

Preface

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This book offers a pathbreaking collection of research and theory about the emerging field of urban informatics; its form provides a material artifact that intervenes in the digital realms of communities, cities, and spaces around the world from Finland to the United States, Australia, Korea, and Bangladesh. Over the past decade, ubiquitous computing, social media, and mobile technologies have become integral parts of our social lives and work practices, as well as shaping the way we make sense of our cultures and engage as citizens. This book contributes to better understanding the opportunities and challenges provided by the tools, interfaces, methods, and practices of social and mobile technology that enable participation and engagement.

The following chapters illustrate how Web 2.0 applications such as blogs, wikis, video, and photo-sharing sites as well as social networking systems offer an arguably more open, collaborative, personalizable, and therefore more participatory Internet experience than what has previously been possible. Giving rise to a culture of participation, an increasing number of these social applications are now available on mobile phones, where they take advantage of device-specific features such as sensors, location, and context awareness. The scholars, commentators, and practitioners in this book critically examine a range of applications of social and mobile technology such as social networking, mobile interaction, wikis, twitter, blogging, virtual worlds, shared displays, and urban screens, and their role in fostering community activism, civic engagement, and cultural citizenship.

As a material artifact, the book signifies the coming together of an international group of academics and practitioners from a diverse range of disciplines such as computing and engineering, social sciences, design, digital media, and human-computer interaction. In some cases, contributors' connection to the book has developed over the course of a few months through electronic exchanges; for others, it is the result of participation in one of two workshops that preceded the editorial work on this book. The first workshop was titled "Digital Cities 6: Concepts, Methods, and Systems of Urban Informatics" and took place in June 2009 at Pennsylvania State University in University Park, as part of the Fourth International Conference on Communities

and Technologies (C&T 2009). About a month later, in July 2009, an Australian Research Council Human Communication Science Network (ARC HCSNet) workshop, titled “From Social Butterfly to Urban Citizen,” took place at Queensland University of Technology in Brisbane.

First and foremost, this book is about engagement with communities, cities, and spaces through the use of digital tools, applications, and devices. The majority of people on the planet now live in cities, and even in the developing world, mobile phones are now considered to be one of the primary modes of communication. The question of how to harness these technologies for the purpose of engagement is critical. We examine the topic of engagement through the lens of five different themes, which frame the main sections of the book. These are: Theories of Engagement, Civic Engagement, Creative Engagement, Technologies of Engagement, and Design Engagement. This introductory section will give a brief overview of the topics, issues, and themes covered in each section. Additionally, the specific chapters will be described in more detail in the individual section forewords.

Theories of Engagement

What theories and methods are appropriate for understanding the research questions emerging in the field of urban informatics? In this section, authors outline competing theories that have been used to analyze the complex sociotechnical configurations that are abundant in the field of urban informatics. Understanding these nuances, much less designing for them, is a challenging endeavor.

Theoretically, urban informatics research has moved beyond simplistic proclamations of “anytime, anywhere” access to data, information, and networks toward the integration of technologies into meaningful cultural practices contextualized in specific communities, cities, and spaces. From this perspective, the city is spatially constituted as a hybrid that merges digital and physical worlds into a new urban form whose technological and material edges are seemingly invisible without close analysis. At the same time, with the growing use of mobile phones, the city is temporally reorganized according to fluid time rather than fixed, clock time. Similarly, the aesthetic properties of cities are transforming with respect to bodily senses such as sight, touch, and sound. Methodologically, there is a need for experimentation with new combinations of methods in order to capture and analyze data from people, technologies, and environments.

As Dourish and Satchell argue in chapter 2, these changing understandings and social norms offer opportunities for designers to rethink how social technologies might be reframed and embedded with an ideology of a “socially conscious urban citizen.” Whether driven by individual need, compelling applications, or the design of particular technologies or services, mobile technologies offer the potential for

emergent forms of engagement with colocated people, objects, and environments. How can urban informatics support and enable a new urban citizenship?

Civic and Civil Engagement

In this section, authors turn to complementary realms of civic engagement around issues of food, gardening, climate change, citizen science, and activism. These kinds of civic engagement may take the form of publicly displaying information on urban screens and encouraging the participation of passersby, using technology to monitor the use of natural resources for a community, or enabling citizens to collect information about the environments around them. Underlying these different modes of engagement are competing sets of assumptions about the purpose of technology as well as about the nature of the human condition—assumptions drawing on a wide range of disciplines that contribute to the field of urban informatics. For example, what level of participation constitutes civic engagement? How do technologies incorporate the role of users? How are they appropriated, used, and codeveloped for the purposes of civil engagement in ways that have not been anticipated by the designers themselves?

In recent years, food, the environment, and sustainability have been at the forefront of political agendas and, as a result, have been taken up by scholars and practitioners in the field of urban informatics. One of the strengths of urban informatics research is its focus on the nuanced cultural practices of people and on how these practices are enhanced or constrained by technologies. This focus distinguishes the field from the scientific and economic models of sustainability, which, to a great extent, overlook the role of individuals. Specifically, emergent forms of organizing enabled by technology have great potential to contribute to healthier and more sustainable cultural practices.

Creative Engagement

How can technologies help us engage creatively with our families, our communities, our surroundings, and ourselves? This section looks at the narratives, soundscapes, media, and social interactions that make up life in urban centers around the world, including New York, Dubai, Beijing, Dhaka (Bangladesh), Melbourne, Sydney, and Aalborg (Denmark). While a plethora of location-based mobile applications have been introduced over the past decade, the majority are concerned with facilitating seamless mobility, navigation, and connectivity. The contributors to this section articulate the value of hyperlocal new media art projects that challenge the overriding assumptions embedded in the field of urban computing.

Rather than approaching the role of mobile technologies from the perspective of efficiency and productivity, these authors consider the value of play, culture, and lived

experience. According to the chapter on poor Bangladeshi urban youth by Wong and Ling (chapter 15), technology is valued not for its utility but for its role as a “social machine.” While at the individual level, the mobile phone occupies a key role for communicating with others, it also enables communication with interactive and digital objects such as street signs and bus stops as well as augmented reality and urban screens. In chapter 13, Kirwan and Travis describe such an ambient urban ecosystem in their analysis of “urban media” in three cities.

As devices and data move from bodies to buildings, what stories will cities tell about and to their inhabitants? How might this data—gathered from a host of wireless sensors, cameras, and networked computers—be visualized and displayed? Who will be able to participate in its creation, modification, and markup? How can we ensure that the value of play, wandering, and spontaneity is reinforced as the sentient city awakens circuit by circuit, grid by grid?

Technologies of Engagement

How do the technologies and tools of the sentient city allow us to develop new methods for understanding ourselves, our relationships, and social networks as well as the spaces, cities, and zones that we inhabit? Besides developing theoretical constructs, researchers in the field of urban informatics must also use the technologies they study in order to devise new research methods. From combining ethnographic and observational data gathered at the ground level to analyzing the flows of digital traffic in networked urban spaces, the authors in this section describe new ways of using GPS, RFID, Bluetooth, social networks, and wireless hotspots as well as the technological agendas of the Korean u-city, or ubiquitous city.

Methodological innovations have great value for advancing the field of urban informatics. While social scientists are typically trained to master only one method—for example, qualitative or quantitative research—scholars in other disciplines such as computer science or design have a greater opportunity to blend a variety of methods. This combination of techniques is vital in emergent research areas in which little is known about the subject yet the opportunities for data gathering are wide and underexplored.

Should researchers in urban informatics conduct interviews, build applications, deploy networks, or use some combination of these activities? How should they do this and in what order? By analyzing the technological details of ongoing projects, is it possible to develop better and more focused plans for research and interventions in urban environments? It is becoming more and more clear that researchers in the field of urban informatics must not only strive to develop hybrid sociotechnical (and spatial) theoretical concepts but also gain competency in a wide range of methods in order to do justice to their research subjects. It is this challenge as well as the

excitement of designing new ways of knowing that makes urban informatics such a promising and engaging topic for study.

Design Engagement

Design research approaches and interventions offer a valuable way of learning about and informing the development of sentient cities. In this section, authors explore a range of design interventions in urban settings including the introduction of interaction portals and robots as well as the use of personas, charettes, and other design research techniques in order to prompt the design of mobile offices and residential dwellings. As mentioned above, design researchers have the flexibility of integrating a wide range of concepts and methods into a human-centered, iterative, agile, and interdisciplinary approach. For example, ethnography and qualitative research are often combined with highly visual activities such as mapping, prototyping, scenario planning, and personas. As design has moved from the aesthetics of graphics and usability of interfaces to creation of services and modeling of organizations and systems, it has become even more valuable to the study of urban informatics.

When understood at the level of systems, sentient cities are amenable to an Actor Network Theory (ANT) approach to evaluating the roles and interactions of people, technologies, and the built environment. As DiSalvo and Lukens argue, a “nonanthropocentric” approach is useful to grapple with the role of robots in allowing participants to see and sense the city. In addition to augmenting human awareness of the built environment, technology mediates copresence and awareness among people in public spaces through mobile social network applications such as Foursquare and interactive urban screens. As designers of spaces, technologies, and activities become more deeply engaged in the future lives of cities, it is likely that design approaches will allow us to better articulate and visualize the complex nature of sociotechnical and spatial relations.

Conclusion

Editing a book in an emerging area such as urban informatics is a challenging but exciting process. It is an exercise in attempting to draw boundaries around a field that may not yet exist. The themes, topics, and authors included in this volume are slices of a broad range of academic disciplines, theoretical traditions, and geographies around the world. While our work will sit side by side on the pages of the book, it is unlikely that we will all ever be in the same room. As many of the following chapters illustrate, urban informatics is characterized by a distinctly physical, material, and spatial relationship to technology and sociocultural practices. In the case of this book,

its materiality is symbolic of a complex arrangement of social relations, technologies, and spaces.

The editors and authors of this book share a passion for understanding how people are increasingly bound up in complex sociotechnical relations in our communities, cities, and spaces as well as a fundamental concern that the technologies embedded in our everyday social lives should also enable us to engage critically, civically, and deeply with the current problems of the world. To achieve this, it is necessary to develop new concepts, theories, and methods suitable for understanding the relationships between people, technologies, and environments in concert with one another.

Hybrid theories and mixed methods offer great potential for enhancing the understanding of research subjects in the area of urban informatics. Yet, while concepts such as sociotechnical assemblages can help to steer scholars away from overly technodeterministic language, it is desirable to go much further in specifying related concepts and theories. And, while most of us would agree that sentient cities are deeply sociotechnical, it is still necessary to “zoom in,” so to speak, on the exact relationship that one is studying rather than continuing to be mired in the messy and mind-boggling details. Are you mainly concerned with people? With technologies? With places? A greater and deeper focus on the core actors that you seek to understand—while keeping the overarching communicative ecology of urban informatics in mind—will greatly increase the scope, reach, impact, and value of the research. Furthermore, and in tandem with the need for a wide range of concepts that articulate the sentient city, urban informaticians are forever the inventors of new methodologies for conceiving of projects, gathering various types of data, and analyzing that data. For many of us, using the technologies we study in our daily lives as well as in research settings will allow these methods to emerge and bring great value to our research.

Our work is made significantly more challenging by the fact that our research subject is moving quickly as social norms and technologies are continually changing. At the same time, a great sense of opportunity, innovation, collaboration, and risk taking is associated with the emergence of new fields of research. It would be too difficult to forge such a path alone, and thus we are both grateful and fortunate to have included the work of so many of our colleagues around the world. Like butterflies themselves, we believe that the research presented in this book will travel across great distances and pollinate minds, universities, and academic disciplines.