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Digital Humanities Inside Out: Developing a Digital Humanities Curriculum for Computer Scientists in Singapore

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Abstract

This article explores the pedagogical challenges and opportunities of bringing the Digital Humanities into a STEM-orientated and Singaporean educational context. Teaching DH from the inside out — to computer scientists rather than humanists — has allowed us to see more clearly neglected areas of DH pedagogy that are in need of greater attention. Our experiences have shown us that if DH is to thrive as a field beyond traditional humanities departments in the U.S. and Europe, we need to better articulate and theorize the connections between humanities and computer scientific epistemologies. When teaching non-humanities students, in particular, we have found it necessary to pay more attention to humanities research methods and projects grounded in humanities research questions. In developing a curriculum that reflects our Singaporean context too, we have found that diversity in global DH should go beyond simply broadening DH's cultural scope but must involve a more open and global engagement with computational, cultural research that may not identify disciplinarily as DH.

The recent history of the humanities in American and European universities is one of neglect. Governments have shifted towards an instrumentalization of education policies, which has included the accelerated expansion and promotion of tertiary education in STEM subjects, partly due to competition with the growing economies of Asia. An influential 2011 report on STEM education and employment from the U.S. Department of Commerce argues that "science, technology, engineering and mathematics workers play a key role in the sustained growth and stability of the U.S. economy, and are a critical component to helping the U.S. *win the future*" [Langdon et al. 2011, 1, emphasis added]. There is a general perception that this strategic focus on STEM has been detrimental to fields beyond its scope, particularly to the humanities. Rarely does a semester go by without a prominent academic declaring that the humanities are in crisis, and some have even predicted the death of these venerable disciplines altogether. (See [Winterhalter 2014] for a good summary of the issues.) 1

It is not without a certain irony, then, that one may note that many governments in Asia are, in contrast, investing more than ever now in the humanities, arts, and social sciences. The reasons are complex, but a general need for fostering greater creativity, innovation, and entrepreneurship among their populations is an important factor. In the last twenty years, China has established several liberal arts universities and has forged partnerships with liberal arts programs at U.S. universities, such as Duke and NYU [Godwin and Pickus 2017], as did Singapore by fostering a collaboration between its established, flagship national university and Yale in the form of the liberal-arts model that was Yale-NUS College [Roth 2015]. Taking inspiration from institutions like MIT, there are also a growing number of specialist science and technology universities with integrated arts, humanities, and social science programs throughout Asia. The prestigious Indian Institutes of Technology (IIT) are perhaps the oldest examples of adopting this MIT model [Kaur 2005].[1] More recently, in 2009, MIT itself helped establish the Singapore University of Technology and Design (SUTD) "to advance knowledge and nurture technically-grounded *leaders* and *innovators* to serve society needs, with a focus on design, through an *integrated multidisciplinary* curriculum and *multidisciplinary* research" [Magnanti 2018, 11, emphasis added]. 2

The very different political and institutional situations facing the humanities worldwide ought to influence the debates and challenges surrounding the digital humanities (DH). However, disciplinary discussions about DH generally assume an academic audience located in American or European institutions and, until recently, have rarely reflected the potential global diversity of the field.[2] Less remarked upon, perhaps, is that, institutionally, the "what" question in DH pedagogy usually speaks to researchers and students in a specific, normative setting: *humanities* departments and units, while the "how" question usually pertains only to teaching methods relevant to students pursuing humanities degrees in these departments and units — ignoring the fact that both of these questions about DH could actually have very different answers in different institutional contexts. An approach to these questions that is disciplinarily more inclusive can therefore offer lessons for DH that are not normatively circumscribed by the specificities of the most commonly encountered scenario. 3

This paper is a step in that direction: we discuss our efforts and those of our colleagues to establish a DH program at SUTD in Singapore, and we address the challenges and rewards of introducing DH to undergraduate students pursuing STEM degrees. This academic environment is unusual for a DH program, but, given that it is becoming more common in Asia, rethinking the question of how to teach DH from the perspective of this setting allows us to critically appraise current pedagogical methods as well as reconsider what DH is or can be, particularly in its relationship with the humanities and computational science. 4

1. SUTD and the Digital Humanities Minor

SUTD is Singapore's fourth publicly funded university, and, in its first seven years, the university was run in collaboration with MIT, which helped to develop its unique degree programs and curriculum as well as to establish research centers, such as the SUTD-MIT International Design Centre (IDC) [Magnanti 2018]. SUTD has five "pillars" that offer degree programs that cut across the traditional fields of architecture, engineering, and computer science: Architecture and Sustainable Design (ASD), Design and Artificial Intelligence (DAI, introduced in 2020), Engineering Product Development (EPD), Engineering Systems and Design (ESD), and Information Systems Technology and Design (ISTD). Humanities, Arts, and Social Sciences, or HASS, is a disciplinary "cluster" independent of these pillar programs that offers elective courses to students throughout their undergraduate degrees as well as two core courses in the humanities and social sciences that they take in their first year.[3] HASS subjects constitute 22% of our student's curricular exposure, slightly less than at MIT (25%) due to the specific requirements of Singapore's Engineering Accreditation Board. 5

In establishing SUTD's pillars, MIT introduced a level of "integrated multidisciplinarity" that is not found in MIT's schools, which follow traditional disciplinary divisions, such as architecture, engineering, computer science, etc. The HASS cluster, however, was established as a smaller equivalent of MIT's School of Humanities, Arts, and Social Sciences (SHASS), perhaps because the latter already embodied a multidisciplinary ethos. Unlike at MIT, all students must take core courses in the humanities and social sciences in their first year as part of a common curriculum before subsequently choosing one compulsory HASS elective each term. MIT also established multidisciplinary teaching weeks where all subjects, including HASS, tackle a common problem from different perspectives. Since the completion of the MIT collaboration in 2017, there has been a further effort to integrate HASS more directly with the pillar subjects in a shift towards a more radically interdisciplinary educational ideal. 6

Key to this shift are HASS's new minor programs: a Design, Technology, and Society (DTS) minor and the DH minor. Students minoring in DTS learn to analyze the social dimensions of design and technology using humanistic and social scientific methods, mainly within disciplines such as anthropology, history, psychology, and sociology.[4] The DH minor has two main goals. The first goal is to teach students how to utilize the tools and techniques of computation to help them analyze and interpret culture. The second goal is to have students think more critically about computation and about digital culture through the lens of the humanities.[5] Students can sign up for the DH minor at the end of their 7

first year after they have taken the compulsory “Global Humanities” core course that is run on a Great Books model. The students minoring in DH tend to come mainly from those majoring in two computationally focused degrees, Computer Science and Design (offered by the ISTD pillar) and Engineering Systems and Design (offered by its eponymous pillar, ESD). Apart from the humanities core course, they have almost no prior experience in studying the humanities.

All students enrolled in the DH minor begin the program by taking a compulsory introductory DH course. This course focuses mainly on teaching how computational skills can be used to better understand objects of human culture. After this core DH course, the students take four humanities electives in subsequent terms. These electives are of two main types based on the different goals of the DH minor. Some electives focus on the digital world and teach students how to think humanistically about digital methods and culture via such fields as digital and environmental studies. The majority focus on traditional subjects such as history, literature, and philosophy and require students to conduct digital research projects where they use computational methods to investigate an aspect of human culture relevant to the elective. 8

2. Introducing Digital and Humanities Methods in the Classroom

DH has developed as a field primarily as a result of its common computational methods and approaches. Inevitably, the debates and practices of the discipline have largely focused on exploring the possibilities of these new methods as well as on thinking critically about their applicability in humanities teaching and research. These two sides of the conversation concerning DH have sometimes run into conflict. In the early 2010s, debates emerged about how far the field should be concerned with the humanistic critique of computation in addition to the more practical matter of applying computational methods. Scholar-bloggers sometimes framed this debate on DH approaches as one between “hack” (practice) and “yack” (theory). While the opposition was never as fundamental as this dichotomy suggests, the distinction between these two sides of DH nevertheless resonated with many digital humanists. (See [Nowviskie 2016] for a brief history of the debate). 9

Related issues have also tended to structure and define conversations about DH teaching. Introductory courses and workshops in DH, in particular, can often struggle to find a balance between the immediate need to introduce humanities students to computational tools and techniques and that of having them think more critically and abstractly about the ideas that underpin these methods. John Russell and Merinda Hensley have criticized the tendency in DH teaching for “buttonology,” that is, the focus on “showing how to use software” rather than critically engaging with digital methodologies [Russell and Hensley 2017]. (See also [Giannetti 2017]; [Goldstone 2019]). At the same time, there has been a recent push toward placing more emphasis on critical digital pedagogy and digital literacy [Stommel et al. 2020], though many introductory courses in DH remain structured around the use of particular software packages [Stanley and Vandegrift 2016]. 10

Recent debates about the balance of theory and practice have focused almost entirely on the digital side of DH, and there has been relatively little discussion about its relation to the humanities in general or, for that matter, about what humanities methods actually are, not to speak of how such methods can combine pedagogically with computational methods. There is an assumption in many DH courses and workshops that students will intuitively know how to put the computational tools and techniques that are taught to productive use in their research or coursework. Similarly, courses might engage in the critique of digital culture but rarely teach how exactly humanities methods inform this critique.[6] This is not to say that DH researchers have not thought about these issues. John Unsworth, for instance, famously argued that computational work in the humanities should support the basic functions of humanities research, which he called “scholarly primitives” [Unsworth 2000]. Unsworth pointed to the need for more epistemological reflection on the processes of humanities research so that computational methods could be better integrated with them. Despite the longstanding influence of Unsworth’s article on the field’s self-definition, it is rare to find a systematic discussion of humanities epistemology in DH textbooks and other introductory literature, presumably because it is assumed that their readers would be students in the humanities who are already familiar with it. 11

This issue became problematic for us when introducing DH to non-humanities students on our foundation course. While all introductory works provide definitions of DH, most speak only in general terms about humanities research and methods, if at all. The exact meaning of terms, such as “close reading”, is largely left open to interpretation, perhaps because, as Martin Paul Eve notes, “to many in the field of literary studies this question of what we mean by ‘close reading’ might seem so obvious as to need no answer” [Eve 2019, 5]. This willingness to leave the methods of one half of DH so loosely defined may go unnoticed in the humanities classroom, but it was an obstacle for some of our students. Variations of the same question kept coming up in our class discussions: “What exactly is meant by humanities research?” It seems obvious to us now, but we had not foreseen how vital this question would be. The students’ primary concern was understanding what humanities knowledge is and how the epistemological framework of the humanities and that of computation could be integrated to produce new humanities knowledge. While thinking about how to address this concern and guide our students, we came to understand that this “outsider” perspective on humanities epistemology, namely that of STEM students trying to apply DH, also provided an opportunity to demystify humanities epistemology and make it legible to non-humanists. 12

With this in mind, we have begun to revise our DH core course and some of our electives to better address students’ needs. Rather than focusing on either “hack” or “yack”, that is, computational methods or the humanistic critique of them, we are instead structuring our DH core syllabus around our own groups of humanistic scholarly primitives that can productively interface with computer science approaches. We base our selection of these scholarly primitives on the principle that humanities research creates new knowledge about objects of human culture by discovering *meaningful patterns* both within them and between them. Here, we have been inspired both by Rens Bod’s *A New History of the Humanities* [Bod 2013] as well as the work of other DH scholars who have similarly thought about this process as a form of “modeling” [Beynon et al. 2006]. We have also benefited from the work of the DM2E (Digitised Manuscripts to Europeana) project, which published a report introducing a revised set of scholarly primitives, the activities based on the primitives, and the specific operations involved in those activities [Hennicke et al. 2015]. 13

We have started to structure the DH core course around three modules. The first module, “analyzing and discovering”, focuses on how we can interpret cultural objects by identifying their formal aspects and the meaningful patterns they make. We focus on both textual objects as well as visual objects and, using works of literature and art, first have the students think about how the interplay of particular words, colors, or shapes of these objects influence how they interpret them. We thus introduce the students to a loose idea of formalism and its epistemological role in the humanities before turning to how these methods can mesh with computational approaches. We then have the students engage each week in simple computational tasks — counting words and pixels at different scales, for instance — to get them to think about the epistemological overlap between intuiting forms versus inferring digital features. In these, we have drawn on inspiration from studies that have highlighted the continuities between French and Russian formalism, in particular, and DH methods (for instance, [Fortier 1991]; [Ustinov 2016]; [Fischer et al. 2019]) as well as made use of the more explicit operationalization of the continuity between topic modeling and the precursors of Russian formalism that Matthew Jockers points out in his book *Macroanalysis* [Jockers 2013], parts of which we use as a text for a section of our course. 14

The second module, “conceptualizing and comparing”, explores how humanities scholars derive new concepts from connections between cultural objects. Researchers in the humanities use the structures that underpin the concepts they employ to help compare different cultural objects. For instance, historians may create and debate the idea of a particular historical period; literature scholars may investigate issues of genre, authorship, and theme; and philosophers may create new forms of metalanguage to represent the different ideas and elements of their reasoning. We have the students try to come up with automated, machine-learning-based computational approaches that complement these humanistic connections. For example, topic modeling can allow students to ascertain how the “discovery” of topics shared between texts by means of quantitative analysis matches up with the intuitive, thematic connections they make between those texts. Standard techniques in textual DH such as stylometry and vector models of the semantics of words and concepts lend themselves particularly well to this kind of pedagogy. The key point here is that, for these STEM students, quantitative analysis is often more easily graspable and can be built on to help them see the importance of humanistic methods of inquiry — especially when quantitative methods fall short, and their limits are exposed. 15

The final module of the course departs somewhat from previous studies on scholarly primitives and focuses on “creating and generating” as research activities. Here we explore the role of the creative arts, in particular, the literary and visual arts, as a form of “action research”, that is, as a practical and creative means of better understanding the forms and processes of cultural objects [Skains 2018]. As part of this module, students particularly experiment with artificial intelligence and generative art and build on their previous work on the interface between humanities conceptualizing and machine learning of classification. They learn about the capacity of algorithms to create new artistic objects and think 16

critically about how this creative process reflects the cultural archives and datasets on which an algorithm is trained. In some cases, this also enables students to see not only the limitations of computational approaches but also the distortive effects that could ensue if any and all residue that cannot be quantified and computed is automatically devalued (and, conversely, if anything that can be quantified and computed is allowed to lead to what Sareen *et al*. describe as “performative legitimation” [Sareen et al. 2020]).

17 In subsequent electives, we build on our work in the DH core course by continuing the conversation about epistemological connections between the humanities and computer science. For instance, one of us (S.B.) teaches an elective, “Form and Content in Arts, Science and Society”, that exposes students to concepts from structuralist semiotics by tracing, first, the analogy between the relationality of Saussurean semiotics and the computer scientific notion of semantic fields in the vector-space approach to semantics in text analysis. The course also provides our students with a gentle introduction to post-structuralism by way of Derrida’s “Structure, Sign and Play” [Derrida 1970], based on the foundation of that earlier analogy. The operationalization of complex and abstract notions like sign and signification in structuralist semiotics, as well as the foregrounding of the limits to such an operationalization when we get to more complex notions such as post-structuralism and deconstruction, provides a route for our undergraduate students from STEM disciplines into advanced topics in humanities theory that they normally would not have had the means to engage with (and which are challenging even to humanities undergraduates).

3. Research Project Centered Pedagogy

18 Teaching DH to students who otherwise have little background in the humanities requires much more attention to research practices than digital tools. Alison Langmead, who has taught DH courses to both humanists and information scientists, has noted that “humanists tend to have an easier time forming a research question, while the information scientists tend to have an easier time becoming familiar with the tools” [Birnbaum and Langmead 2017, 72]. Based on this insight, she and David J. Birnbaum have suggested beginning with research questions when teaching humanists and tool application when teaching information scientists. However, in our experience, computer science students can be skeptical about working with digital methods without a clear purpose. We have found that it is important to introduce them first to practical examples of DH research that tackle real questions. Even then, some of the students have echoed Nan Z. Da’s recent criticisms of DH research that “what is robust is obvious (in the empirical sense) and what is not obvious is not robust” [Da 2019, 601]. When assigning DH research articles to students, one major challenge then has been to find work that does not simply computationally confirm what is already known (“the obvious”) and that also can stand up to scientific scrutiny (“the robust”, whether in method, statistical analyses, etc.).[7]

19 We have found that introducing students early on to impactful DH research papers is an efficient means of inculcating in them an appreciation of how digital methods support humanistic inquiry. From the start of our introductory DH course, we encourage students to put these theoretical perspectives into practice, and in our weekly seminars, we have them work on focused research problems. In the mid-term and final assignments too, the students design, implement and report on their own research projects. As the course progresses, the scaffolding we give them diminishes until, in the final project, they are encouraged to take the lead as the principal researchers. The confidence and independence the students gain from this allow us to embed DH more firmly within the general humanities curriculum at SUTD. The faculty who run most of the humanities electives that students take subsequently as part of the DH minor are not DH practitioners by training. The DH component of these humanities courses comprises projects that students undertake with little technical supervision. So, it is important that the students develop, early on, the skills to carry out such research projects independently.

20 Early exposure to the difficulties of devising and executing research projects also helps us dispel a fairly common presumption our STEM-minded students have that DH will be easy for them. We have found that some of the introductory DH literature can reinforce this student bias by overly focusing on the role of play, tinkering, and screwing around [Ramsay 2014]. This is not to say that this kind of approach is not valuable. On the contrary, all humanities scholars can vouch for the importance of casual browsing and serendipitous discoveries. It is simply that, as a form of pedagogy, an emphasis on “screwing around” is probably more effective in a classroom of humanists who may be intimidated by computational methods. As far as possible, we have our students think more carefully about what Andrew Goldstone [Goldstone 2019, 218] criticizes as “rationalizations of inconclusive arguments as exploration, play, or productive failure.” As such, we try to have our students focus their research projects on clear objectives relevant and of interest to scholars in humanities disciplines. Rather than downplaying the importance of concrete disciplinary arguments in their projects, we allow our students to learn from and appreciate the “ugly feelings” [Walsh 2019] that arise in attempting to reach this goal.

21 The reason why this goal is difficult is that, as Helen Small has recently pointed out, drawing upon the work of Gayatri Spivak [Spivak 2009], the qualities by which the humanities claim “distinctive” purpose often tend to be sharply different from the epistemology that practitioners of science and technology are used to. Small points out that the humanities value “qualitative above quantitative reasoning”, “interpretative” above “positivistic” thinking, and historical analysis as much as “synchronic structural analysis.”[Small 2013] The humanities, she says, distrust “proceduralism” and lay special emphasis on the role of the perceiver “in ascertaining even the most philosophically secure of knowledge claims.” [Small 2013] As a corollary, it is an individualized response to cultural objects that the humanities value, rather than the lowest common denominator, or statistically averaged, responses [Small 2013, 30].

22 Centering the DH minor program on research projects is not without challenges. Our students take elective courses mainly (though not exclusively) with non-DH specialists and often tend to have better computational skills than their instructors. This is overall a good thing since students can organically bring into the classroom what they have learned from their degree programs. This leads to a more equitable exchange of ideas between students and instructors in devising projects. As such, the results are often more ambitious and innovative than if the students were to carry out a project determined by their instructor. There is a danger, however, that this teacher-student collaboration can unintentionally turn into a form of compartmentalization [Birnbaum and Langmead 2017], in which the student simply acts as a programmer and the teacher formulates the humanities side of the project. Instructors must remain vigilant that the students give as much time and attention to the humanities question they are investigating as they do to the computational methods they are using. There also can be an additional problem in that the instructors do not always feel comfortable grading a project that employs methods they do not fully understand. As far as possible, we try to mitigate this by having DH specialist faculty available to mentor students and instructors in all phases of their projects.

23 In carrying out research projects in their elective courses, students also face difficulties designing a feasible project in the month or so they have to complete them. Sometimes students have unrealistic expectations of what they can accomplish and are unable to finish their work. For instance, they often have to spend a lot of time at the beginning of their projects engaging in corpus-building due to the lack of readily available corpora in their areas of interest, which are very diverse — having ranged in recent terms from Southeast Asian science fiction to the philosophy of Heidegger. Sometimes we can mitigate these challenges with better guidance from their instructor and DH specialist mentor. In other cases, we encourage students to design prototypes instead or create proofs of concept. In addition, we are currently experimenting with offering students the opportunity to continue and build upon the projects that their peers started in previous iterations of the elective courses. However, we have found that many students are not as interested in doing this as they like to create something new and feel a sense of personal ownership over their work.

4. Global and Local Digital Humanities

24 The lack of datasets and specialized DH tools for many of our Asia-focused humanities electives is part of the more general challenge we face in designing a DH curriculum for a Singaporean and Asian regional context.[8] And yet we also consider this to be one of the most meaningful opportunities in building our DH program. DH as a field is fairly new to Singaporean academia [Varela et al. 2019] — our minor is currently the only one on the island — and our program is still finding an “accent” that “recognizes both local specificity and global coherence in DH” [Risam 2017]. This SUTD-specific DH approach will ideally come to reflect our culturally diverse and multilingual student body. A typical classroom at SUTD will consist of around 75% Singaporean students who speak English and Chinese, Malay, Tamil, or other languages as their mother tongue, and around 25% international students, mainly from China, India, Korea, and Southeast Asia. In making our DH curriculum more locally specific, however, we must also work with English as the mandatory medium of instruction in Singaporean universities.

25 Finding relevant English-language material can be particularly difficult as many English-language DH textbooks and tutorials reflect the Eurocentric research interests of their

authors and intended audiences. As such, it can be hard to convince our students that DH's potential is much broader than the American and British literary canon. This is another reason why we rely much less on "standard" DH textbooks and increasingly have our students read research articles that align more with their cultural interests and those of our general humanities curriculum. This can often mean assigning our students regional readings that do not specifically identify as DH research but may be in fields such as data science. Students thus learn to recognize and appreciate regional DH work beyond the purview of U.S. and European academia. For example, in a course taught by one of us (A.G.) on classical South and Southeast Asian literature and art, DH students were introduced to Osaka University's BUDA.ART project, a collaboration between data scientists and art historians analyzing archives of Buddha statue images [Renoust et al. 2019]. This work does not identify as DH, but it serves as a starting point for DH students on the course to create and analyze their own 3D models of museum artifacts.

26 While our common class readings must be in English, it is sometimes possible to provide non-English course material along with an English translation, particularly in the elective courses. We are also developing our own datasets of Singaporean cultural material, such as political speeches, that we can use for class tutorials instead of American and European datasets. This will be a long-term task since most material in Singapore's national archives and libraries is not digitized in an easily usable form. In their assignments and class projects, we encourage our students to explore the vast amount of non-English DH scholarship in Asia, particularly in Chinese (see [Mahony and Gao 2019]), and devise projects that focus on topics that reflect their own interests. However, students frequently encounter difficulties finding machine-readable data in their research area. They also soon realize that many tools do not support the languages they want to analyze. Furthermore, when dealing with Singaporean English (Singlish), our students often confront the epistemic normativity [Bhattacharyya 2017] of tools trained only on American or British English. Faced with these obstacles, we challenge our students to build upon the available tools so that they can deal with the local specificity of their projects. Previously, for instance, we have had students use spaCy to train a sentiment classifier on Singlish to analyze tweets and online reviews. However, this kind of building can be difficult in a small classroom project as it tends to be very time-consuming, and the results are not always readily presentable.

27 We face a pedagogical challenge, then, that is deeper than simply increasing the diversity of representation in our class materials. It is not enough for us to correct the "perceived exclusions" of DH by adapting current DH practices so that they can encompass local cultures. There is a danger that we will simply reproduce U.S. and European DH in a Singaporean context and therefore perpetuate a Eurocentric orientation that has excluded many of the world's cultures from the field in the first place [Risam 2018, 79–80]. This is particularly problematic for our research project-based curriculum, where students have sometimes uncritically modeled their Singapore and Asia-focused projects on the topics of American and European DH work on the assumption that these projects represent a universal ideal. In this regard, our students would benefit from greater exposure to critical and postcolonial theory, though we need to be mindful that we do not simply reorientate ourselves towards the theoretical preoccupations of the Global North. In addition, further deepening our engagement with the computational cultural work going on in the region would help expose our students to a productively different set of preoccupations and interests.

28 Finding our scholarly accent as a Singaporean DH program will involve balancing between connecting with global DH currents and engaging with more local and regional DH work (that may or may not fall within the "big tent" of globally defined DH). An important step will be broadening the scope of global DH by allowing for greater diversity in how our students engage with the field. A critical task will be for students and faculty to collaborate to create new datasets and build and modify tools to accommodate the wide variety of cultural interests in the department and student body. At the same time, our program needs to be more actively engaged in shaping a truly de-centered, global DH. There are several steps we plan to immediately take to do this. First, we can reach out to other universities in Southeast Asia and beyond to foster regional teaching and research collaborations. Second, we can establish translation groups among faculty and students to translate DH research in regional languages for use in our courses. Third, we can compile annotated bibliographies of regional DH work and write English-language tutorials and reviews for regional tools and projects that can serve as a resource for ideas in our elective courses and for the global DH community.

5. Conclusion

29 SUTD's DH program represents a new, experimental chapter in DH pedagogy. From the perspective of American and European DH, the challenges we face in establishing an independent DH curriculum outside of a traditional humanities program and within a STEM-focused Asian university are certainly unusual. But as DH becomes more global, the various types of institutional and cultural settings for DH as a field will continue to diversify. We have argued here that this diversity will and must raise important questions for DH as a local and global field. This will involve the challenge and opportunity to rethink both what DH is and how we do it independent of its classroom origins as a parergon to traditional humanities disciplines. Our approach at SUTD is only one of many possibilities, and we hope that this article is a starting point for further discussions about how we can make DH pedagogy more inclusive, particularly within Asian regional and STEM-orientated contexts.

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Notes

[1] Recent examples from China also include Southern University of Science and Technology (also known as SUSTech, founded in 2009) and ShanghaiTech University (founded in 2013).

[2] In this regard, see [Rio Riande 2018] and [Fiormonte et al. 2022].

[3] For a perceptive analysis of SUTD's early years and its MIT collaboration, see [Fisher 2018]; [Fisher 2020].

[4] https://hass.sutd.edu.sg/education/minors/design-technology-society-minor/

[5] https://hass.sutd.edu.sg/education/minors/digital-humanities-minor/

[6] We can contrast the relative lack of discussion about humanities methods in DH with computational sociology, where there is richer literature exploring the continuities and divergences between traditional and digital approaches (see, for instance, [Lindgren 2020]; [Rudas and Péli 2021]). See also [Clement 2016] on the need for greater methodological awareness in DH. The lack of attention to humanities methods in DH may simply be symptomatic of a more general disregard for methods in the humanities as a whole. In this regard, see [Griffin 2011].

[7] We are now building an archive of articles that we feel make a significant contribution to their humanities field. These are not always published in DH journals. A good example is [Nichols et al. 2018], published in the *Journal of Asian Studies*, which uses topic modeling to offer new and concrete insights on the topical relationship between the *Analects*, *Mencius*, and *Xunzi*.

[8] Our thoughts about this challenge were initially inspired by Gimena del Rio Riande's writings on local and global DH, particularly [Rio Riande 2018].

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