Some digital literature questions for the digital humanities

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ABSTRACT

In examining the rise of new forms of digital literature which take advantage of contemporary ubiquitous technologies, the ambient literature project raises questions regarding how digital and interactive literature can be studied and understood as a form of practice based research contained within the idea of the digital humanities. Building on existing approaches in locative and interactive narrative, ambient literature provides an umbrella term for works which incorporate the situation and context of the reader within the work itself. Through the commissioning of three literary works which target the specific formal and generic claims put forward by the concept of ambient literature, the research project makes use of design-based research techniques developed in the area of human-computer interaction in order to understand these new forms of variable and interactive works of literature. In this, the ambient literature project provides a model for how the field of the digital humanities might take advantage of an expanded set of computational methods in order to study novel forms of contemporary literature.

Introduction

What I want to talk about here today is the way in which the idea of the digital humanities might be expanded or altered based on some of the work that we have been doing around the ambient literature project. In casting the work of the project as a kind of practice-based digital humanities research, I want to look at how these new forms of digital literature pose a challenge to both

traditional and the computational analysis of literature, particularly as they take advantage of contextual, embodied, situated, serendipitous, and networked approaches which escape easy formal or computational analysis. Toward this, I'm going to talk about the way in which research methods in human-computer interaction can help answer some of the unique questions about literature that these kinds of responsive and interactive literary works pose.

The Digital Humanities

As it has developed out of humanities computing, the field of digital humanities has been committed to establishing computationally-based methods for the modeling and analysis of data generated from research in the humanities. In this, the aim is to produce computational tools by which researchers (and potentially the public as well) are able to answer questions and better understand the humanistic objects of their attention. As Constance Crompton, Richard J. Lane, and Ray Siemens (2016b) put it in introducing a recent collection of essays on the topic, the digital humanities have a "methodological commitment to thinking and theorizing through making" (p. 1).

For the study of literature in the digital humanities, this focus on "making" has facilitated the rise of a number of distinct approaches, including tools for text and network analysis used in distant reading, techniques of scanning and archivization that have allowed wider access and easier engagement with rare manuscripts, and digital tools to facilitate public engagement with literary research. In all of these approaches, techniques developed from computer science are used to collect, formalize, and re-order humanities data for the purposes of preservation, analysis, and

dissemination. These tools offer a chance to find new approaches to old questions and to ask questions that might not have been previously answerable.

Electronic Literature in the Digital Humanities

In general, forms of electronic literature (such as ambient literature) present a unique case for the digital humanities. After all, they are humanistic works which are (almost by definition) digital and are as often as not included in accounts of the digital humanities (compare (Terras, Nyhan, & Vanhoutte, 2013) and (Crompton, Lane, & Siemens, 2016a), for example). Works of electronic literature are made from the same computational fabric as the analytic tools of the digital humanities, while simultaneously being open to analysis by those tools.

What is important for us here are the ways in which works of electronic literature present challenges for modeling and analysis through computational methods. Such challenges include the variability of a digital text, the reliance on human interaction within a work, and, as I'll discuss in more depth in relation to the ambient literature project, how the ambiguities of a reader's context may be formalized as part of computationally driven work. At the same time that they pose a challenge to established methods in the digital humanities, works of electronic literature also present, as I would like to argue here, a unique opportunity for the digital humanities to think about how to adapt a further set of methodologies from computer science, specifically human-computer interaction design research. In particular, I want to focus on how interactive or experientially-driven works of literature offer a new way for thinking about what the digital humanities might ultimately come to achieve. In doing this, I want to consider how the

ambient literature project employs a form of practice based research combined with the kind of qualitative examination common in human-computer interaction. By doing so, the project is able to examine the question of the constitutive relationship between a literary work and the context of the reader.

Ambient Literature

To start, I want to describe the Ambient Literature project and talk a little bit about how it works. The Ambient Literature project is a two-year research partnership between Bath Spa University, the University of the West of England, and Birmingham University. The project is designed to instantiate and study emergent forms of literary practice which address connections between readers, context, and the digital networks that exist all around them. Clustered under the umbrella of "ambient literature," these practices include techniques and technologies developed out of digital literature, ubiquitous computing, immersive theater, locative narrative, psychogeography, alternate reality games, place based and somatic poetry practices, transmedial works, and other modes of literary production in which the situated and enacted context of the reader comes to play a role in the execution of the thematic developed by the literary work (Abba, 2015; Dovey, 2016). As a whole, ambient literature can be understood as a mode of electronic literature which relies on communication networks, sensors, and other informational and computational tools in order to connect works of literature with the context of the reader in order to create evocative and meaningful experiences. Toward this, ambient literature is open to incorporating a wide array of textual and extra-textual practices and settings, including

smartphone apps, audio, printed books, and (importantly) the world around the reader.

As it has been designed, the work of the project is not just focused on the examination of existing works which might fall under the banner of ambient literature, but it is to engage with and develop the idea of what ambient literature *can be* through a form of practice based research. In this, the project is built around the development of three commissioned works from three different authors, each of which, in different ways, exemplify how "ambient literature" might be understood. Guided by discussions about ambient literature and the kinds of practices that might be included within it, the authors of commissions have been encouraged to explore the space carved out under the idea of ambient literature. While they have been specifically encouraged to consider the ways in which the context of the reader can be understood in all its forms ranging from the locational and situational to the historical and global, the authors have been left to conceive of and complete the works as they see fit: even as they are directed by the aims of the research and work with technology development partners, they are left to be the authors of their own works. In turn, these works are used as research probes, with a program of qualitative empirical research developed around them, designed to study the ways in which readers actually engage with the works.

The Commmissions

I want to talk briefly about each of the three commissions to give you a sense of what they look like and the way in which they each address the question of how literary works can interact with the situated context of the reader. In this, I want to focus not on the literary or fictional elements

of the works, but more on the interactive mechanisms and perspectives on context that each commission offers. Of the three commissions, the first by Duncan Speakman has been completed, with the others by James Attlee and Kate Pullinger scheduled to be completed in September and November of this year. While they all strike different stylistic and topical poses, each of the works rely on the array of computational and interactive affordances offered by smartphones toward the exploration of how the situated context of a reader can function as a part of a literary work.

Scheduled to be completed in September, James Attlee's commission presents a work of fiction that weaves together photos taken by his father in the 1940s, shaping a story laid across the geographical terrain of London covered by those photos. As they are guided through the city by a smartphone application, readers rediscover the locations represented by those historical photographs as they exist today. In this, there is a link drawn between the historical period represented in the photographs, the contemporary landscape of London as experienced by readers, and the fictional world James is creating.

This can be contrast with Kate's project, which takes a different perspective on the question of readerly context, focusing interaction within a single room, pinning the question of context to the communicative affordances of the smartphone and the way in which we interact with such devices in more intimate settings. Where James's work addresses the broad locational and historical concerns of context — of how readers incorporate places and their history into a work of narrative fiction — Kate's project looks more closely at the ways that smartphones themselves

create context, both in their ever-present proximity to us and the way in which they take advantage of global communication networks to bring distant contexts and events close to hand.

In attending to this question of how different contextual frames given by both the situation of the reader and the situation laid out in the literary work interact, Duncan Speakman takes yet another different approach to the interaction of contextual frames in his commission, *It Must Have Been Dark by Then*, that was just completed last month. Comprised of both a printed book and a smartphone application, the work guides readers across several waypoints that are laid out around them. As readers find their way between these imaginary points algorithmically laid atop the really-existing landscape of their surroundings, the audio soundscape and text of the work interleave the author's experience traveling in Latvia, Louisiana, and Tunisia and with the immediate location of the reader. Where James's piece connects the location of readers to the history of specific places in London, Duncan's work overlays an experience of these three different locals onto wherever the reader happens to be, shifting the reader's attention between the printed book, the audio soundscape, the smartphone application, and their actual surroundings.

In all three of these works, each in different ways, there is an explicit consideration of how the situated context of a reader can be brought into and be part of a literary experience. What is important here is that the sense of context that is engaged by these works is not simply a physical sense of context, but one which engages the kinds of historical, networked, and ultimately global contexts within which these works are experienced. More than just being written text, these are

pieces of literature which are occurrences in partnership with the reader. In all cases, these are works which are only finally instantiated through the interaction between the authorial text and the context provided by the reader.

Understanding Ambient Literature

This move of the final site of a work's creation from the metaphorical tip of the writer's pen to the situated site of contextual engagement can be understood as being part of a broader trend noted by Alan Kirby (2009) in his conception of "digimodernism." As he puts it:

> The digimodernist text in its pure form is made up to a varying degree by the reader or viewer or textual consumer. This figure becomes authorial in this sense: s/he makes text where none existed before. It isn't that his/her reading is of a kind to suggest meanings; there is no metaphor here. In an act distinct from their act of reading or viewing, such a reader or viewer gives to the world textual content or shapes the development and progress of a text in visible form. This content is tangible; the act is physical. (p. 51)

The implications of this kind of responsiveness being part of a digital text is given a slightly different emphasis by Patrick Jagoda (2016) as he discusses an even broader cluster of media forms under the label of "network aesthetics." For Jagoda, such works take advantage of the kinds of connections and exchanges made possible through contemporary network technologies in order to produce dynamic and meaningful encounters. As Jagoda has it (with a reference to EM Forester's imperative to "only connect!"),

[i]n an early twenty-first century world saturated increasingly by always-on computing, pervasive social media, and persistent virtual worlds, connection is less an imperative than it is the infrastructural basis of everyday life. In place of the choice implicit in the insistence that we only connect, we are now reminded constantly of the alleged fait accompli of interconnection. (p. 2)

For Jagoda, this contemporary status quo of the always-on connection inflects the creation of transmedia work, literature, video games, and other forms of media. In deploying Fredric Jameson's concept of "cognitive mapping" to explore how these kinds of works run along the terrain of contemporary culture, Jagoda argues that in their diffuse refractions, these networked works provide "a theoretical way of knowing the world without accurately representing it" (p. 26). Cast at a lower level of analysis than that of the cultural, works of ambient literature come to function according to a similar logic, tracing and engaging the immediate context of the reader in a non-representative fashion.

As illustrated through the three commissions, works of ambient literature engage both a digimodernist push toward the interactive creation of the literary text and a networked aesthetic of emergent connectivity.

In reaching out and specifically engaging wide networks of socio-technical relations and relying on contemporary network infrastructures, these literary works repeat a question posed by Jagoda when he asks:

> How do we understand networks when we treat them as forms through which people daily encounter, manage, and construct quasi-anonymous forms of being — whether the ambient reciprocities afforded by social media such as Facebook or uncertain feelings about the vicissitudes of the global economy? (p. 7)

This question concerning the "ambient reciprocities" of networks lays at the heart of ambient literature, particularly as the networks engaged by these works are not just traditional networks of people or data, but are rather broader networks of context. This conception of a contextual network calls to mind both Ron Day's (2001) critique of the conduit theory of information and Christopher Johnson's (1993) reading of Jacques Derrida as positing a systems-theory perspective by another name.

For researchers and others trying to understand these kinds of works, what does it mean when the form of a work relies on distributed networks, unknown and uncontrollable contexts, and the interactive completion of a work by readers?

It is precisely this difficulty of identifying a central "thing" of a work of ambient literature that poses a challenge to both classical and computational approaches to literary research. As these

works rely on the enacted context of the reader as it is embedded within wider contexts of global communication networks, in each instance, these works are always different with different implications and different meanings. How can they be reliably read?

With this consideration of the broad contextual networks that are activated by works of ambient literature, I want to turn to the question of how to study such works and how this points toward an expansion of the idea of the digital humanities to include approaches developed in human computer interaction.

Ambient Literature and HCI

In that they have an explicit mandate toward the inclusion and manipulation of networks of contexts, works of ambient literature elude many of the traditional methods of the digital humanities, particularly in that the unbounded nature of context confounds attempts at formal modeling.

Though I don't want to dwell too much on it here, the question of the formalization of context has been an issue in human computer interaction (HCI) research for at least 30 years now (Agre, 2001; Chalmers, 2004; Dourish, 2004; Suchman, 1987; Winograd & Flores, 1986) and in artificial intelligence research for even longer (Dreyfus, 1979). And in each case there is no fully satisfying resolution in sight. The idea of context and the influence that the context of use might have on the function of an application is especially important with the rise of mobile computing: a classic example of this problem is how to properly automate the silencing of telephone ringers

in theaters and other similar shared environments. In this, you have to think about doctors who are on call, workers doing work in a theater after hours, or how noisy a restaurant has to be before ringing phones are no longer a nuisance? The best solutions usually combine approaches which leverage a blunt formalization of the context of use (such as simple location or proximity) with an interpretive opening to allow for human user to be the final arbiter of the actual question of context. The difficulty of the question of context and the way in which it is embroiled with the intention of human meaning is well established, particularly as the impossibility of any final context is at the heart of both Hans-Georg Gadamer's (2004) and Derrida's (1997) accounts of meaning.

For practically-minded work in human-computer interaction, all of these concerns regarding context point toward the necessity for the careful examination of the real life conditions of use. One of the most famous examples that reinforces this comes in the 1990s from research around the design of computerized systems for aircraft control (Bentley et al., 1992; Kling, 2007; Stix, 1994). The aim was to replace antiquated paper systems with computer displays to help controllers better perform their work. In this case, the existing formal workflow described by the controllers which involved the passing of paper slips with flight information around the control booth as aircraft moved in and out of certain zones left out the importance that the physical visibility of the paper slips themselves played in supporting the controllers' situational awareness of where other controllers were tracking aircraft as they looked around the room. Initial design work for computerized control systems which captured the specific informational content of the paper slips but neglected to incorporate the important role that the slips themselves played in

supporting awareness proved to be a failure. It was only through subsequent ethnographic analysis of work practices that the source of the failure of the system design work was discovered.

Cases such as this one along with an expansion of computing to a wider set of domains (Grudin, 1990) prompted a reevaluation of the methods used in human-computer interaction research, directing researches away from (though not entirely) lab-based studies of psychology and cognition and toward more *in situ* studies. Through the use of ethnographic and other methods developed from the social sciences and anthropology, human-computer interaction research began to capture not only static, representative, and formalized information practices, but also the situated and contextual awareness that the movement of information itself illustrated.

For human-computer interaction, this emphasis on the explicitly situated analysis of interaction paradigms proved to be a challenge, particularly when it came to the portability and communication of any theoretical findings (Dourish, 2006). Toward this, John Carroll and Wendy Kellogg (1989), put forward the idea of using the technological artifact which was itself the object of research as the mechanism for capturing theoretical knowledge. When produced through programs of design-based research these artifacts were, in their use, considered to make multiple and specific theoretical claims regarding how people interacted with technology. In this, the computational artifacts were seen as providing a model of human-computer behavior.

Ambient Literature as a Model for the Digital Humanities

It is in this that the challenge posed to the digital humanities by something like ambient literature begins to open up. Even while the inclusion of a reader's context is what makes the analysis of a work of ambient literature difficult when using the common methodologies of the digital humanities (such as text mining, plotting literature within a geographical information system, etc.), it also points toward a new way of thinking about the digital humanities. "Making" works of digital literature comes to mirror the "making" of tools in the digital humanities in that each process of "making" aims to theorize literature, albeit in different ways. Whereas the classical approach in the digital humanities is to make a computational tool which allows for the theorization of a static and bounded corpus representing any number of works, the approach put forward in the ambient literature project involves using computational methods to create and study individual works which illustrate a particular theoretical perspective which might prove difficult to formalize through other methods.

Instead of using digital tools in the classic digital humanities sense of capturing and modeling data from existing works (as in a network graph of character relationships in Shakespeare (Moretti, 2011), for instance), we're using digital tools to model the conditions of a certain kind of theoretical interaction between literature and context. The development of these digital models is then able to support the qualitative evaluation of how those models are engaged by readers in the real world.

In the end, what the work of the ambient literature project puts forward is an example of a model of the making of digital tools in service of the digital humanities that remains true to the formal

aims of the digital humanities, while also opening the field to include a wider berth of methods from computer science. By commissioning works meant to embody specific theoretical directions and offering these works up to be studied as literature through qualitative and ethnographic approaches, it becomes possible to interrogate contextual and networked literary works.

Just as Carroll and Kellogg saw the possibility in HCI for building artifacts which embodied and developed HCI theory as a way to reconcile an overdetermination of theoretical influence, there is today likewise an opportunity to embody literary theory in digital forms.

That artifacts might embody or model some theoretical position is not a radically new idea, particularly in that it is simply the inverse of the long tradition of research in the humanities in which theories are developed from the study of literary or art objects. The approach detailed here simply begins to turn that established progression around and fosters the impulse given in the digital humanities to express what we know about electronic literature in digital form.

Research in electronic literature which focuses on the creation of evocative digital works that address specific theoretical questions, opening these areas up to study, provides a model for a new kind of digital humanities. Ambient literature is one such model that uses digital tools to establish formal systems that both embody theoretical perspectives and allow for the qualitative examination of works as they emerge through engagement with the reader. Set alongside established practices in the digital humanities, this practice based model for research offers new

ways for thinking about how to read literature and what that means for the study of interactive and contextual works.

Acknowledgements

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