Transposing the Humanities, Information Technology and Ourselves
Patrik Svensson

The Humanities interrelate with information technology in multiplex ways. This article explores some of these interrelations, the territory that might be called 'digital humanities', associated physical spaces and organizational structures, strategies for promoting work in this area, and a provisional model for the humanities and information technology. This model is primarily based on the context of a comprehensive university but also other scenarios are brought into the picture. Finally, the notion of a manifesto for the digital humanities is discussed at some length as well as a suggested more general transposition of the Humanities. I draw on a wide range of data and material including direct experience from a number of digital humanities initiatives, conference materials, my own work with HUMlab at Umeå University and interaction with a great many helpful and inspiring scholars, managers, artists, developers and others engaged in this enterprise[1]. Needless to say, this study is not in any sense complete, but hopefully the patchy map and provisional analysis presented here will contribute to a better understanding of an exciting and important field.

***

One of things that have fascinated me for a long time is the range of origins, approaches and traditions associated with different varieties of digital humanities; ranging from textual analysis of medieval texts and establishment of metadata schemes to the production of alternative computer games and artistic readings of nanotechnology. One important rationale for this study is to facilitate a discussion across various initiatives and disciplines.

One of the oldest and most prominent varieties is without doubt the tradition that is most often referred to as 'humanities computing'. In the following a brief overview and history of this tradition will be provided as well as some critical reflections. There are several good reasons for giving humanities particular attention: its rich heritage, historical and current accomplishments, and the sheer number of people involved in this enterprise. Furthermore, and maybe most importantly, it seems to me that there is a need to connect different parts of the total digital humanities enterprise for an increased understanding and mutual awareness. Among other things, this presupposes a discussion of disciplinary territory and ambitions, and humanities computing provides a good starting point as it is relatively established and well-defined. And after all, there are many humanities scholars involved in what may be called digital humanities who have no or little knowledge of humanities computing, and vice versa, many humanities computing representatives that do not seem to be too much concerned about much of current 'new media' studies of matters such as computer games, embodiment, transmedia perspectives, digital art, gender and technology, complex adaptive systems, database aesthetics and participatory culture.

The partial institutionalization of humanities computing has resulted in academic departments or units, annual conferences, journals, educational programs and a rather strong sense of communal identity. These are all qualities that are typically associated with the establishment of a new discipline (cf. Klein 1996:57). The following excerpt from a description of a 1999 panel organized by the Association for Computing the Humanities seems to confirm this analysis:

[1] Acknowledgements will follow here.

> Empirically, humanities computing is easily recognized as a particular academic domain and community. We have our professional organizations, regular conferences, journals, and a number of centers, departments, and other organizational units. A sense for the substance of the field is also fairly easy to come by: one can examine the proceedings of ACH/ALLC conferences, issues of CHum and JALLC, the discussions on HUMANIST, the contents of many books and anthologies which represent themselves as presenting work in humanities computing, and the academic curricula and research programs at humanities computing centers and departments. From such an exercise one easily gets a rough and ready sense of what we are about, and considerable reassurance, if any is needed, that indeed, there is something which we are about.[2]

Communal identity, of course, is built over time, and history and foundational narratives play an important role in this process. Father Ruberto Busa is typically cited as the pioneer of the field of humanities computing and his work dates back to the late 1940s:

> During the World War II, between 1941 and 1946, I began to look for machines for the automation of the linguistic analysis of written texts. I found them, in 1949, at IBM in New York City.
>
> Busa 2004:xvi

The journal *Computers and the Humanities* was started as early as in 1966 and, interestingly, it seems as if early issues were not as textually oriented as one might have assumed. Early articles include "PL/I: A programming language for humanities research", "Art, art history, and the computer" and "Musicology and the computer in New Orleans" (all from 1966-1967). Thirty years later we find articles such as "The design of the TEI encoding scheme", "Current uses of hypertext in teaching literature", "Neural network applications in stylometry" and "Word frequency distributions and lexical semantics" (all from 1995-1996). In 2005 this journal was renamed *Language Resources and Evaluation*. Another major journal, *Literary and Linguistic Computing*, has focused on textual and text-based literary analysis from the very beginning – just as you would expect from its title. It was established in 1986 by the Association for Literary and Linguistic Computing (itself established in 1973). This journal has clearly played an important role in establishing the field of humanities computing – not only in offering a publication venue, institutional structure and academic exchange but also in publishing self-reflective articles on the role, organization and future of humanities computing.

As important as these printed journals have been for establishing humanities computing as a field, humanities computing representatives were also early adopters of communication technologies such as email lists. The first message on the *Humanist List* was sent on May 13, 1987 by founding editor Willard McCarty; making it one of the first academic email lists to be established. Currently about 1500 people subscribe to the Humanist list[3] which is an email list with consistent high quality, carefully organized threads and an often lively discussion[4]. Although the range of topics is very broad it is true to say that there is persistent and fundamental interest in

[2] http://www.ach.org/abstracts/1999/renear-ach.html.
[3] Personal communication with Willard McCarty (December 2004).
[4] There is a complete archive of every message ever sent on the list which makes for interesting reading and historical contextualization. [http://www.princeton.edu/~mccarty/humanist/].

textual analysis and related matters. As McCarty points out himself *Humanist* facilitates an ongoing, low-key and important discussion:

> We're always worrying ourselves about whether humanities computing has made its mark in the world and on the world. It seems to me, however, that quiet change, though harder to detect, is sometimes much better and more powerful in its effects than the noisy, obviously mark-making, position-taking kind. If during these 17 years Humanist has contributed to the world, it has done so very quietly by nature, like conversation, leaving hardly a trace.
>
> Humanist 18.001 HAPPY 17th BIRTHDAY (May 10, 2004)

Here it is also rather obvious that 'humanities computing' serves as an identifying label and collaborative sentiment for the Humanist community. We will soon return to this label (and an ongoing relabeling process) as well as the worry or concern that McCarty mentions but first a brief look at another major institution in this field.

One of the most important venues for humanities computing is the annual conferences jointly organized by the Association for Literary and Linguistic Computing (ALLC) and the Association for Computers and the Humanities (ACH). Originally these organizations ran their own conference series but from 1996 they started a joint conference series. It is quite clear that these conferences predominantly address textual analysis, markup, retrieval systems and related areas. A simple frequency analysis based on titles of papers and sessions from 1996 to 2004 shows us that frequent non-functional words include *text* (56), *electronic* (53), *language* (30), *markup* (28), *encoding* (27), *TEI* (23), *corpus* (22), *authorship* (18), *XML* (18), *database* (13) and *multimedia* (11). In comparison there is one instance of *game* and two instances of the plural form *games*. This is a rather crude measurement, of course, but it does give us a sense of the overall orientation. A more careful look at the 2005 conference (at University of Victoria, BC) does not seem to contradict this sketch. For instance, the themed sessions that extended more than one program slot were "Authorship Attribution", "Libraries, Archives & Metadata", "Computational Linguistics and Natural Language Processing", "Encoding & Multiculturalism", "Scholarly Projects" and "Visualisation & Modeling". One-slot themed sessions included "Automation", "Text & Technology", "Textual Editing & Analysis", "Interface Design" and "Hypertext"[5].

In organizational terms, humanities computing enterprises have been institutionalized in many different ways. And, of course, institutions develop over time. A useful resource is Willard McCarty's and Matthew Kirschenbaum's "Institutional models for humanities computing" (McCarty and Kirschenbaum). Here a number of questions or criteria are used to list and categorize humanities computing institutions. The first category incorporates academic units that do research, teaching and collegial service. Also "[s]ome members of these units hold academic appointments either in or primarily associated with humanities computing." Examples include the Center for Computing in the Humanities, King's College London, and the Institute for Advanced Technology in the Humanities. Even though it is said in the document that "[n]o judgement is expressed or implied as to the worth of the centres under consideration", it could probably be argued that this first category serves as a role model (based on the way criteria are created and presented, the order of the categories and a broader humanities computing context).

[5] Interestingly, Terras (2006) employs a somewhat similar material in her analysis. As far as I know these are independent analyses. My own material was first presented publicly in 2004.

Historically, and to some extent contemporarily, it would seem that a prototypical organizational form is a humanities computing unit or center affiliated with a school of liberal arts or humanities. Often such units provide service to the rest of the school and this rather instrumental function has typically been primary. Of course, there might have been development in many other directions over time, but this basic function cannot easily be dismissed. A prominent example would be the Humanities Computing Unit at Oxford University whose roots go back to the 1960s and which was closed (or transformed) in 2002. Burnard (2002) describes the final stages of this development:

> At the start of the new millenium, the HCU employed over 20 people, half of them on external grants and contracts valued at over 350,000 annually. With the advent of divisionalization, however, it faced a new challenge and a new environment, in which OUCS, as a centrally-funded service, must take particular care to meet the needs of the whole University, in a way which complements the support activities funded by individual divisions, rather than competing with or supplanting them. Our strategy has been to focus on areas where the HCU's long experience in promoting better usage of IT within one discipline can be generalized. In 2001, we set up a new Learning Technologies Group, to act as a cross-disciplinary advocacy and development focus for the integration of IT into traditional teaching and learning. This new LTG is now one of four key divisions within the new OUCS, additionally responsible for the full range of OUCS training activities.

The status of such academic units, of course, is not normally on the same level as (traditional) departments which tend to be the privileged academic organizational unit. In many cases humanities computing units are seen as service units with a rather instrumental role and representatives find themselves having to present their field in such a way as to maintain financial support as well as their share of integrity and independence. Frequently, like in the case above, academic units which are seen as having a technological service function are susceptible to different kinds of organizational changes and budget cuts. For instance, the central university administration might question whether the most efficient organizational structure is to have departments and faculties run their own computer support functions or whether it is more efficient to adopt a more centralized model. Also humanities computing units that have several functions might have to cut back on the more research-oriented activities because, after all, technical support is more instrumental (and sellable/buyable) and there might not be enough explicit interest from humanities departments to motivate a more research and methodology focused function. There are many examples of changes like these (see Flanders and Unsworth 2002 for some other examples and a further discussion).

Another common challenge is finding career paths for students and scholars interested in pursuing a career in the field. In particular, it is difficult to secure tenured faculty positions, and in many cases, scholars work at humanities computing unit and have their primary academic affiliation at a traditional department. Of course, this double affiliation might not be seen as a problem but rather as an asset. In any case, the situation has changed in the last couple of years and the employment situation seems considerably better now than before. Even so there seem to be relatively few faculty positions advertised. Looking at positions advertised in *Humanist*, Volume 19, issues 19.001-19.531 (May 7-December 29 2005), the majority relate to library-based jobs. But there are also some academic directorships (e.g. Director for Center for Digital History, University of Virginia) a few postdoctoral positions in relation to specific projects as

well as some fellowships and several technical jobs (such as Humanities Database specialist). Furthermore a few academic lectureships, fellowships and a professorial position were advertised. The professorship (at Lancaster University) is interesting not only because it is a professor-level appointment in the ICT and Humanities but also because of the way the position is framed in the job advertisement:

> The administrative location of the successful candidate will, initially, be at Faculty level. It is not immediately envisaged that the candidate will be a member of an academic Department. This is to signal that the initiative is seen as a Faculty-wide one in which the post-holder helps to generate momentum across a range of potential stakeholders.
>
> (Humanist 19.472)

While it is fair to say that the present institutional landscape is rather diverse and expansive it is also important to acknowledge that the ratio of thriving humanities computing environments and initiatives at universities in Europe and the United States is still very low in relation to the whole of the Humanities; something that may or may not be seen as a problem. Taking Sweden as an example, there seems to be only one traditional humanities computing unit in the country (at Gothenburg University) at present. Most of the growth seems to happen in places where there is no or little humanities computing legacy (Blekinge Institute of Technology and Södertörn University College). My own environment, HUMlab at Umeå University, does relate to humanities computing, but also to many other influences, and most of the Ph.D. students, for instance, would probably not see themselves as primarily involved in humanities computing. Most of them do subscribe to the *Humanist*, however.

***

A related and much-discussed issue concerns whether humanities computing should be independent and possibly an academic discipline in its own right or whether it should primarily interrelate with existing humanities departments. This discussion has partly been fueled by the need for academic status to create academic positions and a sense of not wanting or needing to be reliant on traditional and slow-moving departments and disciplines[6]. In fact, these disciplines may not even be considered suitable for dealing with relevant study objects and research issues, or appropriate methodologies:

> To study the effects and consequences of digital technology on our culture, and how we are shaping these technologies according to our cultural needs, we can now begin to see the contours of a separate, autonomous field, where the historical, aesthetic, cultural and discursive aspects of the digitalisation of our society may be examined. That way, the field of Humanistic Informatics may contribute to the goal of the Humanities, which is the advancement of the understanding of human patterns of expression. We cannot leave this new development to existing fields, because they will always privilege their traditional methods, which are based on their own empirical objects. [7]

[6] In particular English departments are likely to be targeted. They are part of the heritage and identity of humanities computing as well as the foundational narratives mentioned earlier. Geoffrey Rockwell (2002) writes: "A discipline maintains common stories of its founding and a history complete with heroes (Father Busa), monsters (English Departments) and timely achievements (the publication of the TEI P4)."

[7] It is representative of Aarseth's position and refreshingly provocative style that his ALLC/ACH 2005 keynote was entitled "Old, new borrowed, blue? Can the Humanities Contribute to Game Research?".

Aarseth 1997

Another argument for not involving all of the Humanities may be that it is not seen as an efficient model. McGann (2001:7) tells us about strategies adopted when the Institute for Advanced Technology in the Humanities (IATH) at University of Virginia was started. Alan Batson, Department of Computer Science at UVA, argued that trying to involve everyone (distribute resources evenly) would be to replicate 30 years of failure; providing IT resources to people who are not interested in them or do not want to explore them does not work.

> IATH was founded as a resource for people who had already made a commitment to humanities computing, a commitment defined practically by an actual project with demonstrable scholarly importance.
>
> McGann 2001:9

The tension between trying to involve as many as possible and making a difference through engaging people who have already shown an interest is basic and recurrent. Of course, any enterprise of this kind is dependent on the local environment. In some environments, such as technical schools, it is typically more natural to engage and recruit people with a documented interest in the intersection between the Humanities and information technology. At a full, comprehensive university there would normally be an established, traditional Humanities faculty, and anyone interested in promoting work in this area may want to work within that structure, establish a more independent center which may develop into a new discipline, or try to maintain relative independence as well as working with the existing disciplines. While there are almost any number of strategies and configuration available, some are clearly more prototypical than others. One obvious parameter for distinguishing between different types of configurations is the level of autonomy.

Returning to humanities computing, there is obviously a significant difference between being an autonomous academic unit and a service-based or organization. In practice most humanities computing units are probably somewhere in between. Also, the 'service' function can, of course, be very complex and should not be trivialized. McCarty talks about 'practice' and 'practitioners', and such terminology might be more suitable for many of the service-like functions more directly related to the humanities computing enterprise. He stresses the importance of methodological knowledge and says that "[t]he practitioner learns a specific but generalizable method for tackling problems of a certain kind" (2005:120).

***

Let me end this section with a few observations of contemporary humanities computing and some reflections on humanities computing as a paradigm. This will be lead into a more complete map of the territory of digital humanities including many other kinds of initiatives. By necessity these will be covered in much less detail.

As we noted earlier 'humanities computing' has been a strong common denotation for much of the work and community described above. In his *Humanities Computing* (2005:3) Willard McCarty describes the development from 'computers and the humanities' via 'computing in the humanities' to 'humanities computing'. He characterizes these three denotations as follows:

"when the relationship was desired but largely unrealized" (computers and the humanities), "once entry has been gained" (computing in the humanities) and "confident but enigmatic" (humanities computing). I have argued elsewhere (Svensson 2003) that juxtaposition (as in the first stage) does not necessarily have to indicate separated entities and that 'humanities computing' has an instrumental ring to it. Also, 'humanities computing' does not necessarily seem to include many of the approaches and materials that interest many humanities scholars interested in information technology (and computing). Of course, these arguments are related to the ambitions and scope of the field you are trying to denote.

From this point of view it is interesting to note that humanities computing representatives currently seem to be appropriating the term 'digital humanities'. Prominent examples of use of the new identifier include the relabeled ALLC/ACH conference (from 2006 onwards entitled "Digital Humanities"), a new book series called "Topics in Digital Humanities", a new comprehensive website (www.digitalhumanities.org) sponsored by the major humanities computing associations, the new peer-reviewed journal *Digital Humanities Quarterly*, and the massive, edited volume *Digital Humanities* (Blackwell 2004). The denotation has certainly been used before (at University of Virginia among other places) but it seems to be employed more broadly now and in a more official and premeditated fashion[8]. A pertinent question is whether this is mainly a matter of repackaging (humanities computing) or whether the new label also indicates an expanded scope, a new focus or a different relation to traditional humanities computing work. The editors of the book series "Topics in the Digital Humanities" indicate an ongoing change:

> Humanities computing is undergoing a redefinition of basic principles by a continuous influx of new, vibrant, and diverse communities of practitioners within and well beyond the halls of academe. These practitioners recognize the value computers add to their work, that the computer itself remains an instrument subject to continual innovation, and that competition within many disciplines requires scholars to become and remain current with what computers can do[9].

The book series announcement as a whole, however, maintains a focus on the computer as a tool and humanities computing methodologies. Unsurprisingly it is difficult, possibly irrelevant, to pinpoint the meaning of a term in change but it is nevertheless relevant to look at how such terms are introduced and used by an academic community. It is obvious that the term "digital humanities", as used by the humanities computing community, often serves as an overarching denotation in book and journal titles etc. while "humanities computing" is typically used in the actual narrative. In any case, the new name definitely suggests a broader scope and it is also used in wider circles as a collective name for activities and structures in between the Humanities and information technology[10].

[8] It is quite clear that the term is gaining popularity. Looking at the *Humanist* and instances of "humanities computing" versus "digital humanities" the following figures emerge: 304/2 (1997-1998), 343/3 (2000-2001), 566/16 (2001-2002), 283/15 (2002-2003), 280/19 (2003-2004) and 363/45 (2004-2005). The first instances of "digital humanities" in issues 11 and 14 (1997-1998 and 2000-2001 respectively) refer to nominal constructions such as "digital humanities object" and "digital humanities environment"

[9] http://lists.village.virginia.edu/lists_archive/Humanist/v19/0053.html.

[10] In her short reference to terms for the field, Terras (2006) seems to regard these and other related terms as more or less equivalent. In this analysis the terms are not seen as synonymous. Rather they have certain traditions and values associated with them.

***

If humanities computing is to be taken as a more general digital humanities project it seems relevant to carefully consider the scope, implementation and ambition of the paradigm. Also, regardless of this perspective, there are certain characteristics of the paradigm that deserve critical attention and discussion. The four issues presented below touch on some of the disciplinary boundaries of humanities computing and may possibly challenge some established perceptions of humanities computing. In any case, what follows is not so much a criticism of a paradigm as an exploration of boundaries and possibilities.

Firstly, humanities computing as a whole maintains a very instrumental approach to technology in the Humanities. In her introductory chapter in the volume *Digital Humanities*, Susan Hockey (2005:3) says that this is not the place to define humanities computing, and continues, "[s]uffice it to say, that we are concerned with the *applications* of computing to research and teaching within the subjects that are loosely defined as 'the humanities', or in British English, 'the arts'" (italics added). Hockey's description is indicative of a paradigm in which information technology is typically not seen as an object of study, an exploratory laboratory, a self-expressive medium or an activist venue (I will come back to these perspectives later). Rather, technology has this basic role as a tool and much of humanities computing is about using these tools, helping others to use them and, to some extent, developing new tools (and methodologies). Many of these tools, such as concordance programs, have a rather long and distinguished history, and there has not necessarily been a great deal of radical change over time (see McCarty 1996). It could be argued that the focus of traditional humanities computing is not innovating new tools but rather using and developing existing ones. Also a fair proportion of the development seems to occur on a structural or meta-data level. Examples include text encoding and markup systems. Of course work on this level has fundamental implications for the development and use of tools.

Text encoding is seen as a core element of humanities computing. Koenraad de Smedt (2002: 95) says that "Text encoding seems to create the foundation for almost any use of computers in the humanities"[11]. Classifications such as the major Text Encoding Initiative (TEI) involve very basic theoretical and methodological challenges (see McGann 2005) and there has also been calls for the development of more innovative tools based on these and other schemas (see Rockwell 2003). Rockwell stresses the importance of moving beyond existing personal tools, making community and server based tools more available, allowing for playful exploration and encouraging critical discussion of tools. Clearly there is a need for such a development, and while there are some exemplary projects there is a need for further development, discussion of best practice and further critical analysis. For instance, it would be interesting to see more integration with web 2.0 thinking and platforms[12], work in interaction and participatory design as well as methodologies such as rapid prototyping.

It might also be argued that traditional humanities computing has not primarily been concerned with interface and how things look and feel – the materiality of the tools. Kirschenbaum

[11] Renear 2004 provides a useful overview and history of text encoding.
[12] While web 2.0 is certainly a buzz word there is no doubt much interesting development in web-based collaborative and social software, handling of micro content, visualization and innovative interfaces. See Alexander 2006 for a useful overview.

(2004:532) says that "the digital humanities have also not yet begun […] to initiate a serious conversation about its relationship to visual design, aesthetics, and, yes, even beauty". McGann (2006:156-157) asserts that "[d]igital instruments are only as good as the interfaces by which we think through them". There have also been calls for tools with more far-reaching and radical scope than the ones that humanities computing typically provides. Drucker and Nowviskie (2005:432) point out that "[w]e are not only able to use digital instruments to extend humanities research, but to reflect on the methods and premises that shape our approach to knowledge and our understanding of how interpretation is framed.".

Secondly, it has often been pointed out that what brings humanities computing together is largely a common interest in methods, methodology, tools and technology. This partly follows from an instrumental orientation, of course, and there is no reason to question the methodological commons as a valuable interdisciplinary focus and productive collaborative sentiment. However, this strong methodological focus fundamentally affects the way humanities computing operates and relates to other disciplines. The most serious implication is that a predominantly methodological link to other disciplines may not integrate many of the specific issues that are at the core of these disciplines. It could be argued that this makes it more difficult for humanities computing to reach out more broadly to traditional humanities departments and scholars. While there will always be interest in methods and technology, the actual target group – humanities scholars with an active interest in humanities computing tools and perspectives – must be said to be relatively limited[13]. In an interesting and provocative paper, Juola (2006) argues that the emerging discipline of "digital humanities" has been emerging for decades and that there is a perceived neglect on the part of the broader humanities computing. While he is appreciative of the work done in humanities computing he also finds that:

> For the past forty years, humanities computing has more or less languished in the background of traditional scholarship. Scholars lack incentive to participate (or even to learn about) the results of humanities computing.

Looking at text analysis, Rockwell (2003:210) points out that "text-analysis tools and the practices of literary computer analysis have not had the anticipated impact on the research community". Juola's analysis shows that citation scores for humanities computing journals are very low and he also points out that the American Ivy League universities are sparsely represented in humanities computing publications and at humanities computing conferences. It could be argued, however, that the lack of citations is partly due to the fact that humanities scholars who use humanities computing tools might not be inclined to cite the creators of these tools. This is especially true if no written work on associated methodology (or theories) has been employed in the research.

A relevant question, of course, is whether humanities computing wants and needs to reach out to the humanities disciplines[14]. This relates to the earlier discussion of autonomy and discipline or not. There seems, however, to be rather strong support for expanding the territory and for

[13] Conversely, the target group may be too large or knowledgeable when the methods or technologies are already in use.

[14] Commenting on Juola's presentation at DH 2006 in Pairs in an informal wiki entry, Geoffrey Rockwell writes "Why do we have to get buy in from others? Do researchers in established fields feel they need to convert everyone else in the humanities? Do we really need legitimization from others?" [http://tada.mcmaster.ca/view/Main/Dh2006?skin=plain].

achieving a higher degree of penetration. Furthermore, if the methodology and tools are central to the enterprise it seems counter-intuitive to disassociate yourself from many of the potential users of the tools. It is evident from his discussion of possible high-profile 'killer applications' that Juola shares an interest in the development of a new or evolved kind of tools with Drucker and Nowviskie and others. It could be argued that it would be beneficial to have tools or applications that related more directly to some of the central discipline-specific challenges of the various humanities disciplines. Such a development would probably lead to somewhat less focus on methodology, a tighter integration of humanities computing and humanities disciplines[15] and possibly more tools and applications with a rich, combined theoretical, experiential and empirical foundation.

Thirdly, humanities computing has a very strong textual focus. Given the history and primary concerns of the field as well as the textual orientation of much of the humanities this is not very surprising. Traditional text is clearly a privileged level of description and analysis. In her analysis of humanities computing, which is partly corpus-based, Terras (2006:236) states that "Humanities Computing research is predominantly about text". While this is true there has certainly been an increased interest in multimedia and non-textual representation. This interest may for instance be manifested in the form of metadata schemes for visual material or, increasingly, the interest in using geographical information systems in humanities computing. Reference is sometimes made to different technologies (3D-modeling, animation, virtual reality etc.) but these are not necessarily integrated in practice. There are many exceptions and prolific scholars with a strong commitment to these issues but this cannot be said to be true of most of humanities computing. There is also a risk that other media are handled much in the same way as text (e.g. another object type to encode) or merely subservient to text. Here follows a rather text-focused discussion of images in relation to the history (and future) of humanities computing:

> There are of course many advantages in having access to images of source material over the Web, but humanities computing practitioners, having grown used to the flexibility offered by searchable text, again tended to regard imaging projects as not really their thing, unless, like the Beowlf Project (Kiernan 1991), the images could be manipulated and enhanced in some way. Interesting research has been carried out on linking images to text, down to the level of the word (Zweig 1998). When most of this can be done automatically we will be in a position to reconceptualize some aspects of manuscript studies. The potential of other forms of multimedia is now well recognized, but the use of this is only really feasible with high-speed access and the future may well lie in a gradual convergence with television.
>
> Hockey (2004:15)

There is nothing wrong with a textual focus, of course, but it does have effects on the scope and penetration of humanities computing. The so-called 'visual turn' or research on multimodal representation does not seem to have had a large impact on humanities computing. One reason is probably because little interaction between these communities and because it is difficult to conceptualize and develop tools for these kinds of framework. More generally, there seems to be an increasing interest in non-textual and mixed media in the Humanities and elsewhere (see for instance research on remediation, trans- or crossmedia texts, digital art and the current interest in

[15] Terras (2006:243) says that "[t]he field may only flourish as an academic subject if it becomes less insular and interacts both with Computer Science and those Humanities scholars who are less willing to accept computing as part of their research tools."

'mashups'). And, needless to day, most native digital media are not pure text while humanities computing through focusing on text in its digitalized and encoded form could be said to privilege a rather 'pure' (if annotated and structured) form of text. It seems that there should be considerable opportunities in this area for humanities computing – both for innovative tools and thinking – but also in relation to making a strong case for the need for considerable cyberinfrastructure in the Humanities[16]. Also there is need for people with expert competence and interest in structuring, annotating and managing data. It is also exciting to see that interest in non-textual representation and analysis seems to be growing in humanities computing. It seems worthwhile to support this development – at least if the vision is an expansive and inclusive digital humanities. Such a development would not have to preclude a retained textual focus, of course.

My forth and final point relates to data and material used in humanities computing – or put another way: the objects of study of humanities computing and associated disciplines. McCarty (2005:136) distinguishes between four data types in his discussion of a methodological commons: text, image, number and sound. It is characteristic of the model that the source materials and approaches of the disciplines are reduced these four data types and a "finite (but not fixed) set of tools for manipulating them"[17]. As we have already seen, (traditional) text is a privileged data type in humanities computing. Furthermore it could be argued that humanities computing is mainly interested in digitalized texts (or in some cases, digitalized historical sites etc.) and not material that is natively digital. Native digital material would include computer games, blogs, virtual worlds, social spaces such as MySpace, email collections, websites, surveillance footage, machinima films and digital art. Most of these 'objects' are studied and analysed within different kinds of new media settings and to me this is an interesting in-between zone. Would humanities computing be interested in engaging more with new media scholars? There is certainly a need for well-crafted tools for studying online life and culture. How come there is no software for doing comparative analysis and interpretation of computer games, for instance[18]? How can machinima films be tagged and related to the cultural artefacts they reference? How do we systemize and contextualize email archives[19]? Can social software platforms be adapted to humanities computing needs? Can multimodal and multi-channel communication be tracked, tagged, interrelated and made searchable in any consistent way?

I find the intersection between humanities computing and new media studies intriguing. There is some new media-like work going on in humanities computing but it is relatively marginal and there are few tools available. A more complete engagement might stimulate more theoretical work in humanities computing. Rockwell makes a case for the importance of such an engagement:

[16] While there seems to be interest in text mining and grid computing for textual analysis in humanities computing it seems more likely that a broader range of data, visualization and computing intensive applications will develop in relation to non-textual material (or a combination of textual and non-textual material).
[17] McCarty also adds that these tools are derived from and their application governed by 'formal methods'. The formalistic aspects of humanities computing will not be discussed here.
[18] To the best of my knowledge.
[19] Rockwell and Lancashire do discuss preservation of electronic texts: "The future understanding of our past and understanding of this age of technological change will be incomplete if we do not take steps to preserve one of the most widely used forms of electronic information - the electronic text." [http://tapor.ualberta.ca/Resources/TAIntro/].

> Digital theory should not be left to new media scholars, nor should we expect to get it right so that we can go back to encoding or other humanities disciplines. Theorizing, not a theory, is needed; we need to cultivate reflection, interruption, standing aside and thinking about the digital. We don't need to negotiate a canon or a grand theory, instead I wish for thinking about and through the digital in community.
>
> Rockwell

Regardless of whether such an engagement involved theory or mainly methods and tools it seems that there might be mutual gains. Not least would humanities computing be able to draw more on a growing interest in digital culture and the 'technological texture' that Don Ihde postulates. A further possible result would be a more robust link to humanities disciplines through also working in a field where there are many current and important research challenges in relation to the digital (e.g. participatory culture, surveillance societies, gender and technology, and emerging art and text forms).

***

Interlude: Engineering Cultural Studies

Let us move from humanities computing to a rather different kind of institutional setting facing some of the same concerns. Anne Balsamo (2000) writes about the Georgia Institute of Technology in the article "Engineering Cultural Studies: The postdisciplinary adventures of mindplayers, fools, and others". More specifically she relates the story, tensions and context of the program in science, technology, and culture offered in the School of Literature, Communication and Culture (LCC) at Georgia Tech. Partly this is done through the work of cyberpunk science fiction writer Pat Cadigan.

LCC used to be an English Department and was transformed in 1990. Balsamo discusses the different identities that faculty wear and the complex interrelations associated with being a humanities representative at a predominantly technical school. For instance, the institutional position requires LCC faculty to be committed to traditional humanities values to not give engineering schools arguments for reducing or doing away with the humanities requirement. The lack of a stable identity is the result of different roles and an interdisciplinary setting, and it resonates with the lack of stable identity that seems to be such an integral part of humanities computing. The interdisciplinary meetings and setting are important to both enterprises, but they are not without risk:

> Forging these new alliances – with technologists, scientists, and medical educators – offers the possibility of staking a claim on a territory that has been previously off-limits to the nonscientist cultural theorists. As with other political struggles, the project of alliance building is not without its risks and dangers.
>
> (Balsamo 2000:268)

Another similarity is instrumentalistic expectations from the 'outside'. In the case of an institution such as LCC there are expectations of delivering 'high culture' and presumably, useful knowledge, to engineering students. At the same time there are basic values and critical perspectives that need to be expressed:

> As a feminist scholar, I certainly don't want to abandon the epistemological critique of the construction of scientific knowledge as patriarchal knowledge. Nor do I want to give up on the pursuit of social justice through scientific and technological means. This becomes another occasion for the practice of identity-switching – this time not simply between the humanist and the critic, but between the teacher and the advocate. Whereas the teacher demands the students engage the philosophical critique of an epistemological worldview and construct their own assessment of the value-laden nature of a particular scientific worldview, the advocate continues to guide them towards careers in science and technology and encourage them to find a way to make a difference.
>
> (Balsamo 2000:271)

Both Balsamo's engaging narrative and the narrative of humanities computing speak about being in between, having multiple identities, lacking a stable identity, and engaging richly but not unproblematically with other disciplines within and without the local setting. There is energy, risk-taking and wanting to make a difference in such narratives.

***

The rest of the article will follow here.

***

Aarseth, Espen. 1997. "The field of Humanistic Informatics and its relation to the humanities". *Human IT*, 4/97. [http://www.hb.se/bhs/ith/4-97/ea.htm].

Alexander, Bryan. 2006. "Web 2.0: A new wave of innovation for teaching and learning?" *Educause Review*, March/April 2006. [http://www.educause.edu/ir/library/pdf/erm0621.pdf].

Balsamo, Anne. 2000. "Engineering Cultural Studies: The postdisciplinary adventures of mindplayers, fools, and others". In Reid, Reoddey and Sharon Traweek (eds.), *Doing Science + Culture*, 259-274. Routledge: New York.

Burnard, Lou. "Is Humanities Computing an Academic Discipline? or, Why Humanities Computing Matters." [http://users.ox.ac.uk/~lou/wip/hc.html]

Burnard, Lou. 2002. "Humanities Computing in Oxford: a Retrospective". *Humanities Computing*. [http://users.ox.ac.uk/~lou/wip/hcu-obit.txt].

Drucker, Johanna and Bethany Nowviskie. 2004. "Speculative Computing: Aesthetic provocations in Humanities Computing". In Schreibman, Susan et al (eds.), 2004, 431-447.

Flanders, Julia and John Unsworth. 2002. "The Evolution of Humanities Computing Centers". *Computers and the Humanities* 36: 379–380.

Hockey, Susan. 2004. "History of humanities computing" In Schreibman, Susan et al (eds.), 2004, 1-19.

Juola, Patrick. 2006. "Killer applications in digital humanities". Draft version of article to be submitted.

Kirschenbaum, Matthew. 2004. "Interface, aesthetics, and usability". In Schreibman, Susan et al (eds.), 2005, 523-542.

Malgorzata, Skol. 2005. "Academic identity construction E-discussion lists". In Giuseppia Cortese and Anna Dusxak (eds), *Identity, Community, Discourse: English in intercultural settings*. Peter Lang: Bern.

McCarty, Willard. 2005. *Humanities Computing*. Palgrave: New York.

McCarty, Willard and Matthew Kirschenbaum. "Institutional models for humanities computing". [http://www.allc.org/imhc/].

McGann, Jerome. 2001. *Radiant Textuality: Literature after the world wide web*. Palgrave Macmillan: New York.

McGann, Jerome. 2004. "Marking texts of many dimensions". In Schreibman, Susan et al (eds.), 2004, 198-217.

McGann, Jerome. 2006. *The Scholar's Art: Literary Studies in a Managed World*. Chicago University Press: Chicago.

Renear, Allen H. 2004. "Text encoding". In Schreibman, Susan et al (eds.), 2004, 218-239.

Rockwell, Geoffrey. 2002. "Multimedia, is it a discipline? The liberal and servile arts in humanities computing". *Jahrbuchs für Computerphilologie* 4. Paderborn: mentis Verlag. [http://computerphilologie.tu-darmstadt.de/jg02/rockwell.html].

Rockwell, Geoffrey. 2003. "What is text analysis, really?" *Literary and Linguistic Computing*, Vol. 18, No. 2.

Schreibman, Susan, Ray Siemens and John Unsworth (eds.). 2004. *A Companion to Digital Humanities*. Blackwell: Malden, MA.

Terras, Melissa. 2006. "Disciplined: Using educational studies to analyse 'Humanities Computing'". *Literary and Linguistic Computing*, Vol 21, No. 2.

Unsworth, John. 2005. "New methods for the Humanities". The 2005 Lyman Award Lecture. [http://www3.isrl.uiuc.edu/~unsworth/lyman.htm].