Hybrid spaces 2.0: Connecting networked urbanism, uneven mobilities, and creativity, in a (post) pandemic world

Adriana de Souza e Silva
North Carolina State University, USA

Keywords
Hybrid spaces, networked mobilities, creativity, uneven mobilities, urban spaces

Introduction
Over fifteen years ago, I suggested that we were living in hybrid spaces (de Souza e Silva, 2006). More than just combining physical and digital spaces, hybrid spaces, I argued, were created by the ongoing and emerging networked relationships between people, spaces, and mobile technologies. I defined hybrid spaces as “mobile spaces, created by the constant movement of users who carry portable devices continuously connected to the Internet and to other users” (de Souza e Silva, 2006, p. 262). By walking around connected to the Internet (and consequently to other geolocated users) we could experience both digital and physical spaces simultaneously, and for this reason, it was pointless to address physical and digital as two (often disconnected) spaces.

For the past decade and a half, the range of mobile communication technologies we interact with on an everyday basis has only acquired complexity. To keep up with the fast-changing technological landscape, terms such as Internet of Things (Ashton, 2009), Net Locality (Gordon & de Souza e Silva, 2011), code/space (Kitchin & Dodge, 2011), and Networked Urban Mobilities (Freudendal-Pedersen & Kesselring, 2017) have been used to describe a sociotechnical context in which people and digital technologies are increasingly interconnected. The wide range of new mobile technologies and concepts used to describe our relationships with them may bring up questions about the usefulness and validity of hybrid spaces today. In this article, I want to suggest that we still very much live in hybrid spaces. However, to successfully understand and analyze hybrid spaces today, we must take into consideration not only issues of privacy,
power, and sociability (de Souza e Silva & Frith, 2010), but also understand networked urbanism, big data collection processes, and creative appropriation practices. Most importantly, we must understand that hybrid spaces emerge not only from homogeneous, technologically and socially rich spaces of the Global North, but also from the diverse and complex contexts and practices associated with peripheral spaces, marginalized communities, and heterogeneous Global South cities.

Here, I propose the concept of hybrid spaces 2.0, an updated version of the original idea of hybrid spaces that accounts for the contemporary changes in today’s sociotechnical landscape in diverse contexts. My goal is not to focus on how mobile phone design evolved, or how the way we communicate to each other via mobile devices changed. Rather, I focus on the production of space (Lefebvre, 1974) that occurs as a result of mobile and networked technologies being integrated into sociotechnical arrangements that occur in urban spaces. These arrangements, rather than being formed a priori, emerge from our mobility within these spaces while connected to digital networks.

I start by revisiting the original concept of hybrid spaces, as proposed in 2006, as networked, mobile, and social spaces. Then, I turn to analyze hybrid spaces 2.0 as emerging from three main contexts: (1) networked urban mobilities; (2) uneven mobilities that occur in these spaces; and (3) creative technology appropriation practices. I analyze each of these contexts within the major background of the COVID-19 pandemic to reflect about how living in hybrid spaces 2.0 might affect us in the future.

**Hybrid spaces 1.0**

Hybrid space is a three-part concept that includes network connection, mobility, and sociability. First, hybrid spaces emerge from the interconnection between digital and physical spaces, which are linked by the location-aware properties of mobile technologies. This is accomplished by having an Internet-connected mobile device equipped with Global Positioning Systems (GPS). Hybrid spaces are different from simply overlaying digital objects on physical spaces (as with augmented or mixed reality). One of the first projects that successfully explored this idea was Blast Theory’s game *Can You See Me Now*? (2001). To participate, some players sat behind computers, while others ran on the streets. Both sets of players were represented on a three-dimensional-modeled digital world that represented the city where street players were located. Equipped with walkie-talkies and GPS devices, street players were able to “catch” online players when they were within 5 meters from each other in the digital game world.

Second, hybrid spaces are similar to what Kitchin and Dodge (2011) described as “code/spaces,” which emphasize how physical space is shaped by networked connections. Code/spaces are experienced whenever we rent a shared bike with our GPS-enabled phones or pay for groceries using near-field communication. Both activities would be impossible without the embeddedness of networked connections in daily life. But hybrid spaces go beyond code/spaces. While networked connection and location-awareness are important, *mobility* is an intrinsic part of hybrid spaces. Connecting to the Internet via a mobile device allows us to access digital information
while being mobile in physical spaces. Connected mobility—or, as Stephen Graham (2005) put it, networked mobility—shapes the way we experience urban spaces as well.

Third, hybrid spaces are not just about two-way communication; they are primarily social environments, that is, they are (physical + digital) public spaces shared by many people. To understand this idea, we should look at location-based games, such as Pokémon Go, where groups of people interact with location-based information and other players based on their location (de Souza e Silva, 2017). Hybrid spaces do not only include only co-present people. As Eric Gordon and I (Gordon & de Souza e Silva, 2011) argue, we need to understand co-presence in these spaces as also including people who are remotely connected to these spaces.

**Hybrid spaces 2.0**

Much has changed in the last fifteen years. Not only the technologies and interfaces that co-construct these spaces with us changed, but the urban spaces in which we live also transformed. Most importantly, studying mobile communication today no longer means understanding how we use mobile phones to communicate, but rather investigating the complex relationships that unfold as a result of our interconnections with mobile and networked technologies and spaces. Taking into consideration that hybrid spaces are sociotechnical assemblages that come to exist based on the mobility (and immobility) of people, we must consider the diverse contexts and practices associated with the production of hybrid spaces, particularly networked urban mobilities, uneven mobilities, and creative appropriations of technologies.

**Hybrid spaces as networked urban mobility spaces**

Mobilities scholars Freudendal-Pedersen and Kesselring (2017) highlight the development of mobilities and networked infrastructures as defining parts of contemporary urban landscapes. While “networked urbanism” has traditionally referred to urban spaces as nodes of a global network (Blokkland & Savage, 2008; Kitchin, 2015), networked urban mobilities emphasizes the mobility processes that occur in local but highly connected urban spaces. Focusing on the connections between mobility, urban spaces, and networked spaces helps us to reconsider the role of mobile phones and mobile communication in shaping urban spaces. Today, mobile communication is not just about mobile phones—it includes all sorts of mobile technologies and their networked infrastructures that connect us in urban environments, such as Intelligent Transport Systems, sensors, augmented reality devices, automated vehicles, and GPS, to name a few.

During the COVID-19 pandemic there was an increased focus on how these technologies help to coordinate urban life, and manage mobility in urban spaces to control the spread of the COVID-19 virus. These included social distancing/movement monitoring technologies (e.g., heat sensors in public transportation), contact tracing apps, and quarantine enforcement/travel permission mechanisms (e.g., vaccine passports) (Goggin, 2020; Kitchin, 2020). Such apps and networked technologies not only track us, but
also constantly collect our personal data, and data from the environment around us—
either voluntarily or involuntarily. As Mark Andrejevic (2019) shows, these types of
“automated surveillance” put us in what he calls “digital enclosures” (Andrejevic,
2007), that is, to participate in today’s society, we are necessarily confined to hybrid
spaces. As such, hybrid spaces are also surveillance spaces, embedded with power asym-
metries, that is, while these technologies help some to move faster, they slow down
others.

Hybrid spaces as uneven mobilities spaces

Hybrid spaces are mobility spaces, but that does not mean that mobility is given and equal
to everyone. As mobile communication scholars, we need to acknowledge that people
move and communicate differently, depending on their socioeconomic status (SES)
and access to mobile networked technologies. Tim Cresswell (2010) addresses these dif-
ferential and uneven mobilities under what he calls the “politics of mobilities.”

The politics of mobilities unfolds outside urban spaces as well. Peter Sloterdijk
(Koolhaas & Whiting, 1999) used the term “kinetic elites” to describe frequent travelers
who can cross borders easily, having access to fast-speed transportation (e.g., airplanes),
and border services such as Global Entry. Meanwhile, forced migrants and refugees also
travel, albeit not by choice. They do not take the most straightforward and fastest route
(Heller, 2021), getting stuck at borders, tracked by GPS, or being unable to move at all.
The wide range of networked connected bordering technologies are the foundations of
what Wood and Graham (2005) call “permeable boundaries in the software sorted
society.” Hybrid spaces are bounded by networked technologies of mobility, and their
boundaries expand or contract depending on each individual’s demographic privileges
and SES.

During the COVID-19 pandemic, issues of power asymmetries and differential mobi-
lities based on technology access have been critical to how people engage with hybrid
spaces. The kinetic elites stopped moving and worked remotely, while “essential
workers” had to keep moving to survive. However, having restricted or poor access to
networked technologies does not mean exclusion from hybrid spaces. In what Mimi
Sheller calls shadow zones—poorly disconnected spaces—people “create network
capital using new work arounds’ that bridge demands for infrastructural access and pos-
sibilities for mobile connectivity” (Sheller, 2018, p. 25). As such, hybrid spaces are also
spaces of technology appropriation and creativity.

Hybrid spaces as creative spaces

Not everyone uses technologies in the same way. Technology uses depend on (among
other things) access, which is defined by (among other factors) SES, race, and gender.
Through the idea of mobile networked creativity, de Souza e Silva and Xiong-Gum
(2021) suggest that technology use that happens in situations of hardship is more than
simple technological appropriation—it is a way people co-create themselves and their
spaces with the technologies that support mobility. For example, Syrian refugee
Safwan Harb in the Jordan camp created a bike/wheelchair with spare parts. Since he
had a disability, the apparatus helped him move around the camp’s unpaved roads. More than just focusing on the final product itself, mobile networked creativity is a spatial creative process that helps a community’s survival.

Mobile networked creativity can also be exemplified by the COVID-19 Unified Slums Dashboard in Rio de Janeiro (Brazil). During the COVID-19 pandemic, community leaders from more than 300 favelas (a type of slum in Brazil) in Rio de Janeiro, in collaboration with the Catalytic Communities non-governmental organization, developed an online and mobile dashboard to track COVID-19 cases and deaths in the Rio de Janeiro slums (de Souza e Silva, 2022). Different from traditional dashboards that rely on official counts of cases and deaths, this dashboard’s data come from self-reported cases, community volunteers who report data via WhatsApp, and word of mouth. The Unified Slums Dashboard was a creative mobile networked solution that helped the COVID-19 pandemic gain visibility in these low-income communities.

**Conclusion**

The examples from the COVID-19 pandemic demonstrate that hybrid spaces are still very much here with us, and will continue to be. Fifteen years ago, when I first proposed the idea of hybrid spaces, there were no smartphones. Mobile phones had tiny screens and a physical keyboard. Most mobile phones barely supported Internet connection, and second-generation cellular networks offered painfully slow data transmission speeds. As a result, most people used mobile phones primarily to text and talk. The idea of living in hybrid spaces seemed far-fetched for most ordinary mobile phone users. But there were a few pioneer experiments during the turn of the century that pointed out to a future where digital information would be more seamlessly integrated into our daily mobile communication spaces. Among them were location-based mobile games, such as Botfighters (2000) and Can You See Me Now? (2001). These projects contained the seed of hybrid spaces: seamless interconnection between physical and digital spaces achieved by people’s mobility in urban spaces while connected via mobile communication devices.

Fast forward fifteen years later, the smartphone penetration rate now spans almost 80% of the globe. By 2025, it is expected that 25% of mobile connections will be on a fifth-generation cellular network. But we no longer use just smartphones to inhabit hybrid spaces. In our daily lives, we interact (voluntarily or involuntarily) with a myriad of mobile technologies that construct our networked urban spaces. Therefore, while hybrid spaces are still (and now more than ever) about seamlessly integrating digital and physical spaces while moving around, they are also about understanding the diverse contexts in which our relationships with mobile technologies and networked spaces unfold. These contexts include: networked urban spaces; the uneven mobilities that unfold in these spaces; and the creative appropriation practices that emerge from difficult access to technologies. Most importantly, hybrid spaces 2.0 are about considering the new kinds of socioeconomic and power disparities that lead people to experience hybrid spaces in diverse ways. As such, to fully grasp hybrid spaces, we must consider the diverse contexts and practices associated with them, primarily in non-normative spaces outside Global North contexts. This is what hybrid spaces 2.0 are about.
Declaration of conflicting interests

The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author received no financial support for the research, authorship, and/or publication of this article.

ORCID iD

Adriana de Souza e Silva https://orcid.org/0000-0001-7088-3994

Note

1. https://www.statista.com/statistics/203734/global-smartphone-penetration-per-capita-since-
2005/#:~:text=The%20global%20smartphone%20penetration%20rate,population%20of%20around%207.8%20billion.

References

Andrejevic, M. (2007). Surveillance in the digital enclosure. *The Communication Review, 10*(4), 295–317. https://doi.org/10.1080/10714420701715365

Andrejevic, M. (2019). Automating surveillance. *Surveillance & Society, 17*(1–2), 7–13. https://doi.org/10.24908/ss.v17i1/2.12930

Ashton, K. (2009). That ‘internet of things’ thing. *RFID journal, 22*(7), 97–114. http://www.rfid-
journal.com/articles/view?4986

Blokland, T., & Savage, M. (2008). Social capital and networked urbanism. In T. Blokland, & M. Savage (Eds), *Networked urbanism: Social capital in the city* (pp. 1–22). Ashgate Publishing.

Cresswell, T. (2010). Towards a politics of mobility. *Environment and Planning D: Society and Space, 28*(1), 17–31. https://doi.org/10.1068/d11407

de Souza e Silva, A. (2006). From cyber to hybrid: Mobile technologies as interfaces of hybrid spaces. *Space and Culture, 9*(3), 261–278. https://doi.org/10.1177/1206331206289022

de Souza e Silva, A. (2017). *Pokémon Go* as an HRG: Mobility, sociability, and surveillance in hybrid spaces. *Mobile Media & Communication, 5*(1), 20–23. https://doi.org/10.1177/2050157916676232

de Souza e Silva, A. (2022). Making the COVID-19 pandemic visible: The power of grassroots mapping initiatives. *International Journal of Communication, 16*, 3988–4007 [mapping, smartphones, networks, grassroots initiatives, COVID-19, pandemic]. https://ijoc.org/index.php/ijoc/article/view/18441

de Souza e Silva, A., & Frith, J. (2010). Locative mobile social networks: Mapping communication and location in urban spaces. *Mobilities, 5*(4), 485–506. https://doi.org/10.1080/17450101.2010.510332

de Souza e Silva, A., & Xiong-Gum, M. N. (2021). Mobile networked creativity: Developing a theoretical framework for understanding creativity as survival. *Communication Theory, 31*(4), 821–840. https://doi.org/10.1093/ct/qtaa006

Freudendal-Pedersen, M., & Kesselring, S. (2017). Networked urban mobilities. In *Exploring Networked Urban Mobilities* (pp. 1–18). Routledge.
Goggin, G. (2020). COVID-19 apps in Singapore and Australia: Reimagining healthy nations with digital technology. *Media International Australia, 177*(1), 61–75. https://doi.org/10.1177/1329878X20949770

Gordon, E., & de Souza e Silva, A. (2011). *Net Locality: Why location matters in a networked world*. Blackwell Publishers.

Graham, S. (2005). Software-sorted geographies. *Progress in Human Geography, 29*(5), 562–580. https://doi.org/10.1191/0309132505ph568oa

Heller, C. (2021). De-confining borders: Towards a politics of freedom of movement in the time of the pandemic. *Mobilities, 16*(1), 113–133. https://doi.org/10.1080/17450101.2021.1873563

Kitchin, R. (2015). Data-driven, networked urbanism. The Programmable City Working Paper 14. http://dx.doi.org/10.2139/ssrn.2641802

Kitchin, R. (2020). Civil liberties or public health, or civil liberties and public health? Using surveillance technologies to tackle the spread of COVID-19. *Space and Polity, 24*(3), 362–381. https://doi.org/10.1080/13562576.2020.1770587

Kitchin, R., & Dodge, M. (2011). *Code/space: Software and everyday life*. MIT Press.

Koolhaas, R., & Whiting, S. (1999). Spot check: A conversation between Rem Koolhaas and Sarah Whiting. *JSTOR, 40*, 36–55. https://doi.org/10.2307/3171371

Lefebvre, H. (1974). *The production of space*. Blackwell.

Sheller, M. (2018). Globalizing networked urbanism: Entanglements of elite and subaltern mobilities. In M. Freudendal-Pedersen, & S. Kesselring (Eds.), *Exploring networked urban mobilities: Theories, concepts, ideas* (pp. 19–35). Routledge.

Wood, D., & Graham, S. (2005). Permeable boundaries in the software-sorted society: Surveillance and the differentiation of mobility. In M. Sheller, & J. Urry (Eds.), *Mobile technologies of the city* (pp. 177–191). Routledge.

**Author biography**

**Adriana de Souza e Silva** is a professor at the Department of Communication at North Carolina State University (NCSU) and Director of the Networked Mobilities Lab. Her research focuses on the creative ways people appropriate mobile technologies, including location-based games and mobile media art. In particular, she investigates how mobile and locative interfaces shape urban mobility and people’s interactions with public spaces, primarily in the developing world. She is the author or co-author of seven books, and almost 50 articles in peer-reviewed publications. She is a NC State University Faculty Scholar and has twice won the College of Humanities and Social Sciences Outstanding Researcher Award. Over the course of her career, she has held visiting appointments or positions at the Pontifical Catholic University (Rio de Janeiro, Brazil) and the IT University of Copenhagen (Denmark). She teaches classes on mobile communication, Internet studies, and histories of technology.