

Scenic Watch



Tech and
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New study: "Space advertising would cost \$65 million to set up—and the ads would cost less than Super Bowl commercials"



Photo Credit: Yuting Gao (Illustration by Devin Coldewey/TechCrunch)

"Space-based advertising has been on the minds of every marketer on the planet since the Apollo era, yet no one has made it happen. A new study suggests that a billboard-like constellation of about 50 satellites, costing \$65 million all in, could shine ads to every corner of the Earth for months – and potentially make money

while doing so.

Of course, just because they could doesn't mean they should. But let's focus on the former for now.

The study, from Russian researchers at the Skolkovo Institute of Science and Technology (Skoltech) and Moscow Institute of Physics and Technology (MIPT), presents a fairly compelling case that is bolstered by the recent controversy around SpaceX's highly visible Starlink satellites.

The paper's proposal involves sending up a constellation of about 50 satellites at a 12U CubeSat volume — think about the size of a full paper grocery bag. The satellites would enter a sun-synchronous orbit, meaning they'll always be in direct sunlight as they pass around the Earth.

Once in orbit, they would deploy large, parabolic reflectors that would bounce sunlight down toward the Earth. These could be tilted to best present the sunlight to a target area they are passing over, and from the ground would appear to be a group of stars moving in synchrony for a period of perhaps three to five minutes. (To be clear, the image at top is just for illustration — it would be much dimmer in reality.)

The 50 satellites could rearrange themselves in patterns, from letters to simple graphics — not fast, but fast enough that the shape could evolve over their visible time, or change advertisers between target cities. They would deorbit after 1-3 months, depending on several factors. I've asked the researchers for clarification on the lifetime, display length and a few other details and will update this post if I hear back.

The physical possibility of doing this doesn't seem outlandish at all considering how visible existing satellites can be in these orbits, and the precision with which they can be arranged already. So with that established, a good deal of the paper is dedicated to an economic analysis. After all, we probably could have launched a Nike logo to space in the '90s (and there were attempts) if the world came together on it... but why would they? The thing has to make financial sense.

The cost of the mission is estimated at \$65 million, most of which goes to manufacturing the 50 satellites (\$48.7 million), then to testing, support and engineering (\$11.5 million), and of course launch (\$4.8 million). That seems reasonable enough in theory.

But it gets a little fuzzy in the income estimates. A complicated equation for determining which cities, in which regions and at what times of the year would make more money suggests that winter provides the greatest ROI. You might think: but people stay inside during the winter. Yes, but not in the tropics and much of south and southeast Asia, where winter brings longer nights but nothing like the

inclement weather of northern latitudes. And it happens some of the most densely populated cities in the world are there.

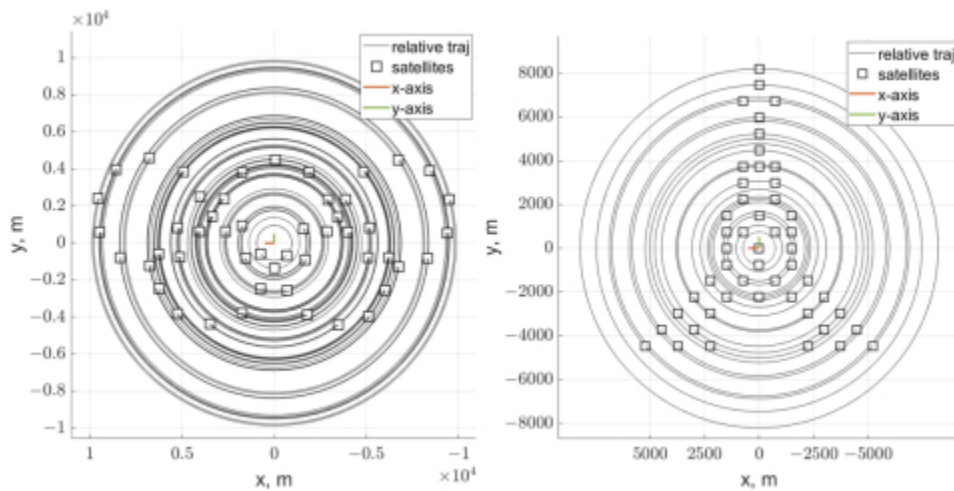


Illustration: Skoltech/MIPT showing potential configurations of satellites into Olympic rings and Eiffel Tower shapes. Image

Their most optimistic estimate puts net income at around \$111 million, over three months and 24 displays — that works out to around \$4.6 million per ad. Super Bowl ads cost more than that, and only last 30 seconds — though of course they're in 4K and full color with sound. But the money and appetite for stunt advertising is definitely there.

The more important question is does anyone want to see ads in the sky? Almost certainly not. While the novelty of a satellite-based display might briefly fill some with awe, that display forming the Pepsi logo — or more likely, Crypto.com or something — might quickly turn awe to disgust. 'That's it? A crummy commercial?' if you will.

It would be an enormous reputational gamble: the first company to set its advertisements among the stars. Sure, we've had sponsored content and logos up on the International Space Station, but that's different. When you see the ISS pass overhead, it doesn't blink down 'SNICKERS SATISFIES' in Morse code at you...

Will we see ads in the stars any time soon? Unlikely, but anything profitable tends to occur sooner or later in this mad, mad world of ours, so don't be surprised if you hear about attempts being made. Perhaps we'll outlaw it — but who has jurisdiction? Or maybe launch companies will decline — but do they want to be put in that position? It's a strange possibility and very sci-fi, but so is a lot of what takes place these days."

-- Alice Hearing, Fortune

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Energy Sign Protests: "Is the climate cost of digital billboards too high to justify?"



Photo: The Drum article by John McCarthy

"Outdoor or out-of-home (OOH) ads are modernizing, ditching static paper and paste formats for ever-changing illuminating digital screens. Media owners are locked in an upgrade race, but with climate crisis anxiety heating up, is the sector's savior tech compatible with the sustainability needs of society?"

Earlier this month, Greenpeace tweeted a vandalized Clear Channel six-panel, which read: "This ad uses the same electricity as three average households. Global heating machine." It was posted as a video of parkouring teens turning off overnight street signage did the rounds on social, while Europe hit all-time high temperatures. The Drum investigates...

Is the writing on the wall?

Are OOH units 'global heating machines'? The answer is complicated. The device you're reading this article on is technically a global heating machine. Everything uses energy - the question is whether the sector's use of energy is irresponsible.

One 2010 study claimed a 48-sheet digital billboard (6.096m x 3.048m) consumes about 30 times more energy than the average American household in a year.

2019 research from Adblock Bristol showed that a much smaller but double-sided

digital freestanding unit from Clear Channel used more electricity than four homes each year. Meanwhile, a large JC Decaux billboard was found to consume the equivalent of 36 homes 'if it was running for a full year at maximum output.' These are thirsty machines.

This year, a freedom of information request from The Guardian found that 86 digital out-of-home (DOOH) boards in Manchester city center each use an average of 11,501kWh of electricity every year. That's roughly 345 households' worth. But these units deliver £2.4m a year in rent, plus 2.8% of the revenue from each ad. That's well in excess of £6,956 per 'household.'

In cities all over Europe, tens of thousands of these units consume several homes' worth of energy each year... so is it worth it?

Outdoor industry responds

Media owners have been cleaning up their act as they transition from analog to digital real estate. Their involvement in urban architecture is dependent on the public's permission, therefore it must demonstrate utility and be receptive to their needs.

Tim Lumb, insight and effectiveness director at Outsmart, the trade body representing UK OOH, issues a defense saying media owners have been seriously reducing their carbon impact, prioritizing energy-efficient suppliers and supply chains, buying renewable energy and offsetting carbon. Anything from adopting non-fossil fuel fleets to ditching plastic coffee cups is on the table.

Richard Kirk, chief strategy officer at media agency Zenith, believes OOH is bearing the brunt of a wider anti-ad sentiment because it is 'highly visible and very physically tangible,' but adds that the sector has a 'much better sustainability story to tell' than other channels.

Agencies are now calculating their carbon footprint across the entire media ecosystem in a bid to offset their impacts. They know consumer sentiment is turning hostile toward the biggest polluters, but right now the tools lack sophistication.

Research from Cavai estimates that the average online ad impression emits the same amount of carbon dioxide (CO₂) into the atmosphere as driving an electric car between 0.4 to 9.65m, watching a 40 inch \$K OLED TV between 1.5 to 35 seconds, or having a LED light bulb on between 30 and 700 seconds.

The energy consumption of a single impression is between 0.14Wh and 1.93Wh. Meanwhile, Ovo estimates the average annual UK household electricity consumption sits at 3,760,000Wh per year, the equivalent of a mere 26,857,142 ad impressions. This sounds like a lot, but a study from Good-Loop estimates that

programmatic tech handles 2,000 times more bids than the New York Stock Exchange on any given day - 8tn transactions all in the name of targeted advertising. That's a lot of online impressions. Furthermore, advertising likely added an extra 28% to the annual carbon footprint of every single person in the UK in 2019. So the OOH sector might be the tiniest tip of the melting iceberg of advertising's damaging impact.

So with the wider context laid out, as Lumb points out, OOH doesn't 'just' deliver advertising but serves as a public and community message board too. On billboards, advertisers formed coherent pandemic advice before the government, encouraged the public to clap for the NHS and - increasingly - issue weather warnings during periods of high heat. You'll also see them try to rejuvenate the high street, with local businesses often embracing the tech now it's more accessible and affordable than it was in static formats.

When considering the energy expenditure of OOH, it's worth remembering that it, like TV, is a broadcast media - it serves one ad to many people at once (unlike ads on your mobile or computer, which are targeted and rendered on each individual device at a greater energy cost). Clear Channel reckons the UK hosts 30,000 DOOH panels - a small share of some 100m video screens in the UK...

One study [not named] claims that a 14x48m digital billboard with LED bulbs uses only twice as much power as a static billboard, and adds that LED lights use about 75% less energy than incandescent bulbs (although you need way more of them). Other studies have digital using as much as 13 times more energy.

Comparatively, a digital site will always use more energy than a static one - but if correctly implemented, media owners could meet advertiser demand with fewer sites."

-- John McCarthy, The Drum

[More detail on the positioning of the industry is in the full article which can be read here](#)

Energy Sign Protests: "Billboards 'hacked' across Europe in protest against adverts for airlines and fossil fuel"



Photo: Brandalism

"Environmental campaigners hijacked billboards across Europe in a protest against the advertising of air travel.

Adverts promoting services and products that use fossil fuels should be banned in the same way that those for tobacco products are, the protesters argue..."

-- Lamiat Sabin, Independent

[Read entire article](#)

"Tampa tree service company fined more than \$234K for cutting down protected trees"



Video: WTSP

" City of Tampa Mayor Jane Castor said Miller & Sons LLC illegally cut down 28 protected trees in 2019.

Tampa's mayor is sending a strong message to anyone cutting down trees illegally in the city.

Her message comes after a Tampa Bay area tree cutting firm was given the largest fine in the city's history.

Miller & Sons Tree Service was fined \$234,427.50 for violating state law. Mayor Jane Castor says in 2019, Miller & Sons cut down protected trees along Gandy Boulevard and on Schiller Street without a permit.

City arborists determined the trees were healthy, however, owner Jonathan Lee deemed the trees dangerous.

In 2019, the state changed the law saying local governments had no say over dangerous trees on residential properties.

The city argued both properties were not residential. A circuit court judge ruled at least one location was zoned for commercial use, the Gandy property.

The city filed an ethics complaint and last month, the International Society of Arboriculture issued a public reprimand against Lee.

'They found that his behavior was unethical and illegal in this instance,' Castor said. 'They were found in violation...'

-- Niko Clemmons, WTSP

[Read entire article](#)

Technology 5G Towers: "What Are Those Mysterious New Towers Looming Over New York's Sidewalks?"



Photo: A new 5G tower on Mulberry Street in Manhattan's Chinatown - Amir Hamja for The New York Times

"As the city upgrades to 5G wireless, the streetscape is changing. Not everyone is impressed.

A curiously futuristic tower recently appeared on the corner of Putnam and Bedford Avenues in the Bedford-Stuyvesant neighborhood of Brooklyn. A gray column topped by a perforated casing, at a whopping 32 feet tall, it reaches higher than the three-story brick building behind it.

Sixty-year-old Marion Little, who owns Stripper Stain & Supplies, the hardware store that has operated on that corner for 17 years, said that he and his neighbors had received no warning. One day there were workers outside; then the tower materialized.

'We were shocked because we had no idea what it was,' Mr. Little said. Since it's right outside his store, people keep asking him about it. 'They've been emailing

me, calling me weekends, Facebooking me, like, 'Yo, what's that?' and I'm sitting there like, 'I have no clue.'

The object in question is a new 5G antenna tower erected by LinkNYC, the latest hardware in New York's sweeping technological upgrade.

New York City has an agreement with CityBridge, the team behind LinkNYC, that involves installing 2,000 5G towers over the next several years, an effort to help eliminate the city's 'internet deserts.' Ninety percent will be in underserved areas of the city — neighborhoods in the Bronx, Brooklyn, Queens, Staten Island and above 96th Street in Manhattan.

Once the towers are activated, residents will have access to free digital calling and free high-speed Wi-Fi as well as 5G service. Many of the locations were previously home to pay phones.

According to officials in the city's Office of Technology and Innovation, 40 percent of New York City households lack the combination of home and mobile broadband, including 18 percent of residents — more than 1.5 million people — who lack both.

The 5G towers, as well as fiber cables underground, will make up an infrastructure that carriers like AT&T and Verizon can use to provide better service to customers. Most of the towers, including the one on Mr. Little's corner, have not yet been activated... Mark Malecki, 26, who moved to New York City in mid-October from Richmond, Va., has an intimate view framed by his third-floor bedroom window. 'I wasn't even quite sure what it was,' he said.



PHOTO: Amir Hamja for The New York Times

Just down the street lives Renee Collymore, a 50-year-old Brooklynite who said her family is 'four generations deep in this neighborhood' and who serves as the Democratic liaison for the 57th Assembly District in Fort Greene. She has been wary of the tower since it appeared this summer.

As the head of the Vanderbilt Avenue Block Association, Ms. Collymore said, 'Never have I heard one mention of residents asking for a tower to be placed where we live.' She plans to hold a meeting about it.

'Before this tower came, I had fine service,' Ms. Collymore continued. 'What, a call dropped every now and then? So what. You keep going.'

In Manhattan's Chinatown, where a tower cropped up on the corner of Mulberry and Bayard Streets, one resident of a nearby building declared it a 'monstrosity.'

'Who wants to look at something like that?' she asked.

The towers are not the only 5G antennas being installed in New York City. Others are going up on city property, like traffic lights and streetlamps.

At the end of September, jackhammering could be heard outside of the six-story brick building on the Upper East Side where Chelsea Formica, 32, lives with her husband, Joe, and their infant son.

Ms. Formica was in New Jersey visiting her mother when Joe called. 'He was like, 'Hey, you know, they put something up outside of our window. I'm just laying here on the couch and it's pretty big.'" Then Ms. Formica got home. 'I was like, 'Oh, my God,' freaking out. It's huge. It's so big.'

Workers for the telecommunications company ExteNet had installed a cylindrical object roughly the size of a human being: a 5G antenna that is 63 inches tall and 21 inches in diameter, according to the company. It is accompanied by a box that is 38 inches high, 16 inches wide and 14 inches deep — about the size of a filing cabinet or a night stand.

The imposing antenna is mounted on top of a slender pole, three stories high — more than 30 feet in the air — and right in front of Ms. Formica's living-room window. It's also just steps away from where their 5-month-old baby sleeps, which makes Ms. Formica uncomfortable.

'People say that it is safe; the F.C.C. says it's safe and everything,' she said. 'We're just worried that it's so close to my son's bedroom.'

Alex Wyglinski, the associate dean of graduate studies and a professor of electrical and computer engineering at Worcester Polytechnic Institute, said residents need not worry. He noted that 5G is non-ionizing radiation, on the opposite end of the spectrum from ionizing rays that people need protection from, like UV rays and X-rays.

In addition, Dr. Wyglinski said, the tower 'cannot just blast energy everywhere. It's going to be hyper-focused points of energy going directly to your cellphone.'

And while the towers are tall, 'you'll get used to it,' he said. Just like streetlights and traffic lights, he added, 'this will get integrated into the cityscape.'

Ms. Formica and her next-door neighbor Virginie Glaenzer, whose window view is also dominated by the antenna, took a measuring tape to the sidewalk and discovered that the newly installed pole is slightly less than 10 feet away from the building, a distance that typically triggers a community notification process, according to the agreement between New York City and ExteNet.



Virginie Glaenzer, dressed in a black top and gray sweater, looks out her window at a new 5G tower.

Ms. Glaenzer and Ms. Formica contacted their local representatives and handed out fliers urging their neighbors to do the same. They would like to see the antenna removed – or at least moved across the street, alongside the Asphalt Green turf field and not next to a residential building.

Julie Menin, the New York City Council member who represents Ms. Formica, Ms. Glaenzer and the rest of District 5, said that she has, on behalf of her constituents, asked the city to hire a third party to conduct emissions tests on the antennas to ensure that they comply with federal regulations, and the city's Office of Technology and Innovation has agreed to do so.

Ms. Formica said she wouldn't feel comfortable living next to it once it is turned on. She isn't sure she would move out, she said, but she would consider her options. "I think I would look into a lawyer..."

-- Dodai Stewart, New York Times

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"Targeted Billboard Ads Are a Privacy Nightmare"



Photo: Spencer Platt, Getty Images in Gizmodo

"A new report details ways advertisers are taking lessons learned from mobile ads to create intimately targeted ads in the physical world.

Advertisers are using insights gleaned from targeted digital advertising and applying it to create physical billboards capable of serving up tailored advertisements catered to the types of people viewing them. If that concept sounds eerily familiar that's because it's precisely the type of physical targeted advertising vision Tom Cruise encounters when walking through a shopping center in Steven Spielberg's 2002 sci-fi hit, *The Minority Report*.

These targeted billboard ads, which have existed for several years but are growing in popularity, are the subject of a new report from U.K., backed civil liberties group Big Brother Watch. The report, aptly called 'The Streets are Watching,' provides a deep dive into ways a handful of companies use facial recognition enabled billboards to analyze the world around them and then use that data to serve up pedestrians personalized ads...

The report claims advertisers can analyze pedestrians based on their precise GPS location, gender and age demographics, and behavioral data—like how they interact with certain apps—to create tailored advertiser profiles. Though sophisticated targeted advertising on mobile phones has become the defacto standard of modern life, advertisers want to apply that same framework to physical billboards...

The report digs deep into a handful of companies creating digital billboards with high quality cameras capable of detecting human faces. Some of those companies, the report notes, use facial recognition software to determine demographic and even emotional details of the users in front of users gazing at content. In other cases, facial recognition can be used to determine whether or not a viewer is

actively looking at a certain advertisement or not.

In recent years, Big Brother Watch says billboard facial recognition tech was used in ad campaigns for the Emoji movie, an anti-suicide charity, a Royal Navy recruitment drive and for an organization raising awareness around prostate cancer, amongst other cases. Other billboards in busy pedestrian areas reportedly change their advertisements based on the perceived emotional state and gender make up of crowds passing by. Most people, all the while, remain unaware they were ever scanned.

'Going about the world with the feeling that cameras are not just recording video but analysing you as a person to shape your reality is an uncomfortable concept,' the report reads. 'This data is being gathered not just to work out if an ad campaign was successful but to alter how people experience reality without their explicit consent, all in an attempt to make more sale...'

ALFI, one of the companies highlighted in the report, reportedly sells a 'plug and play' computer vision tool to advertisers which uses an algorithm to analyze 'small facial cues and perceptual details that make potential customers a good candidate for a particular product.' The company's product, according to the report, claims to be compatible with many major digital billboards on the market. Last year the company reportedly provided Uber and Lyft drivers around 10,000 facial recognition equipped tablets in an effort to serve passengers personalized advertisements. That creep into transportation services drew criticism from activists and prominent lawmakers like Minnesota Senator Amy Klobuchar who wrote letters to Uber and Lyft expressing privacy concerns...

The report goes on to highlight two prominent U.K. billboard owners, Ocean Outdoor and Clear Channel, who both reportedly utilize face scanning tech from a French company called Quividi. That firm claims its products can detect gender, age within five years, up to 100 faces in a crowd at the same time, and the amount of time someone spends looking at a billboard screen. Quividi, according to the report, can 'see you coming' and then adjusts its ads at just the right time...

Big Brother Watch highlights fundamental issues around "blanket consent" once relegated primarily to digital ecosystems. Now, with the rise of digital billboards, those same concerns increasingly apply to pedestrians simply trying to make their way home or around town. However, while smartphone users could theoretically adjust certain privacy settings to reduce their surveillance footprint, the same can't necessarily be said for pedestrians in public spaces. 'Consent cannot be meaningfully given to any of these data processes, as an individual is often in the sight of the cameras linked to the billboards or tablets before they are alerted to the processing and have the option to walk away,' the report reads. 'This data is being gathered not just to work out if an ad campaign was successful but to alter how people experience reality without their explicit consent, all in an attempt to make more sales.'"

-- Mack DeGeurin, Gizmodo

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Mobile Technology Powered by People: "Meet the Adidas Billboards That Could Probably Outrun You"



Photo: Adidas

"Adidas' most recent campaign (quite literally) has legs...

To promote its specially-designed sweat-proof, ergonomic, wireless 'Fwd-02 Sport' earbuds for runners, developed by Zound Industries, M&C Saatchi Stockholm turned athletes from Stockholm Run Club into moving advertisements.

A series of lightweight billboards were designed by the agency, then donned by a cherry-picked team of elite runners who took to the most popular running routes in the Swedish capital. Each poster featured a QR code on the back that offered fellow runners a 50% discount on the headphones.

The catch? To get the discount, people had to keep up with the elites to get close enough to snap the code..."

-- Rebecca Stewart, Adweek

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