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*x-ode* (www.x-ode.org) is a cross-reality game for desktop and mobile devices that builds on the phenomena of *missed connections*. *x-ode* aims to foster connection based on shared experiences of time and memory in urban space, through a map-based interface in which messages can be posted in particular places, and in specific time-frames which can be set by using an interactive "time-glider." The game is centred on—and tries to better understand and encourage—social encounter, connection, and engagement through time- and location-sensitive playful interactions among city dwellers.

The current research project (and internship) pays particular attention to the interplay of time, memory, and narrative as they manifest through social interactions in time- and location-sensitive augmented/cross-reality games across a city's built environment. These operate within a complex ecology at the intersection of the fields of urban studies, architecture, design, game studies, HCI, media studies, performance studies, and behavioural/social sciences. Specifically, this project looks at social engagement, play, and interaction with and within urban space along the theoretical frameworks of interaction design, game theory, Playful Cities, spatial narrative, and place(-making).

As urbanites increasingly connect and interact with each other through mobile devices and digital interfaces, the study of location- and time-sensitive games like *x-ode* gains relevance and importance, and can immensely contribute to the present task of studying, understanding, and implementing technology-based playful initiatives in urban settings.

In the past decade, applied games and playful interventions in urban contexts have increased in number, scope, and medium, involving city residents among themselves and with their urban environment (Schouten et al., 2017). Technology-based urban games allow for the possibility to revisit the city as a physical and digital arena for engagement, interaction, and connection.

This phenomena—in hand with the increasing availability of information and communications technology (ICT) among urbanites (Fischer and Hornecker, 2017)—has given rise to the study of Playful Cities[1] (Ferri et al., 2018; Nijholt, 2017; Stevens, 2017; Walz and Deterding, 2015). These operate as people-centred frameworks that reimagine our cities as places of serendipity and joy (Nijholt, 2017), oftentimes acting as a counterpoint to data-, efficiency-, and surveillance-centred Smart Cities agendas (Calzada and Cobo, 2015; Crang and Graham, 2007).

Moreover, the emerging focus on "smart citizens" (the people that inhabit Smart Cities) rather than on Smart Cities themselves—a concept emerging in parallel to the study of playful cities—as a critical turn in  the study of Smart Cities, makes the point to focus on the people and their experiences, providing a bottom-up, human-centred lens to approaching urban issues, phenomena, and interventions (Schouten et al., 2017, p. 25).

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[1] Also referred to as *gameful cities* or *playable* cities throughout the literature. While there might be slight differences or philosophical standpoints informing each term, for consistency throughout this Literature Review, the concept of *playful cities* will be used as an overarching term.

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Overarchingly, the use of games and play has become a powerful tool for urbanists, architects, and urban planners—who are finding in game design principles and mechanics knowledge that supports their practice and research. Games have become powerful tools that assist in processes of participatory planning (Shakeri, 2017), civic participation and empowerment (de Lange, 2015; Ferri et al., 2018), urban design public pedagogy (Stratis, 2009), placemaking and neighbourhood-based storytelling (Stokes et al. 2017), and collective reflection on spatial issues (Devisch, Poppin, and Sofronie, 2016).

The exemplified uses of games and play in urban processes and projects above mentioned show that game design can operate as a lens to better understand urban phenomena. Or, to put it in the words of Schouten et al. (2017), games act as *strong concepts* for making sense of urban dynamics and environments. Not only playing games can be a helpful tool to better understand urban dynamics and phenomena, but collectively designing and making games becomes a reflective practice (p. 28) in which city dwellers can make sense of their urban realities, lived experiences, and situated knowledge through the framework of game design and mechanics.

Of particular importance to this research project and cross-reality game *x-ode*, is the notion of social encounter and connection among strangers in urban settings. This phenomena, commonly known as "missed connections" in online social platforms, emerged in the Craigslist chat forums of the 1990s when the forum's CEO Jim Buckmaster noticed an influx of personal ads which described and narrated brief encounters between people in which a connection was not established (or *missed*).[2] Since then, other platforms and social media like Kijiji, Facebook, and Instagram—to name a few—have either incorporated, adapted, or created their own versions of "missed connections."

Social (shared) encounters in urban settings have long been studied by scholars, artists, and designers. Research and discussion has emerged (and departed) from the early writings that, for example, sociologist Erving Goffman, performance artist Allan Kaprow, social psychologist Stanley Milgram, and designer and writer John Thackara have produced around human encounters in space. Their notions and analysis—respectively—of behaviour in public space (Goffman, 2008), collective presence and creation mediated by the shared environment (Kelley and Kaprow, 2004), familiar strangers who we frequently encounter in everyday life (Milgram, 1972), and the importance of having 'talking points' with strangers for initiating a conversation (Thackara, 2006) have laid the theoretical foundations that allow us to understand (playful) sociality among strangers in urban space.

These understandings have consequently permitted us to explore and experiment with (playful) approaches to encourage such encounters. For example, Fischer and Hornecker (2017) discuss how shared encounters in urban environments can be created through playful approaches that create the

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[2] https://en.wikipedia.org/wiki/Missed_connection

right occasions and talking points (p. 164). Playful activities in public spaces "foster identification with one's city, support creative appropriation, and support community and active participation" (idem).

Further, scholarship on game studies and urban play suggests play's potential to create social bonds among urban dwellers, to aid in the construction of a sense of place, and to improve liveability standards. For instance, game scholar and designer Jane McGonigal (2012) finds in games—particularly alternate reality games—a potential for social bonding, awareness-raising, and civic participation capable of transforming people, communities, and cities. Fischer and Hornecker (2017) argue that casual play can help people to "to immerse in and rediscover physical space" (p. 166). And designer, researcher, and educator Kars Alfrink (2014), argues that gameful and playful design in urban settings makes for cities that are more vibrant and liveable, as the desires and understandings that residents have on themes of location and meaning find a channel of expression—and an avenue for discussion and (re-)appropriation—through play.

The most obvious and principal function of *x-ode*, is to act as a co-lived (digital) space where urbanites-users-players[3] can create location- and time-sensitive posts that aid them to connect with strangers. In other words, and building from the theory discussed above, posts generated in *x-ode* act as 'talking points' to transform the 'missed connections' users have had in a particular time and space, into potential face-to-face encounters. Even if these physical encounters never concretize, the back-and-forth conversations afforded by *x-ode'*s public post reply and private conversation feature, could create the necessary space to transform these 'talking points' into an intimate digital connection among people.

In other words, *x-ode* has the potential to be(come) a technological tool that mediates human connection within a complex web of social encounter, stranger sociality, co-presence through space and time, and play—be it among familiar strangers, or people involved in a shared urban encounter.

As ICT's become widespread available and embedded in everyday life, social connection becomes increasingly mediated by technology (McCullough, 2006). Ubiquitous, tangible, and/or embodied, these technologies have become part of our human activities, everyday language, and with them we connect with—and make sense of—others and our physical built environment.

As architecture and urban planning professor Malcolm McCullough further dissects, what's

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[3] It is important to note that the use of words like user or player, citizen or urbanite, has implications beyond semantics, these choice of concepts have social, cultural, and political meaning. Throughout this Literature Review the people that utilize *x-ode* will be referred to as users-players (implying that these humans have agency, execute conscious actions, and engage in playful interaction with the interface). Similarly, i will avoid using the word citizen (tied to citizenship, borders, and Nation-States' jurisprudence) and instead refer to people who inhabit cities as urbanites, city-dwellers, or residents.

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interesting about technologically-mediated social interaction and encounter is not how users "deal with machine interfaces individually, but how people deal with each other, and even reorganize themselves, when mediated in new ways" (2006, p. 28). That said, beyond analyzing the affordances that *x-ode* could provide a user-player resulting from its particular UI/UX features as a unique platform, what is potentially generative in this research project is how the technology behind *x-ode* could affect the way people make sense of urban encounters (e.g., missed connections) through time- and location-sensitive standpoints. Just in the way, in which, for example, online dating apps like Tinder and Grindr have changed the way people think of, experience, and access intimacy, romance, and dating.
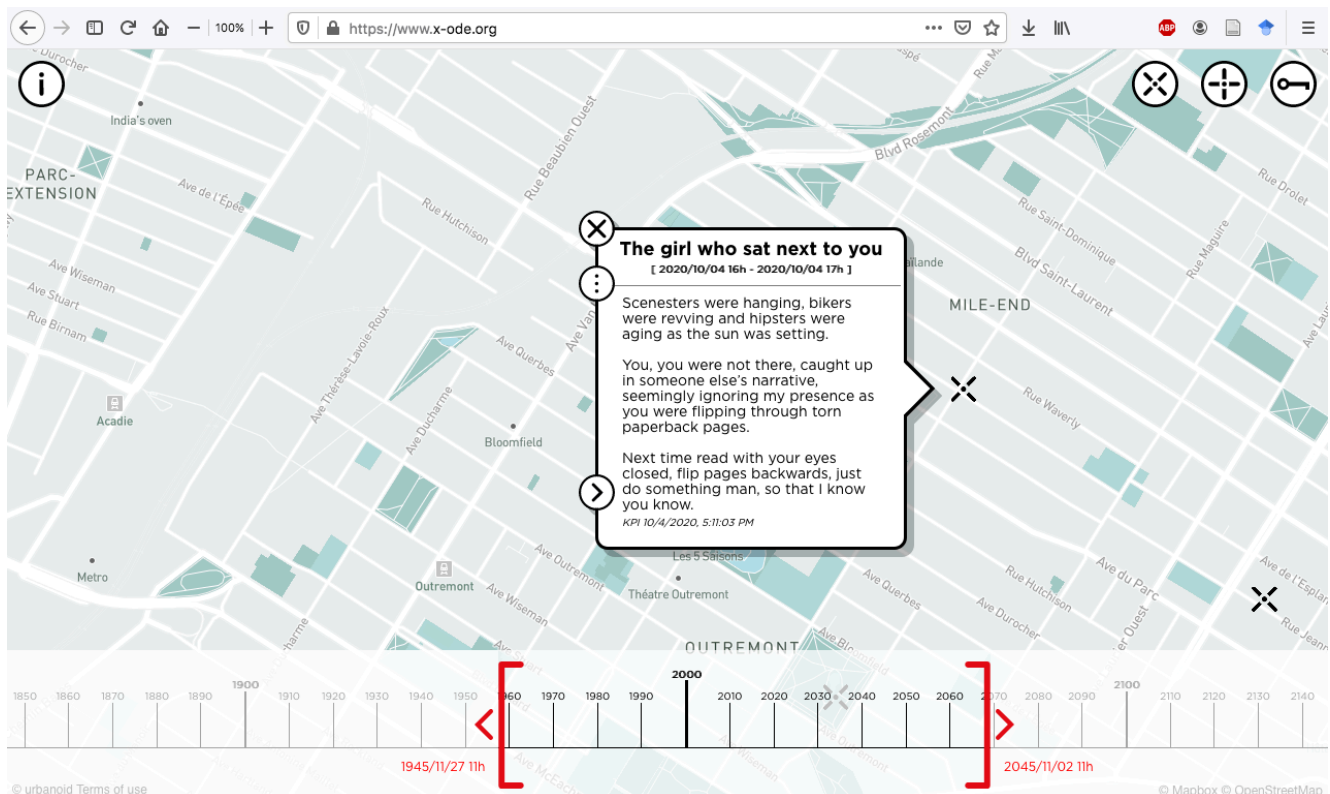


**Image 1.** Screenshot of *x-ode*'s interface featuring a "missed connection" user-generated post in the center, and the "time-glider" in the bottom.

As Albury et al. (2017, p. 3) discuss, be it through the cinema, magazine and newspaper classifieds, or smartphones, humans have relied on the technologies of their time to meet potential mates and partners. Today, mobile devices enabled with WI-FI, GPS, and Bluethooth are aiding in the search for connection, love, romance, and intimacy—particularly through online dating apps.

Moreover, Hobbs, Owen, and Gerber (2017) argue that online dating apps have positively increased our opportunities to meet potential mates—in an ongoing process that they call *networked intimacy.* The concept of networked intimacy alludes to the "flirting, courtship and ongoing search for love and fulfilment via dating apps [which] brings new freedoms, opportunities and pleasures, as well

as old and new anxieties about risk, self-image and love" (p. 282).

While not a dating app in the strict sense, *x-ode* could find a place in today's digital culture of dating. The *x-ode* web app, which emerges from the simple idea (and philosophy) of the 1990's Craigslist "missed connections" chat forum, provides a new set of location- and time-sensitive considerations, sensitivities, and technologies that mediate the search for love and connection among users-players. In other words, while not strictly embodying the features and aesthetics of today's online dating apps, *x-ode* could very well be(come) a tool used in our process of networked intimacy.

As a locative media, *x-ode* concentrates on social interaction with(in) a specific place through mobile technology. In the platform's particular case, this interaction is carried out mostly through user-generated narrative content which oftentimes describes the setting in which a social encounter (e.g., a missed connection) takes place. This spatially-centred narrative is imbued with meaning, and memory as setting, action, and characters interplay—just as they would in a novel, poem, or fiction.

Thus, a platform like *x-ode* naturally touches on the 'narrative layer' of cities. As architectural designers Dimitrios Makris and Maria Moira (2018) point out, urban environments have complex multi-layered socio-cultural characters in which numerous values and content are experienced (p. 16). Put differently, the city is a palimpsest in which the various cultural, political, social, economic, and aesthetic knowledges and (lived) experiences of urbanites are constantly being written, overwritten, and effaced.

Building on de Certeau (1984), Makris and Moira point out that urban places can be approached as narrative stories that can simultaneously enrich a city's identity while also helping to unveil the relationships, perspectives, and meaning that urban sites contain (2018, p. 16). Furthermore, narrative (e.g., novels and poetry about cities, or set on cities) can also "make possible the emergence of a subjective experience of places [by allowing the reader to] live within such spatio-temporal and psycho-geographical environments" (p. 17).

Hence, another potential use and implication of a platform like *x-ode* touches on the collective construction of a place's identity. As users-players create posts and share their own narratives, a particular city is being created—or written (intentionally, or not). Thus, *x-ode* could potentially become a tool to capture and perhaps amplify the ideas and feelings of people from a particular place and time.

Moreover, Kars Alfrink's (2014) discussion on (re-)appropriation of space through 'soft urbanism' provides an interesting take on the collaborative and contested nature of a place's identity (or spatial narrative) construction process. In his book chapter "The Gameful City," the author discusses the tensions that emerge between the back and forth conversation that takes place between a municipal institution's desire for legibility in urban space (e.g. top-down urban design, official

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histories of places, etc.) and local residents' particular uses and knowledge on the ground—which is commonly framed as illegible when it doesn't quite fit with the institutions' desires and official versions (p. 527-8). While certainly not modifying the physical (built) form of a city, a platform such as *x-ode* permits urbanites to re-write place on their own terms—potentially making place 'illegible'—if only in the digital sphere.

Moreover, this idea is similarly explored by performance theorist and theatre professor Joanne Tompkins' (2009) notion of imagined cities. By utilizing macropoetics, that is, "[a] strategy to understand the phenomenology and history of cities through acts of cultural and literary making*"* (p. 188) imagined cities can be created within theatre capable to represent and mirror our real cities, and allowing the  generation of new and alternative cultural memories.

Interestingly enough, by incorporating elements of time-travel (or time-setting), a platform like *x-ode* operates not only spatially, but also temporally—touching on notions of collective memory and futuristic speculation. Users-players can re-write history (for example, from an indigenous or queer perspective) or speculate about possible futures (for instance, from a post-human standpoint). This feature opens up avenues of cyber narrative-advocacy and re-appropriation of time, providing agency to the urbanites-users-players. As professor of digital creativity Martin Rieser (2012) puts it, "even the use of passive, simple code-based technologies can give agency to the public and create a new type of embedded history" (p. 177).

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