MASTER IN DIGITAL HUMANITIES
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The world is becoming increasingly digitized. The relevance and impact of digitization on society is growing at an amazing speed. Nearly all aspects of society are affected, be they professional, scientific, educational or personal. On the scientific and professional level, digitization has provided a new context in which many new opportunities for performing research (and professional activities) in the Humanities and the Behavioral Sciences are arising.

Digital Humanities is a young field of research, focused on the use of computational techniques to support research in the Humanities and Behavioral Sciences. One of the key drivers of the field is the recent availability of large digital repositories within many areas of the Humanities and Behavioral Sciences. These repositories offer the prospect of applying computational visualization, querying and analysis techniques, leading to the discovery of new knowledge and insights. The field also applies new digital techniques to enhance approaches, processes, skills and methods developed and applied in the Humanities and Behavioral Sciences. This includes the use of digital techniques in instructional sciences, the use of digital games in social sciences or the use of digital techniques in online publishing.

WHY STUDY DIGITAL HUMANITIES?

The Master of Science in Digital Humanities prepares graduates from Humanities and Behavioral Sciences programmes for the above mentioned challenges. It helps these graduates to develop digital competencies that will allow them to add digital dimensions to their own domain expertise. It aims to explicitly link these competencies to research questions, case studies and applications related to the domain expertise of the students.

Graduates of this programme will be able to bring their own domain expertise to a significantly higher level of functionality, using digital tools and techniques. Building both on the expertise they obtained from the programme and their prior expertise in Humanities or Behavioral Sciences, graduates will be well placed to open many new digital applications to a much wider community. Moreover, those who wish to move to a professional profile involving more advanced digital competencies, are well prepared to do so.
MASTER’S PROGRAMME

The Master’s Programme is conceived as a one year, international and multidisciplinary advanced master programme (master-after-master). The programme is unique in Flanders and one of only a few in Europe. The programme is firmly framed in an explicit collaboration between the Faculty of Arts, the Faculty of Psychology and Educational Sciences, the Faculty of Social Sciences and the Faculty of Sciences - Department of Computer Science. As such, it is supported by experts in Digital Humanities applications, who supply research expertise for the programme, as well as by experts in digital techniques and tools, who provide a sound technical basis for the students.

STRUCTURE OF THE PROGRAMME

The programme is organized around a number of clusters of course units. The central clusters are the Application Domains cluster and the Tools for the Digital World cluster. Supporting clusters are the Introductory Digitization Components cluster, the Advanced Digitization Components cluster and the Management Component. The heart of the research activities is situated in the Master’s thesis.

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THE APPLICATION DOMAINS

Next to the Master’s thesis, the Application Domains in Digital Humanities are what we consider as the most central part of the programme. Students can select up to 18 ECTS credits of courses in application domains. Students can tailor their selection freely from a range of topics that are offered. Students select those application domains that are close to their prior studies, close to their current interests or to their research objectives. Some central themes of application domains offered in the programme are highlighted below.

Corpus Linguistics and Data Mining

A large amount of contemporary Big Data comes to us in the form of natural language. That is why we need ‘linguistically informed’ computational methods to help us manage and unlock such data in rich and refined ways. ‘Linguistic data mining’ of this type includes a wide range of methods that have recently emerged in corpus linguistics and computational linguistics: collocation analysis, distributional semantics, register analysis, genre analysis for new media, among others. These methods have found fruitful applications both inside and outside of linguistics, in areas such as search engine refinement, authorship identification, gender and age detection, spam recognition, unmasking of plagiarism, sentiment analysis, translation and localisation tools.

Text Encoding and Digital Editions

The creation of digital editions requires a series of decisions about how to encode both the text and the extra-textual features embedded in the original documents. The standards developed by the Textual Encoding Initiative and the Unicode Consortium allow us to create multifaceted and accurate transcriptions that can be analyzed with highly specialized software to serve diverse editorial purposes. Using these tools it is possible to develop complex digital editions catering to particular audiences: critical editions which can be used by scholars to carry out their research or reader editions for students who are beginning their literary explorations.

By using collation software to isolate textual variation and phylogenetic and stemmatological software it is possible to explore the relationships between different texts. Transformation languages and publication software can later be used to generate the edition(s) that will be made available to the public.

eLiterature and Transmedia Narratives

Transmedia Narratives are narratives whose parts are delivered via different media. eLiterature is born-digital literature. Both have become an integral part of the literary corpus of the twenty first century. They differ from eBooks (books delivered through specific devices or electronic environments that replicate them) in that they require a computer to exist.

The presentation of artistic pieces via different media, including electronic resources, is becoming more frequent and can no longer be ignored. It is important to know and understand the history of eLiterature and transmedia narratives, including its development and its relation to traditional print literature and eBooks.

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Digital Techniques in Education

Education is everywhere. Kids learn at school and at home, students study on campuses, trainees are schooled on-the-job. Providing effective and efficient education is of paramount importance. Technology can help. Intriguing problems are provided in simulations. In virtual reality environments pupils might experience living on the moon. Through serious and less serious games motivation of youngsters can be maintained or even enhanced. Tutoring programs may coach students with learning problems.

To render technology educationally functional remains a challenge: how to provide attractive but still relevant information, how to adapt the learning environment to the individual learning, how to make virtuality seemingly real?

Online Publishing

Electronic publishing is all around us. Through a myriad of internet-connected channels we are constantly bombarded with epublished information. Online Publishing - or the broader concept web publishing - focuses on information flows, and seeks to define optimal ways to deliver information to those who need it. For the humanities, more in particular art, literature, cultural events and cultural heritage, online publishing has become the central mode of communication.

Proficiency in web publishing requires in-depth knowledge of HTML and CSS, but also involves understanding how to define target user groups, design the information structure and build attractive and functional, responsive websites, that also seamlessly adapt to tablets and other devices.

Multimodality in Interaction

Face-to-face conversation is far more than a mere exchange of verbal structures. Instead, it is inherently a multimodal process, in which multiple semiotic channels operate simultaneously and collaboratively. Besides the verbal level, these channels involve para-verbal (e.g. intonation, pace and volume of speech) and non-verbal signals (e.g. gesture, gaze, facial expression, posture). On the basis of authentic data, the study of multimodality in interaction explores different patterns, in which interactional meaning is expressed across different semiotic channels (focus on the interplay between verbal expression, gaze and gesture). Mastering these issues involves the study of both methodological tools and procedures required to conduct an adequate multimodal analysis.

E-learning

E-learning is concerned with the use of technologies in education. These technologies are researched to support more effective and efficient learning and teaching. Examples include recommendation techniques that suggest relevant learning resources, as well as sequences of resources tailored to the current needs of the learner. Learning analytics is an emerging research domain that focuses on the use of educational data mining and visualization techniques to support awareness and reflection for learners, teachers and institutions. The combination of data mining and visualization techniques is among others researched to detect students at risk. This strand of research plays a key role in the development of massive open online courses (MOOCs).
TOOLS FOR THE DIGITAL WORLD

As with the application domains, students are free in their selection of optional courses from the Tools for the Digital World components. These courses train the students in the relevant underlying technologies for Digital Humanities. Depending on their selection of topics from the Application Domains, students select the relevant courses that introduce them to the required tools. Examples of such tools are:

Data Mining

Today it is possible to collect and store massive amounts of data from a wide range of domains such as transaction data for retailers, online ratings and reviews for products, streaming financial transaction data, sport match statistics and text sources such as Wikipedia. The goal of data mining is to automatically analyze these massive data sources in order to extract interesting and novel patterns and models from them.

Data mining techniques combine ideas from fields such as databases, machine learning, statistics, and many more. Notable data mining successes include product recommendation systems, fraud detection systems, sports analytics, and Web advertising.

Human-Computer Interaction and Usability Design

Human-Computer Interaction and Usability Design are situated in an interdisciplinary field concerned with the “design, evaluation and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them” (Hewett et al., 1992). They provide us with the necessary theoretical frameworks and methodologies to understand what designers and end-users of technologies are valuing, and how a responsible reconciliation of values will shape more accountable digital solutions.

In studying the complex interaction between technology and people, it is not only instructive to question how technology is shaping the way we behave, think, interact and socialize, but also how we are shaping technologies. Therefore, researchers and designers are increasingly expected to account for what they are examining, designing and the procedures followed to perform these practices. This accountability, in turn, has demanded new conceptual schemes for Human-Computer Interaction that can be offered by arts and humanities.

Visualization

Visualization is the development and study of visual representations of data, such as maps, graphs and 3D models. Recent computing developments have created several visualization techniques and tools for building interactive visualizations that can be used to explore data in new ways. These techniques and tools are used in cutting-edge Digital Humanities research, particularly in cases where large amounts of data need to be processed. Visualization therefore plays a central role in many novel applications, ranging from social network visualizations to 3D models of historic buildings. It is important to have insight into visual perception and design principles, as well as visualization and interaction techniques to build advanced digital humanities applications.
INTRODUCTORY DIGITIZATION COMPONENTS

All students are introduced to the basics of digitization techniques. This includes a general Introduction to Digital Humanities, which addresses both the Humanities questions and introduces the area as a whole. The Digitization Components introduce the students to digitization concepts and techniques related to Data and to Programming.

Scripting

Scripting languages are high-level, programming languages. They are intended to be more easily learned than conventional programming languages. This is reflected in fairly simple syntax and semantics for the languages. The languages are therefore sometimes more accessible to end-users.

In the past, programming languages like Java have been most frequently used as first language for teaching students to program. In recent years, more universities and other educational centers have moved away from Java as a basic first language, because scripting languages, such as Python, offer a lower threshold for the starting programmer. Moreover, scripting languages are often better suited to applications in web development. Skills in scripting are an important asset for development of applications in Digital Humanities.

Data

It is probably impossible to do anything scientific with computers in the absence of an understanding of what computer science means by “data”. While sciences with quantitative research traditions have long had their own understandings of measurement and of data, the idea of “data” may be less straightforward for researchers working with qualitative methods, with textual sources, with material culture. In the programme, students learn about the computer science understanding and techniques of data: about structured data as the standard case and dominant conceptual model, about the notions of semi-structured and unstructured data (and under what conditions material such as text counts as one or the other), about storage and processing. They will also explore the nature and effects of a key aspect of today’s data: their volume and interconnectedness, often over Internet/Web-based environments. Students will keep asking when and how “datafying” something makes sense for a Digital Humanities research question - and when it doesn’t, what we may win - and lose. Students do this by reducing real-world entities to data-processors and -processors and by reifying data, how computer science can be enriched by research traditions that (also) allow for alternative building blocks of knowledge culture.
THE MASTER’S THESIS

Students take active part in research related questions within one of the sub-domains of Digital Humanities. In particular, students select one of the research projects offered by the involved research units. They work independently, but guided by the staff of the research unit, to perform the research work required for the selected project.

The thesis-project should involve the development of or the experimentation with a small-scale Digital Humanities system. In addition to the possibility of developing and writing a master’s thesis, the students also have the possibility to do an internship of 12 weeks in a company or a research institute, either in Belgium or abroad.
YOUR PROFILE

Candidates

Candidates have successfully completed a Master’s programme in the Humanities or Behavioral Sciences. Alternatively, candidates have successfully completed an Bachelor’s program in the Humanities or Behavioral Sciences which has a normal duration of at least 4 years. For candidates with a 4- or 5-year Bachelor’s degree we require that the applicant has obtained excellent academic results.

Admission to the programme is granted on the basis of an application file. A good knowledge of the English language is required, i.e. a paper-based TOEFL score of at least 600, or equivalent. Other criteria for admission are based on the applicant’s academic results, his/her motivation and research objectives. Students will only be admitted to the program if the teaching staff has the required expertise to guide the student in his/her research objectives. Also, experience with computers is expected. Only applicants with very good qualifications are admitted to the programme.

Graduates

Graduates will understand the central notions of databases and query languages, web development, scripting languages, project management and of some of the emerging technologies in Digital Humanities. They are able to model a database and use SQL, develop a web page, to use a scripting language, to manage a project.

Graduates will be knowledgeable about tools for Digital Humanities and will be able to apply them. They will have studied and developed several applications in Digital Humanities.

They are able to communicate scientifically. They are able to formulate research goals, determine trajectories that achieve these goals, collect and select information relevant to achieve the research goals and interpret collected information on the basis of a critical research attitude, within the context of Digital Humanities.
WHY STUDY IN LEUVEN?

Leuven is a very lively and pleasant, small university city, located in the center of Western Europe, only 25 kilometers from Brussels. Its 43,000 students form more than half of the population in the center of the town. In Leuven, students do not disappear in the crowd: they are the city’s prime citizens. Social and cultural activities are aimed at and geared to the student audience. These are often in English, to accommodate the many non-Belgian students, and are scheduled throughout the entire academic year. Moreover, movies are always shown in their original language version. Very appropriately, the publicity slogan used by the town officials is ‘Leuven: centuries old and sparkling young’. Impressive and beautifully restored historic buildings, mixed with many attractive cafes, snack bars and restaurants, give the city a playful charm. A sparkling multi-cultural life adds young and dynamic features to the old town.

THE UNIVERSITY OF LEUVEN

The University of Leuven (1425) is among the oldest universities in Western Europe. Throughout its history, many eminent scholars, such as Erasmus, Mercator and Vesalius, conducted their research under the auspices of the university. Today, the university is the largest in Belgium and is highly esteemed for its view on education, which is firmly rooted in internationally leading research.

LIVING CONDITIONS

The monthly rent (including electricity and gas) for a student room ranges from 250 to 350 Euro and up to 400 Euro for a small flat. The cost of living for a single person for one month, exclusive of lodging amounts to 250 to 400 Euro. Personal computers can be rented cheaply from the university and access to the Internet is widely available in student housing.
More info

The programme’s web site
mdh.kuleuven.be

Applications
www.kuleuven.be/application
Registration fee: 1.750 EUR

For Belgian applicants
Use the form on the mdh.kuleuven.be web site and send it to:
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