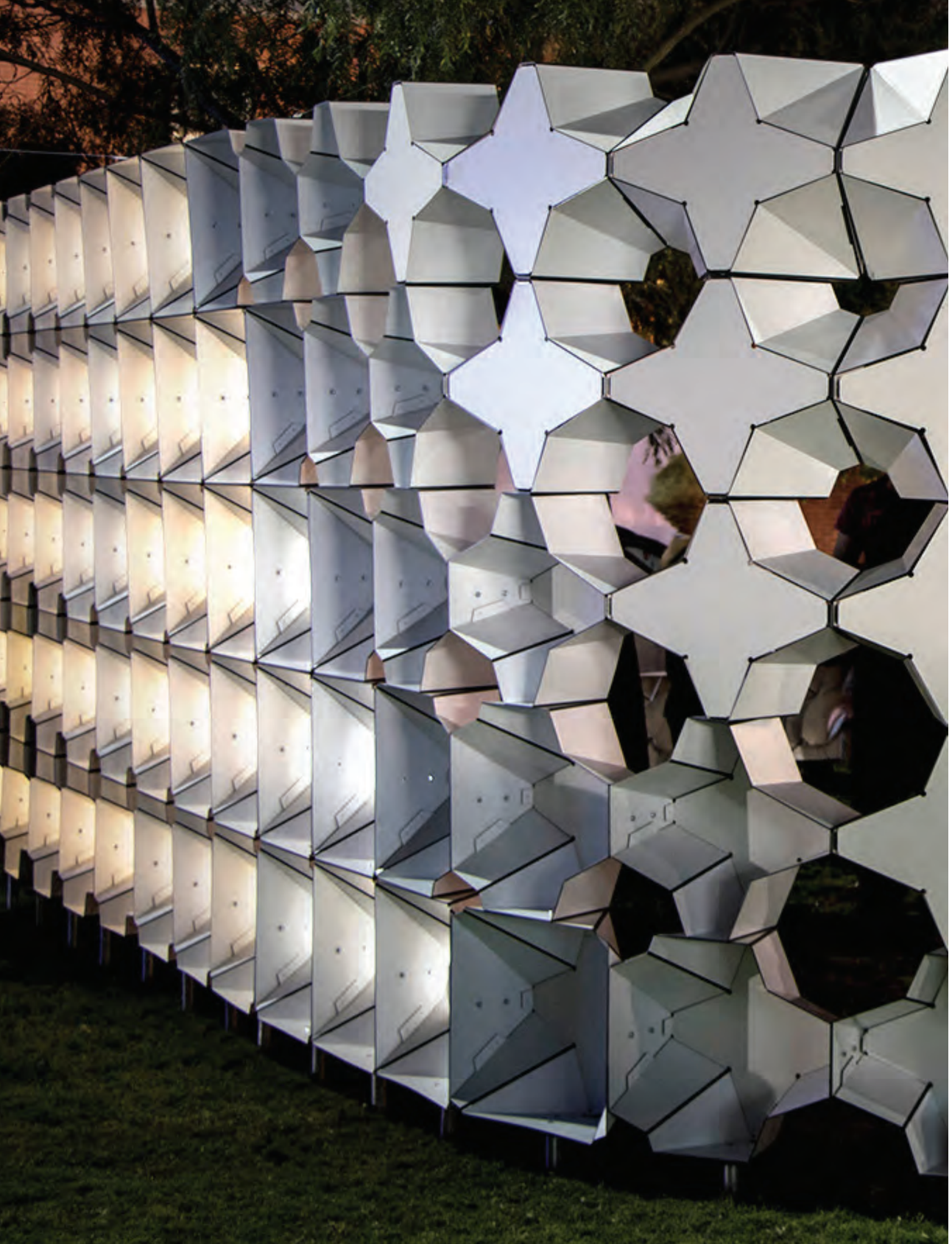

Selfie Wall: A Public Space for Private Data

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A NEW PUBLIC

In the last few decades, instantiations of social connections have become untethered from physical space; their existence is now transferred to the 'substitute reality'[1] of the digital realm. As we become more digitally connected in the simulated[2] world of the Internet, the notion of a traditional public space deteriorates, locating the designer's work within increasingly complex spatial entanglements.

As new publics form around various types of shared connections, the idea of public space, park, and infrastructure becomes layered and extends its reach beyond physical space. This shift necessitates updated modes of publicness, where behavioral protocols reconfigure public and private relationships. The public life of an online celebrity, for instance, relies on specifically scripted behaviors, which do not directly translate to physical environments conceived before the Internet era. However, as various behaviors increasingly visit both realms, public space must be re-calibrated to host and proliferate new hybrid protocols. If the physical realm is to update its spatial logics in order to more directly connect to the simulated environment, a new kind of park must be imagined—one that embraces multiple intersecting cultures, bridging the worlds of the instant digital celebrity, the follower, the maker, the consumer, the avatar, the bot—in other words, the newly-minted everyday citizen. Paradoxically, through this layering, much like in its past iterations, the public park becomes an outlet for individuals seeking self-expression on multiple realms. In its most basic form, the selfie is the activity of this expression and is able to generate protocols linking the physical and the simulated milieus.

While perceived as a seemingly recent phenomenon, the 'selfie' is the latest development in a long history of self-portraiture. Selfies have evolved with dramatic changes in technologies, but, in some form, they have been with us for over a century, since the birth of photography. Andy Warhol, Colin Powell, and Ai Weiwei have experimented with various forms of selfies. Their flexibility and ease of use continue to build upon the long trajectory of photography, acting as a record of self, a chance to capture time with a group, or a desire to express one's self alone, and they are generally triggered by feeling good in a specific location. With the advent of social media, their popularity is growing as they instantly

Figure 1: Each unit is comprised of a folder perimeter sheet and a flat, cross-shaped member. When riveted together, the units become self-supporting structural components.

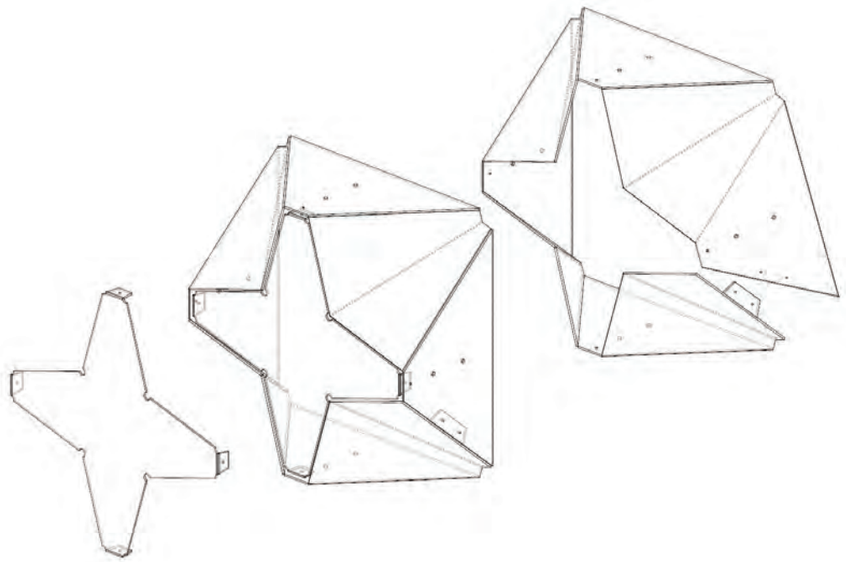
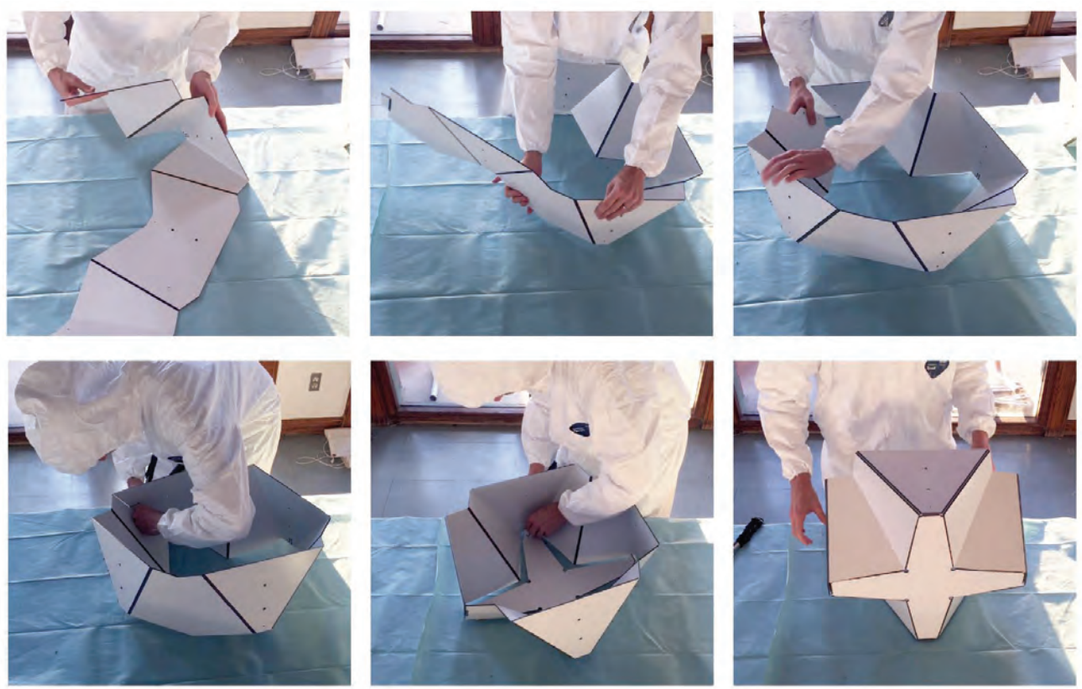


Figure 2: Each unit takes 3–5 minutes to assemble with simple tools.



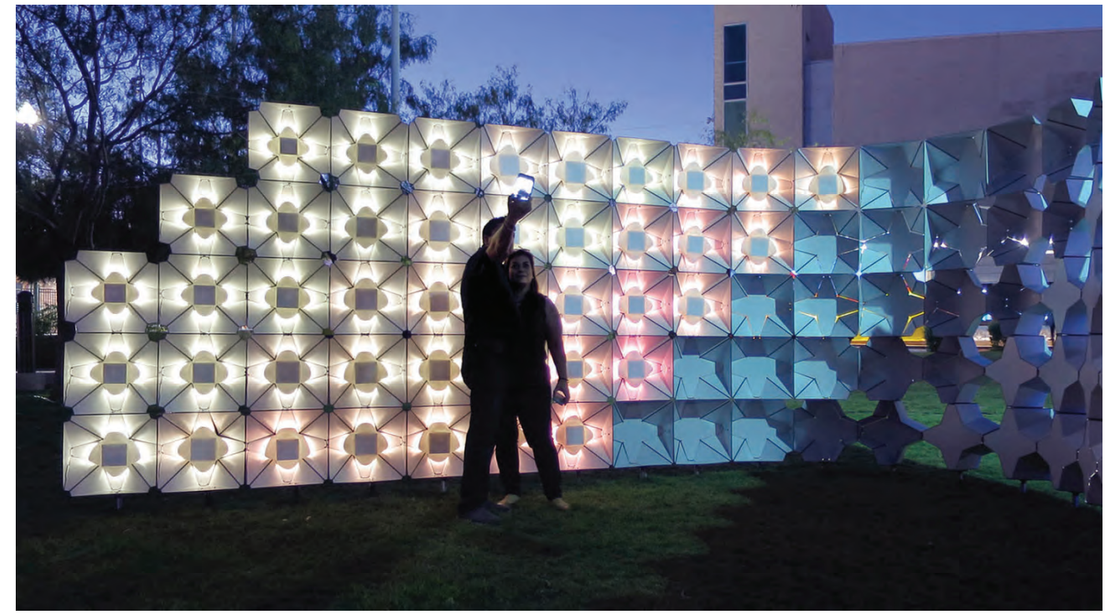


Figure 3: The interior of the wall is equipped with an LED array ranging from warm white to warm pink tones, expanding the range of flattering selfie moments.

deploy to larger audiences and even invade daily language globally, becoming Oxford Dictionary's 'word of the year' in 2013. Selfies are a nascent and growing art form, able to spawn Internet memes and infect various cultures with shared behavioral patterns globally. Over the last few years, they have gained notoriety primarily for the self-promotional and distorted culture of individual celebrity they can perpetuate.

SELFIE DANGER

However, beyond its apparently harmless self-expression, the selfie's ability to record one's personal mood, facial characteristics, location, and activity imbues it with deeper concerns about issues of privacy, surveillance, and intrusion. The unprotected excessive sharing of self-photography online has expanded the reach of surveillance by government entities, law enforcement, marketing corporations, and criminal organizations, which are able to operate beyond clear legal boundaries and stand to benefit from using the data. Despite their generally happy mood, selfies are powerful vectors for data transmission; the pixels are capable of revealing untold stories about their subjects and the environments they are captured within. Data scrapers and security bots use facial recognition software to map an individual's location at any given time, their mood, and their social habits. As personal data becomes available to the highest bidder, new protection protocols are necessary. Researchers in Germany have detailed a list of thirty-eight information types that could be gleaned from selfies via visual inspection alone, including fingerprints, tattoos, and other physical characteristics, that could lead to identity theft. The environment captured in the photograph is equally data-rich. Locational 'cues' like street signs and landmarks help identify the coordinates and movement of the selfie taker, and, by analyzing a series of photos of a single user over time, one can elaborate spatial patterns and abnormalities, which can predict behavior. Savvy thieves[3] may identify personal documents or valuables inadvertently exposed in the background of an image, which could further expose other vulnerable addresses related to the user, off-site, as well as the signaling of sensitive information.[4] While spatial information like 'landmarks' and 'locations visited' rank as lower security concerns than more private identifiers like 'medical history' or 'political opinions' across most age groups, they rank as higher concerns than more visually obvious and easily gleaned 'public' features of an individual like 'clothing' or 'hair color.'

The selfie, then, clearly problematizes issues of identities in space, and the expectations of spatial privacy within this radically public, but perhaps inadvertent, form of spatial documentation. Noting that users tend to violate their own standards of privacy when posting photos themselves,[5] researchers are developing an app that could identify sensitive information before it is posted. As the secondary uses for the selfie emerge, they layer spatial data with private biometrics and behavioral prediction in order to construct a full digital imprint of any given individual. As such, their large-scale collection

Figure 4: During the day, in the absence of artificial lighting, the bright aluminum material diffuses light, creating a brightly filtered physical space.

has become another type of Big Data and a vector for biopolitical manipulation. Apps like the Chinese app Meitu was under fire in early 2017 for covertly tracking its users' locations and behaviors, and for sharing unique identifiers with advertisers which could then target specific users.[6] Photo-mining startups are mining publicly shared selfies from public sites like Flickr in order to identify trends and consumer attitudes.[7] Moreover, facial recognition software analysis can pinpoint users' identity with increasing precision, distinguishing even identical twins by the microtopographies of the skin it can recreate. Companies are exploring analyzing selfies for signs of premature aging or illness in order to relay them as inputs for actuarial calculations which determine life and health insurance rates.[8]

SELFIE SPACE

By linking biometric indices with spatial metrics, selfies can restructure our relationship to the built environment. Programs can scan bulk photos of large populations to generalize the mood of a city or site, or to measure the success of an event. The location of the photo can recast the photo-taker as suspect, or even criminal, as in a number of cases of selfies taken illegally at polling places, or photos taken on private land without permission.[9] As architectural and urban forms are caught in the selfie's gaze and re-transmitted, other complications emerge. The EU sought to ban the use of selfies in front of recognizable landmarks, citing concerns over copyright violations of the work of artists or architects, and potential damage to the sites.[10] In contrast, the Selfie Park was built in order to test issues of entanglement of physical public space and its digital proxies by encouraging selfie-taking behavior and fostering a public discussion of the data this behavior transmits.

The project posits that a physical device that coerces selfie-taking activity in public can engender a public space that fosters open debate and supports layered relationships between the physical and the digital. The device is designed to act as the physical equivalent of an Instagram filter, in the form of an architectural wall, and to create ideal conditions for self-photography. The Selfie Wall creates a range of lighting conditions day and night, offering a dynamic and interactive space for self-photography. The project is both a public art installation and the beginning of a public awareness campaign highlighting the dangers of online sharing. It creates a space of custom lighting that can both entice self-photography and confuse facial recognition software. The variable lighting array allows selfie-takers to choose the amount of data they broadcast by taking either recognizable or undetectable photographs. In this sense, the Selfie Wall is able to create a public space for private data. The user is free to choose between a clear photograph when facing the wall, and a darkened, color-filtered one when using the wall as a background, as facial recognition software is proven to be less effective in conditions of low contrast or low light. The physical environment of the wall is augmented with an online platform, which collects the hashtagged selfies and projects them real-time on a digital screen on site. A team of volunteers explains the process of metadata collection to selfie-takers in hopes of rendering them aware of the ease and speed of surveillance collection.

SELFIE FABRICATION

The Selfie Wall was conceived and constructed as an exercise in testing permutations between digital imagery and physical material organization. The wall is built from 162 custom-fabricated units, CNC-milled from composite aluminum panel and folded to frame various apertures for bouncing, scattering, and collecting light. The geometry of the modules transforms from a structural cross-shape to an open 'umbrella,'

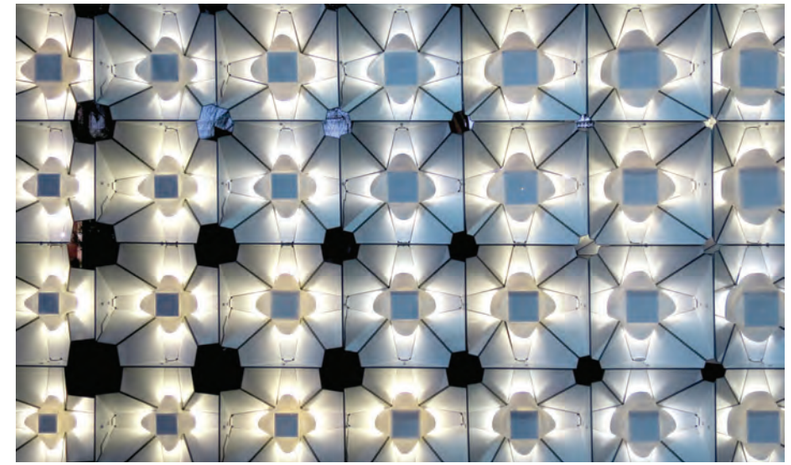


Figure 5: The exterior of the wall is equipped with an LED array ranging from cool white to blue tones, confusing facial recognition software.

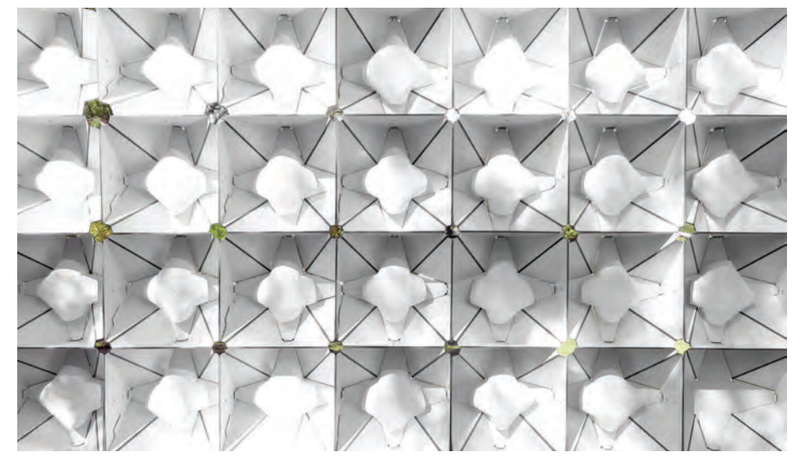


Figure 6: The artificial light is diffused and distributed to the edges by soft foam sheets that block direct light, much like professional photography.

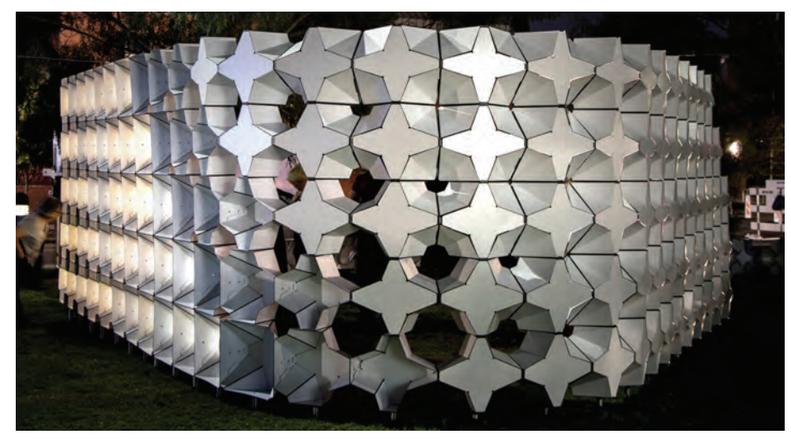


Figure 7: Openings of varying degrees invite a game of voyeurism with the otherwise private behavior of self-photography.

Figure 8: The wall is constructed of 162 differently shaped units—a variation afforded by CNC flip milling and a precise calculation of dimensional gains and losses during the folding process.

providing consistent structural rigidity while offering a range of lighting options. The mass-customized variations evoke, replicate, and evolve lighting devices used across a variety of industries, simultaneously signaling 'barn doors,' on-stage lighting, photo umbrellas used in portrait photography and film, and vanity fixtures. A grid of LED lights is inset to provide zones of varying color temperatures at night, from warm pinks and whites that flatter most skin tones on the inner surface of the wall, to cool whites that provide a more accurate color rendering on the outer surface. The public is encouraged to explore the dynamic matrix on site, finding the lighting condition and background most suitable for their self-portrait. The geometry of the modules is designed to be flip-milled on a CNC router, 'scored,' and folded bi-directionally to aggregate into a precise, mass-customized form. Constrained by restrictions of the site, the wall uses lightweight and readily available sheet material to create a rigid self-supporting structural assembly. Each of the units is composed of two pieces, a vertical 'cross' shape, and a 'loop,' which folds at various angles to shape a 3-dimensional, tapering form around the cross. The two-piece units can be assembled in less than five minutes, using rivets to join them through pre-cut holes. As a cross is fit into the loop, the flexible material becomes rigid and self-supporting. The full assembly can be quickly deployed on site, using bolted connections through another series of pre-cut holes. In this way, the project leverages unskilled labor by making the construction procedure 'foolproof.'

Each unit creates a 'cell' in the overall assembly, roughly sixteen inches square and eight inches deep. Stacking from the ground to seven feet tall, the modules provide different alignments for users of all heights. The plan of the wall is bent at sixty degrees, creating a partial interior enclosure and sense of compressed scale within the larger park, and allowing the narrow linear structure to resist overturning. The siting uses existing trees as an additional enclosure and privacy screen. The patterning of the modules is based on two opposing and shifting stacking patterns, starting at each side and joining in the middle near the bend, creating a narrow but diverse range of lighting options. Where the patterns join, the openings are at their largest, creating an open corner that allows the public on the outside of the wall a voyeuristic peek into the more private photography sessions within. The assembly was refined through prototyping both typical and atypical modules, which showed that the scoring and folding technique distorted the loops and as they bent around the cross. We compensated for the material realities of this distortion by adjusting the cut files and not the digital model, in order to predict the precise results.

We continue to work on the project to find new sites and iterations. We are working to beta-test the effect of the modules and the full array with the types of facial recognition software deployed by border and transportation security agents.

ENDNOTES

1. Greg Lynn, *Animate Form* (New York: Princeton Architectural Press, 1999), 10.

2. 'Simulated' here is to be understood as the world of the digital realm. It agrees with Greg Lynn's correction of the use of the term 'virtual,' which posits that it should describe a condition which can actually become physical/possible, not a digital condition which may never become physically possible.

3. See Geoff Manaugh, *A Burglar's Guide to the City* (New York: FSG Originals, 2016).

4. Kevin Murnane, "Your Selfies Can Hurt You, But There Is A Privacy Adviser That Can Help," *Forbes*, April 10, 2017, https://www.forbes.com/sites/kevinmurnane/2017/04/10/your-selfies-can-hurt-you-but-theres-a-privacy-adviser-that-can-help/#4cb3fc4a589a.

5. Tribhuvanesh Orekondy, Bernt Schiele, and Mario Fritz, "Towards a Visual Privacy Advisor: Understanding and Predicting Privacy Risks in Images," arXiv, August 7, 2017, https://arxiv.org/pdf/1703.10660.pdf

6. Selena Larson, "Viral Selfie App Under Fire For Sneaky Data Collection," *CNN Business*, January 20, 2017, http://money.cnn.com/2017/01/20/technology/meitu-selfie-app-data-collection-privacy/index.html.

7. Robert Mann, "How Marketers Are Mining Your Selfies for Data," *Adweek*, October 10, 2014, http://www.adweek.com/digital/how-marketers-are-mining-your-selfies-data-160696/.

8. NerdWallet, "Could Selfies Affect Life-Insurance Rates?" *Orlando Sentinel*, April 20, 2017, http://www.orlandosentinel.com/business/technology/os-ap-selfie-life-insurance-20170420-story.html.

9. "How the Innocent Selfie Could Get You in Trouble with the Law," Gorvins Solicitors, May 25, 2016, https://www.gorvins.com/news-media/allnews/innocent-selfie-get-trouble-law/.

10. Erika Owen, "The EU Wants to Ban Your Eiffel Tower Selfies," *Travel & Leisure*, June 29, 2015, http://www.travelandleisure.com/articles/eu-ban-landmark-selfies.

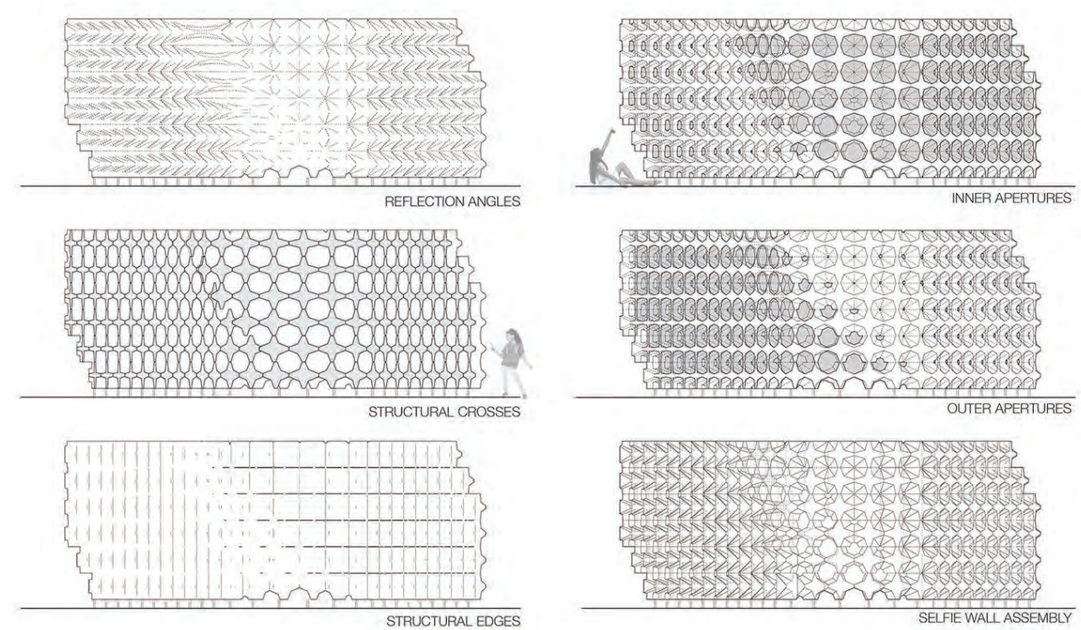


Figure 9