

The Model is the Message: Modelling and the Future of Humanities Scholarship

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Abstract

The increasing prevalence of computer models within humanities research has raised a number of challenges for humanities scholars. Chief among them are the ways in which computational modelling fundamentally transforms the conventional methodologies and epistemological frameworks that have long defined research within the humanities. In *Modelling Between Digital and Humanities: Thinking in Practice* (2023), Arianna Ciula, Øyvind Eide, Cristina Marras, and Patrick Sahle evaluate the impact of this paradigm shift on humanities scholarship and varying strategies for addressing the challenges that it presents. In particular, the authors take up the idea of formulating a new digital humanities mode of thinking that can enable the humanities to adapt and thrive in the digital age while retaining their core values.

Introduction

Whether it be models of climate patterns, viral pandemics, or economic systems, computer models have fundamentally transformed how we approach and interpret complex phenomena while simultaneously challenging traditional notions of knowledge and authority. As Marshall McLuhan once warned about the influence of electronic communications, “The medium is the message” [McLuhan 2010]. In this specific instance, the model has become the message as the very act of modelling has and continues to reshape the way(s) in which we perceive, interpret, and engage with a particular subject matter, influencing our understanding of reality itself. The increasing influence of computer models over knowledge acquisition, thus, raises critical questions about our growing reliance on computational methodologies and their algorithmic thinking. 1

How can we effectively create models that balance computational efficiency with the complexity and nuances inherent in the subjects we study? How can we ensure that such models accurately represent diverse perspectives and account for ethical considerations? What is potentially lost in the paradigm shift to computational methodologies and how can we account for those losses? In *Modelling Between Digital and Humanities: Thinking in Practice*, Arianna Ciula, Øyvind Eide, Cristina Marras, and Patrick Sahle take up such questions and explore the digital humanities' critical role in addressing the challenges presented by computer modelling [Ciula et al. 2023]. 2

Computer Modelling's Challenge for the Humanities

When it comes to addressing the above questions, the book's emphasis on the humanities' significance for computer modelling may at first seem somewhat unexpected, with the humanities often assumed to exist in diametric tension with such algorithmic thinking. Yet, modelling's origins, in fact, reside within the humanities where scholars have historically pioneered conceptual modelling and narrative construction models as analytical tools. As the authors explain: 3

The use of models and the process of modelling have a long tradition in the humanities. Going back to early modern Europe, the use of models in what could be called scholarship in “the Humanities” included modelling in natural philosophy, which later developed into the natural sciences. [Ciula et

It was, ultimately, the humanities, with their focus on conceptualization, interpretation, and narrative construction that would lay the epistemological groundwork needed for the development and application of modelling techniques across various disciplines.

That disjuncture between modelling's historical significance for humanities disciplines and contemporary perceptions of the humanities' tension with modelling raises important questions about the causes of any such tension as well as the need for a larger analysis of modelling's history and potential for the humanities. In that light, the book devotes significant attention to examining how formalization, or the process by which data are structured for computational analysis, have contributed to the perceived tension. 4

Formalization is essential for populating computer systems with data, yet it also entails a fundamental transformation of the objects of study, altering their interpretive possibilities in ways that necessitate critical reflection. Describing the process, the authors explain: 5

In these processes of modelling for operationalisation, the change of the sources (loss of variation, gain of processability) thus enables formal processing and at the same time highlights what cannot (within the limitations of specific processing methods) be formalised and thus is left behind. [Ciula et al. 2023, 4]

Computers do not just change objects of study, but they transform them into something entirely new and different from what they were before. Following the book's argument, their transformation necessitates a new digital humanities mode of thinking that can account for the shift and specifically address the loss of contextualization that occurs when humanities research is subjected to computational methods. This loss of contextualization presents a significant challenge to humanities research in that it leads to the very loss of cultural knowledge and context that is necessary to conduct humanities research in the first place. As systems design engineer and media theorist Wendy Chun has explained, formalization routinely leads to the conflation of correlation with causation because the complex socio-cultural factors that influence data are lost. As a result, the underlying causes behind the data are misinterpreted and obfuscated [Chun 2021]. In Chun's words, "If almost anything can be shown to be real, if almost any correlation can be discovered, how do we know what is true?" [Chun 2021, 51].

In an age where cultural knowledge is increasingly mediated through computational algorithms, Chun's warning underscores the importance of understanding the limitations of their formalization process. Indeed, much of *Modelling Between Digital and Humanities* is devoted to addressing such concerns and laying the groundwork for a new digital humanities mode of thinking in the aftermath of large-scale distrust of computational biases and errors. The authors are particularly invested in the creation of a mode of thinking that can effectively balance interpretative and computational approaches, addressing the challenges of formalization while simultaneously yielding new insights and methodologies that enhance humanities scholarship. 6

“Thinking in Practice”

Growing out of the authors' practical experience working collaboratively together on digital humanities projects, the book offers a “thinking in practice” approach or, more specifically, grounds its theoretical arguments in practical research strategies that were cultivated through experimentation, iterative refinement, and reflective engagement with modelling. Balancing theoretical approaches with more practical concerns enables the book to capture the complexity of modelling for humanities research while also providing tangible ways for humanities scholars to integrate such methodologies into their research. 7

The authors' balanced approach is reflected in the book's basic organizational structure around the theoretical and practical challenges of modelling as well as its untapped potential for humanities research. The first three chapters lay the theoretical groundwork for the book, focusing on language, metaphor, and semiotics as critical aspects for understanding modelling's history and its larger role in the history of humanities research. The first chapters offer critical 8

insight into the relationship between language and modelling, as the authors define modelling as a “process of translation and in particular of interpretation in the sense that it makes understandable facts and data correlated by the model” [Ciula et al. 2023, 40]. Here natural language plays a critical role in mediating the meaning between data and the model itself, ultimately providing the very framework for which meaning can be constructed and shared.

In Chapter Two, the authors develop that insight further and explore the central and indispensable role of metaphor in modelling, since it enables us to make sense of abstract, intangible phenomena and simplify complex subjects. While metaphor has routinely been the subject of study in humanities research, the book offers important insight into what is referred to as “pragmatic metaphorical modelling”, or an approach to metaphor that goes beyond analogy by rethinking disciplinary boundaries and thus reshaping the ways in which knowledge is organized and understood. In particular, the authors explain how metaphor is intrinsically involved in computational settings where visual and textual aids, as in the case of diagrams, are used to make objects interpretable to humans.

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It is in this discussion of metaphor that the authors capture a key insight about modelling when it comes to the interpretation of data. As they explain, modelling’s act of interpretation ultimately implies translation as the action provides the very foundation upon which modelling finds its resonance and purpose, bridging the “dichotomy between formal and informal, object and theory, physical and mental” [Ciula et al. 2023, 58]. Moreover, as a process of translation, modelling has semiotic implications in that models function as icons, conveying meaning through representation and symbolic abstraction. Understanding the iconicity of modelling, as the book makes clear in Chapter Three, enables researchers to recognize the multiple layers of meaning embedded into these representations, ultimately facilitating more dynamic and diverse interpretations.

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That insight is developed in Chapter Four where the authors explain how modelling ultimately leads to the development of complex media products where texts are transformed into interactive visualizations, transformed by the constraints and interpretive frameworks of their modality. In the case of virtual reality (VR), the book offers an interesting example of virtual puppets from the Theatre Collection of the University of Cologne that demonstrate the varying ways in which VR provides enhanced levels of immersion and interactivity that allow users to engage with models in much more dynamic and immersive ways. In transforming textual representations into dynamic and interactive visualizations, such VR models are introducing material and sensorial modalities that reformulate representation around embodied experience and expand the possibilities of what humanities research might look like in the future as modelling continues to favor dynamic visualizations.

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The Visual Turn

The book’s emphasis on visualization and computation’s impacts on humanities scholarship’s more text-centric methodologies is among its most important contributions. The insight is explored most fully in the book’s final chapter, where the authors present a set of concrete modelling examples illustrating the transformative potential of mixed text-visual expressions for humanities research. The examples vividly demonstrate the iconicity of modelling as each of them draw out the varied ways in which texts or text-based mediums can be transformed by modelling into dynamic visualizations.

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The shift they encapsulate raises important questions for humanities research when it comes to the obvious tensions between images and texts as well as the basic processes by which such information is presented and understood. In *Becoming Besides Ourselves*, mathematical theorist and philosopher Brian Rotman explains that alphanumeric language follows a certain seriality in that it presents information in a serial manner [Rotman 2008]. By contrast, visual models operate according to a parallelism in which multiple ideas are presented all at once to the viewer, producing an obvious antagonism or iconoclasm. As he explains:

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With the result that technologies of parallel computing and those of a pluri-dimensional visualization are inculcating modes of thought and self, and facilitating imaginings of agency, whose parallelisms are directly antagonistic to the intransigent monadism, linear coding, and intense seriality inseparable from alphabetic writing. [Rotman 2008, 3]

There is an inherent parallelism to visualizations in that they require a strategic mode of thinking that necessitates a different way of thinking than that of alphanumeric texts. Whereas the serialism of text-based mediums favors a linear approach, visual-based modalities demand a simultaneous, multidimensional approach, allowing for multiple meanings to co-exist all at once. The two different modes of thinking foment a potential conflict in that they prompt a fundamental reevaluation of traditional knowledge hierarchies. Their tensions are perhaps most apparent in the growing conflict over the idea of what constitutes humanities research and even knowledge itself as traditional definitions rooted in textual analysis are challenged by the emergence of visual and computational modelling.

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Interjecting into that debate, Ciula, Eide, Marras, and Sahle ultimately present what they describe as a “middle position” in that it “moves from the dichotomic interplay between bottom-up and top-down approaches to a middle-out model of knowledge” [Ciula et al. 2023, 109]. Their middle position involves a collaborative approach to knowledge where the researcher engages in iterative cycles of inquiry that could be compared to the creative processes involved in the building and maintenance of collaborative websites. To think and work iteratively with others will require a significant shift in conventional training programs as well as an entirely new culture that prioritizes cooperation over individualized success.

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The increasing prevalence of modelling within humanities research, thus, poses a challenge to not only integrate computational methodologies into varying fields of study but to change the ways in which humanities scholars approach the research process itself. That issue is perhaps most evident in the book's emphasis on VR's potential for humanities research. VR is not necessarily recreating historical scenarios. Rather, it is creating entirely new immersive environments that necessitate new ways of interacting with and understanding the objects of study. The book illustrates that with the Theatre Collection of the University of Cologne, explaining,

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In order to re-establish the main original purpose of the collection, it was necessary to create new objects, that is, to transfer their functionality to new objects. The decision was made not to make a physical replica, but rather to establish the new object in another medium. [Ciula et al. 2023, 109]

In such an environment, play or experimentation as opposed to verbal reasoning serve as the primary research tool, allowing for entirely new embodied and hands-on modes of exploration. That shift towards embodied exploration in digital environments will undoubtedly open up new avenues for understanding and interpretation in humanities scholarship.

Even so, the paradigm shift will necessitate the formulation of collaborative, interactive, and iterative approaches to research and knowledge production. The challenge, consequently, for digital humanities scholarship will be to create a culture or mode of thinking for itself that shifts away from conventional verbal and text-centric modes of inquiry and embraces more playful, experimental, and visual modes of inquiry. Whether or not that cultural shift can be successfully navigated by digital humanists will likely decide the future trajectory of humanities research for generations to come.

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