The Image of the Data City
Perception in Shared Information Spaces

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Abstract. This paper will outline some areas of potential research into the study of how people perceive the information spaces of commerce, communication and citizenship they inhabit. We will share some examples of initial research in this direction, from our own work and that of others.

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1 Introduction

In order to design smart cities that are usable and inclusive, we will need to better understand how people comprehend and navigate not only the layout of their virtual and physical streets, but the databases, archives and streams these streets intersect.

As citizens and consumers, people regularly engage in problem solving their position and visibility in spaces comprised of shared data and communication. Just as the 20th Century saw the emergence of design principles for shared spaces based on human perception of space and place, the present moment requires study of how citizens understand their location in dataspace, their "footprint." Users of search engines, social networking sites and even utility consumers increasingly monitor and make decisions in relation to the exposure, visibility, and availability of their data.

2 Sample Cases

Most online experiences are now heavily curated and conditioned by personal data, including data that users don't know they are providing, such as the physical location of your network connection. Are people aware of this curation? (i.e. "*Doesn't everyone see the same posts on Facebook if they are friends?*" "*Aren't all Facebook posts simply listed in chronological order?*")

When monitoring a stream of algorithmically curated news updates, how does a reader understand the composition of what she is missing, what she is seeing? (i.e. *"Is everyone seeing this? Or did I just find a unique thing that I should share?"*)

When pushing out content to social networking sites, how does a person determine the size and shape of her audience? (i.e. *"I'll post this here so everyone will see it."*)

We "share" information about ourselves through a proliferation of passive and active trails through the world. How do consumers establish a "self-image" of what can be seen, and by whom, in the context of acting according to contextual privacy norms, or taking steps to secure privacy? (i.e. *"It would be weird for me share this post right now."*)

How does a person establish and perceive the boundaries between distinct domains that contain her activity and history? (i.e. *"I don't know how this website knows that about me, but I'm not comfortable with it."*)

When deciding what to share with whom through setting preferences and privileges, how much complexity can a person comprehend? (i.e. *"It's too complicated to even figure out who's going to see this post, and I don't want everyone to see it, so I'm just not going to share it."*)

How does a person decide when search results are trustworthy? (i.e. *"These look like ads based on sites I've visited lately, not the results that someone else would see."*)

3 Summary

The 20th Century saw a new interest in cities as *legible* spaces. A variety of conflicting interests turned to the cognitive and social sciences to form a better understanding of how people know and navigate the spaces and places they inhabit. The results included new formal languages, metaphors, and critical frameworks for urban and environmental design.

The 21st Century needs another such push - this time into understanding how humans comprehend and navigate their *data spaces* - the streams, domains, boundaries and indexes required of modern digital citizenship. Where designers and technologists once imagined a future of applying urban design principles to the construction of virtual spaces, a whole new range of urgent design questions have emerged not around the problems of designing for avatars in virtual reality, but around our lives as bearers of user accounts and profiles in an explosion of private and public online services.

The completed paper will outline some areas of potential research into the study of how people perceive the spaces of commerce, communication and citizenship they inhabit. We will share some examples of initial research in this direction, from our own work and that of others.