

Urban Games: Convergence of physical and virtual

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1 ABSTRACT

Redefining the city as interactive media can reveal new possibilities for architects and designers. Today, designers must augment architecture and urbanism by incorporating new aspects of virtual habitation.

This paper investigates contemporary attitudes toward digital public spaces, from media facades, augmented reality games, and mobile apps to guerrilla-like techniques such as tactical media, activist gaming, and electronic civil disobedience. It looks at these notions as renewed forms of public participation that build upon the past analog models. It touches on the relationship between ownership and authorship of the public realm, and the role design, art, and technology play in this balance. Ubiquitous technologies, democratization of access to and means of creative production, and virtualization of physicality allow for broader participation in cultural authorship and ownership, an opportunity that may not be fully realized if not embraced effectively. In this redefined image of the city, online and mobile games become important contributor to genius loci and emerging social networks.

Furthermore, this paper discusses the mutually-informing relationship between the imaginary (virtual) and the real (physical). It presents the city as a virtual construct modulated by pervasive and ubiquitous computing, social networking, and (geo)location-based participatory events such as augmented reality (AR) gaming. In the perceptual dimension, video games, such as *Grand Auto Theft*, *Mirror's Edge*, or *Assassins' Creed*, are becoming potent advocates or adversaries of traditional image (notion) of the city. The combination of purely virtual reality (VR) game cities and augmented reality (AR), information-laced and geo-located environments transforms our expectations towards urban landscapes.

This paper investigates the following aspects of augmented urbanisms: the virtual city of computer games and movie narratives, the physical city overlaid with virtual information accessible via augmented reality browsers and electronic social networks. It also looks into how these new electronic agents facilitate an unconventional use of the city.



Fig. 1: Mobile devices serve as portals to enter and navigate multimodal landscapes.

2 INTRODUCTION

Virtual environments, originally seen as less-than-perfect replicas of physical world, acquire their own identity with unique visual and spatial logic. Identity that now starts permeating back into everyday life and informing what is expected or acceptable within physical reality. The distinction between the actual and

virtual fades when seen through the screen of a smartphone, experienced through a navigational system of the video game console, or manifested by media rich culture often confusing a product with an image.

The paper considers massive multiplayer online role playing games (MMORPG) as analog to an urban ritual/happening and places AR in the broader context of the mobility-on-demand culture, location-based and ubiquitous technologies, and the authoring of the public realm. It also explores how we can take an advantage of the urban mobility for crowd sourcing, social networking, and multi-player gaming as well as non-normative use of public spaces.

Mobile technology increasingly, and more and more seamlessly, bridges the physical landscape with virtual environments to form visually rich and emotionally engaging narratives. Wireless communications, ubiquitous online connectivity, and a multiplicity of electronic devices irreversibly augment our daily lives. Video game environments involving massive multiplayer online collaborations affect our outlook on and expectations of our everyday activities and social fabric. Initially conceived as purely virtual experiences confined to the PC box, they start transforming our offline relationships with each other and with the environments that surround us. Mobile devices serve as portals to enter and navigate multimodal landscapes. (fig.1) Geographic data, pictures, and brief commentaries merge into a single data-based landscape. The distinction between the actual and virtual, or the permanent and temporal, fades when seen through the screen of a mobile phone or a tablet.



Fig. 2: Assassins' Creed scene uses medieval Venice as the backdrop for the game narrative.

3 CITY2.0

Cities are no longer the places they once were, or perhaps they are more so—forming novel and sophisticated social possibilities realized through electronic networks that interconnect with the social, artistic, economic, and political lives of citizens. Cities are no longer purely physical artifacts—they are media, rooted in a graphical user interface (GUI), fine-tuned for the optimal user experience (UX), and accessed through ubiquitous networks and mobile apps.

Today we use cities unconventionally by introducing new narratives and conventions. From cinematography we have adopted discontinuity of time and space, with its in-synchronicity of interactions and unexpected causality. At the same time, we expect to be continuously plugged into a larger, ubiquitous technological continuum of social networks and data flows. Co-location and direct interactions register differently today in the context of electronic networks. However, this unconventional deployment of digital media and non-normative urbanism may better align cities to their original purpose as social space that responds and promotes cultural and social growth, including commerce. Urban environments become prime testing grounds for the physical-to-digital-and-back-to-physical metamorphosis cycle with an idea of digital physicality and physical digitality forms a core theme of augmented urban lives today.

4 PHYSICAL/DIGITAL INTERDEPENDENCIES

While our physical world is being transformed by the digital mindset, there is still a continued reciprocal relationship. Much of the electronic culture positions itself in reference to the physical world. It may not be a

coincidence that many successful games such as Assassins' Creed (fig. 2) or The World of Tanks (WoT) (fig. 3) are deeply rooted in conventional (urban) landscapes. There is a persistency of forms and naturalness to the physical world we know that allows for ease of navigation and communication of ideas.

Our lives continuously shift between the simultaneities of urban realities and cyberspace. We, as users, constantly alternate between "the real, the imaginary, and the symbolic" without parsing them into a simple duality of the physical and the digital. These two sets of categories, Lacanian and techno-physical, cannot be simply mapped by associating the real with the physical, or imaginary with the digital. The nuances break apart any stylistically elegant categorizations. Both and each, the physical and the digital, can encapsulate Lacanian elementary registers in holistic, yet complementary ways.

The relationship between physical and virtual is not just conceptual. It originates from the sum of subjective perceptions of urban inhabitants who merge their virtual and real lives into a single experiential continuum. We are engaged emotionally and socially in a vague combination of physical and virtual experiences. Within cities, virtual and physical experiences seem to have irreconcilable yet mutually enriching relationship. Paradoxically, the more virtual our experiences get, the more extreme our real-world activities become. This can be traced to the cross-pollination of parkour culture with urban video games such as Assassin's Creed or Mirror's Edge (fig. 4). Similarly, electronic social networks facilitate a public display of privacy often breaking social norms even though the actual communication occurs in the confines of private solitary spaces.

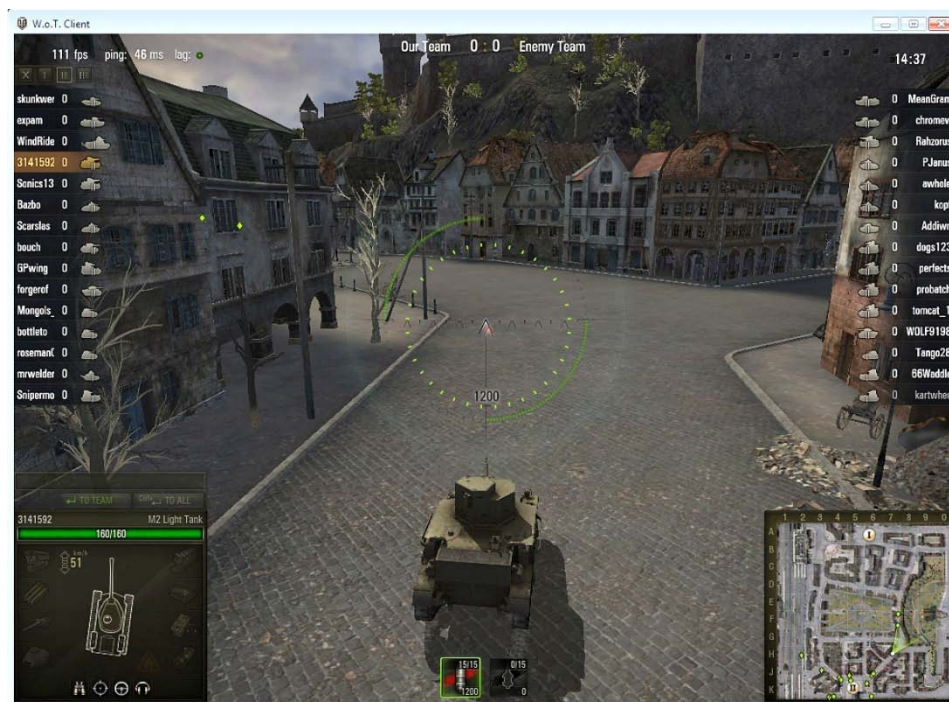


Fig. 3: The World of Tanks game involves urban and landscape scenery with topography that affects game play and performance.

Virtual environments no longer mimic the physical world that surrounds us. They manifest functionalities unique to this technological genre and facilitate a new thinking about social networks. With their own identity and unique narrative logic virtual worlds permit users to redefine themselves. Users can experiment with alternative identities unconditioned by their offline world. This digitally facilitated identity, in turn, starts permeating back into everyday lives and informing what is expected or acceptable within physical world. This cross-pollination between the virtual and the physical is a fundamental marker of contemporary life.

5 NEW FORMS OF IDENTITY

These location-based games redefine our relationship with the built environment and, more importantly, with each other. They allow interactions with strangers in ways uninhibited by socio-cultural conventions, assuming alternative identities and forming ephemeral, yet fulfilling, relationships with anonymous urban co-habitants. They fulfill Eliade's concept of fulfillment associated with contributing to, or being part of, a

greater cause. While these can be delightful moments, the question this paper also pursues is how these new electronic interactions cause us to redefine physical and social structures of everyday lives. To what extent digitality informs physicality and physicality is rooted in our digital worlds.



Fig. 4: Mirror's Edge scene with a character engaged in the parkour.

6 URBAN ARTS AND GAMES

A new potent mix of gaming, mobile devices, and urban environments transforms the public realm and the way we operate within it by embedding digital information in the physical world. According to the website for Simon Games, a project of the Pervasive Media Studio, “Games are the new cinema, they are breaking free from the console and hitting the streets. These games are a new way of exploring ideas, meeting people and having fun. Hugely social, they are a new entertainment form.”¹

While breaking free from the console and hitting the streets, we always make sure to bring a mobile device with us. Mobile devices become a necessary interface and facilitators for social interactions by allowing us to read and embed a digital location-based content. Multiplayer gaming environments, electronic social networks, or mobile location-based games allow for a diverse level of encounters without the need to personally engage with others face-to-face or reveal one's identity. Digital media make it easier for many to engage with strangers, particularly for those who feel apprehension in interacting with strangers or just want to explore their inner self in a social context that is not predefined. (fig.5)



Fig. 5: Come out and Play Festival, uses GPS-enabled devices for urban games

A description of The Comfort of Strangers, a Simon Group game that was played in 2008 at New York's Come Out and Play street festival, invites participants: “Create your team out of the anonymous crowd; every chance encounter could be your last, or an opportunity to live and survive—find comfort in strangers.”² The Comfort of Strangers is a street game utilizing mobile devices to create social encounters.

¹ <http://www.pmstudio.co.uk/collaborator/simon> (accessed June 3, 2011)

² http://www.comeoutandplay.org/2008_comfortofstrangers.php

There is no visual interface, just a voice in the earphone telling you about the risks and common interests. The game creates ad hoc and anonymous relationships that usually last only as long as the game itself.

The SMSlingshot installation by the VR/Urban group aims to reclaim urban media facades from corporate and commercial messages into an open public participatory system. It continues a tradition of artistic civil disobedience associated with graffiti culture and the mid-twentieth century Situationist International (SI) movement. While this intent remains still within a conceptual level rather than an actual guerrilla-like action—VR/Urban installations operate within the confines of museum galleries or public festivals—the conceptual framework signals a broader social aspiration to reclaim the public domain, or at least the voice within it.

The SMSlingshot installation effectively combines media displays—building projections—with mobile communication. The installation participants are able to use a custom-developed slingshot device equipped with a mobile telephone interface to send an SMS message. By aiming and “firing” a slingshot onto the facade, users can project their personalized message onto the building’s wall, expressed through the splash-like graphics. (fig.6)



Fig. 6: SMSlingshot installation in Berlin, 2010 (Image courtesy VR/Urban)

While projecting political or artistic messages onto public buildings is a well-established practice evident in works by artists such as Krzysztof Wodiczko, the addition of mobile communication is an important step into broader communal participation and ownership of public domain. The Interactive Power Station’s “Shooting Star” installation³ achieves it perhaps more fully by allowing contributing individuals to customize their holiday messages, using the Electrobelt Power Plant cooling tower as a canvas for the animated LED light installation. However, the theme of holiday wishing imposes a significant limitation on this particular project. An opportunity for a political or social speech is limited to socially predictable forms.



Fig. 7: GRL Rome - 'L.A.S.E.R TAG', installation. (image courtesy Graffiti Research lab (GRL))

³ <http://www.magicmonkey.net/en/projects/interactivepowerstation>

Along the same lines but breaking out of the socially correct framework, Graffiti Research Lab (GRL) develops urban media interventions that challenge the traditional demarcations of public and private, appropriate and inappropriate. Their purpose stated in their motto “dedicated to outfitting graffiti- and street-artists with an open source technologies for urban communication” is activated through the development of “tools of subversion and mass dissent. Like a giant graffiti laser.”⁴ A certain level of dissent represented in GRL’s work moves the center of creative gravity outside the comfort of art galleries into an authentic street art. However, GRL works still do not achieve a guerrilla status like that of Banksy public art. Anonymity is a common denominator of Banksy’s art and traditional graffiti, and in this case, it is a strong differentiator from prescribed and staged digital installations that feel more like works ported out of the gallery, not home-grown street happenings. This anonymity of street art, and the expressive freedom associated with it, can be put back into digital media installations by developing systems that integrate individual participation through the use of mobile devices.

Laser tagging is a contemporary equivalent of traditional graffiti implemented on an urban scale without the negative associations graffiti tagging brings. Additionally, the GRL Laser Tag Rotterdam event⁵ provides an opportunity for greater public participation, since the marking device is separate from the projector. The installation could accommodate unrelated or competing users collaborating or competing for the screen authoring. The GRL laser tag setup uses a high-performance video camera to track a green laser point projecting over a building façade. (fig.7) The laser pointer movement is reinterpreted as tag graphics and projected on the facade. A custom-written code (C++) allows for the adjustment of multiple settings, including brush size and type (for example, shaped like a chisel) as well as control of the drop mode with frequency and fading options.



Fig. 8: Augmented Reality (AR) content superimposed over real life photo capture. (Image courtesy ARTags)

In this case, the mobile device is not a smartphone, but a simple laser pointer; on the smaller scale of an art gallery, one could use a Wiimote controller. In either case, mobile devices serve as an interface between user intentions and media-enhanced urban environments, bringing together the power of creativity, public participation, and digital technology.

Another form of reappropriation of media facades can be achieved through augmented reality (AR) apps. Media facades become augmented as seen through mobile device cameras, with a change to their intended content and meaning. While this is not as present as real-world tagging or graffiti, it can also remain undetected by unprivileged urban dwellers. While apps like Layar facilitate the consumption of the AR environments, the full public engagement is realized with apps such as ARTags,⁶ a self-described first AR application that allows easy and on-location content authoring, a critical addition to a situated technologies toolkit (fig.8). According to the product description, “You can express your skills on your own mobile phone. Once your ‘tag’ is completed, you can drop it in one of our AR Browsers and leave your mark.”⁷ And

⁴ <http://fffff.at/images/esquire.pdf>

⁵ <http://muonics.net/blog/index.php?postid=15>

⁶ <http://www.artags.org/>

⁷ <http://www.vimeo.com/17528367> (accessed June 6, 2011)

later: “ARTag allows everyone to express themselves anonymously and freely [in] the world of augmented reality through a mobile app for Android.”

This form of expression provides full and uncensored authorship of public domain, albeit limited to its virtual form. It is similar to the Interactive Power Station project discussed earlier, but empowered by direct authorship without a middleman evaluating the user’s content. Certainly, this approach would quickly overproduce and most likely “pollute” the AR environments with meaningless, mediocre, or vulgar content. However, a future solution to this problem should involve intelligent electronic agents that allow users to preselect their AR content and not to be subject to outside, socially or corporately imposed censorship. Both installations illustrate social, emotional, or environmental data using an interface that puts residents into the position of active content creators, thus shifting their role from consumption to authorship.



Fig. 9: Augmented Reality (AR) environment as social and design activism. (Image courtesy TUTS)

Virtual environment allow for explorations of inaccessible or not-yet-materialized designs. They can be precursors of future physical urban spaces and potent drives in their realization. This is the case with AR and gaming environments (fig.9) developed by Tremont Underground Theater Space (TUTS) initiative. This initiative is using AR gaming media not only to popularize ideas of the adaptive reuse of the abandoned public infrastructure but also to build social constituency and connect with general public.



Fig. 10: Online gaming environment as social and design activism. (Image courtesy TUTS)

7 REAPPROPRIATION OF PUBLIC REALM

Media facades are usually institutionally or socially controlled, due to their what-you-see-is-what-you-get (WYSIWYG) nature, and strictly serve the interests of their owners. However, there is a movement of

reappropriation of the public realm from commercial interests through digital graffiti, laser tagging, and building projections in an analogous way to the billboard hacking practiced by the New York artist Ron English or the Billboard Liberation Front. The reappropriation of media facades, or billboards, is usually seen as an encroachment on private property and generates mixed feelings among the general public. However, these feelings can be partially altered by the content, the message, and the intent behind these actions. Another way to step outside the legal constraints of graffiti or billboard hacking while preserving the intent and the message is to port part of the communication into the virtual realm. The virtual realm can modulate and enhance the real-world experiences, which can be commonly shared (WYSIWYG) or customizable to a narrow group of users and hidden from the rest.

8 REAPPROPRIATION OF PUBLIC REALM

All these applications are built on the “open source” concept (a version of the collective intelligence discussed by James Surowiecki⁸), where individual members contribute content that is often unfiltered or unchecked. While the society is usually reluctant to accommodate unfiltered and unchecked public communication, it is exactly these types of contributions that most effectively produce collective wisdom.

Furthermore, location-based mobile apps augment the physical reality with highly customizable and personalized messages that can be addressed to all or just to a selected few. In this aspect they redefine the meaning of a communal space, away from the traditional WYSIWYG model, and bring the public realm closer to a Web 2.0 character, with dynamic communications where a given Web page would display individualized content relevant to a particular viewer.

Since the digitally enhanced public realm is no longer visually explicit, it allows for alternative cultures and parallel ways of living. Mobile devices, such as smartphones and more recently tablets, allow for an individualized view into the public realm: a view with simplified datascares or privileged information that considers our needs and responds to our expectations. While the use of mobile devices as the intermediary between us and the environment may seem awkward at first, they quickly become non-present, much like eyeglasses after a brief time of “getting used to” them. Furthermore, mobile devices not only become a physical extension of ourselves, but also emotional, philosophical, and intellectual. In many ways they do for us what a magic wand does for Harry Potter and his friends, becoming an attribute of elevated capabilities.

9 FINAL THOUGHTS

This paper explores augmented urbanism as the interface between virtual and real, between computer games, augmented reality, and divergent uses like parkour—not as exclusive and competing domains, but rather as cross-referencing and mutually informing parts of our creative life in cities. The paper describes the interstitials along the spectrum of various kinds of augmented urbanism—and explores how, individually and in combination, each produces new and unexpected forms of social play and public participation in cities.

As digital media, and especially mobile games, assume a more prominent role in contemporary architecture and public spaces, there is a growing need for research and for creative models that demonstrate enriching and meaningful integration of this technology into the urban environment.

10 REFERENCES

- Boring, S, Gehring, S, Wiethoff, A, Blöckner, M, Schöning, J, Butz, A, 2011 ‘Multi-User Interaction on Media Facades through Live Video on Mobile Devices’, *Proceedings of the CHI Conference*, Vancouver, BC, Canada.
- Fischer, P, Zöllner, C, Hornecker, E 2010 ‘VR/Urban: Spread.gun – Design Process and Challenges in Developing a Shared Encounter for Media Façades’, *Proceedings of British HCI*, Dundee, United Kingdom
- van’t Hof, Christian, van Est, Rinie, and Daemen, Floortje; Rathenau Institute , *Check in/check out: The Public Space as an Internet of Things* NAI Publishers 2011
- Surowiecki, J 2004, *The Wisdom of Crowds*, Anchor Books, New York, p. xiii.

⁸ Surowiecki, J 2004, *The Wisdom of Crowds*, Anchor Books, New York, p. xiii.