

**Supporting Digital Humanities Research**

***Bringing Data Sciences and Humanities together
to shed light on our past, present and future***

**Executive Summary**

The Humanities are currently undergoing an exciting revolution. New digital tools, computational methods, advanced imaging and collaborative technologies are reshaping the fields of the humanities and opening up promising avenues for research, education and collaboration.

As a result of these dynamic trends, a growing number of researchers at the University of Haifa have launched “Digital Humanities” (DH) projects – including international recognized initiatives such as Tikkun Sofrim and Scribes of the Cairo Genizah.

To ensure that Israeli academia stays at the forefront of this emerging trend, we are expanding our Digital Humanities research activities at the University of Haifa. These initiatives will serve as a university, national and international hub – connecting humanistic scholars and data scientists and promoting digital humanities research. The research projects will focus on areas in which the University of Haifa has gained international expertise, such as digital archaeology, deciphering ancient texts and cultural heritage preservation. The research initiatives will serve as the basis for a future Digital Humanities Center, which will bring together under one roof leading national and international researchers in the field.

The University of Haifa is Israel’s leading institute of higher learning in the pioneering field of digital humanities. For this reason, DARIAH - the European network of arts and humanities scholars working with computational methods - has chosen the University of Haifa to lead Israel’s entry into this scientific network**.**

The University is currently seeking partners to fund research infrastructure, graduate, doctoral and post-doctoral scholarships and a range of original, interdisciplinary research projects.

**Background**

While humanities departments were always open to incorporating new research tools and techniques into their daily activities, the power of high performance computers and digital networks has had a transformative effect on the field. The introduction of new digital tools, computational methods, advanced imaging and collaborative technologies has led to a fundamental shift in humanities research – leading to new interdisciplinary models and methods of collaboration between humanistic scholars and data scientists. This is true in general and specifically at the University of Haifa, where collaborations between researchers in the humanities and technology-oriented departments already exist.

**Israel's First and Only Digital Humanities Degree Program**

The University of Haifa was an early adopter of the systematic use of digital resources and information technologies in the humanities. During the 2017 academic year , it became the first Israeli academic institute to offer a BSc degree in the field of digital humanities. The ambitious three years’ program is attracting students with unique interests that are passionate about applying computational resources to cultivate a two-way relationship between humanistic inquiry and digital power. The unique B.Sc. is based on a double major degree in Information Systems and the Humanities and includes several new specialized courses. **The program received prompt approval by the Council for Higher Education and seed funding from Yad Hanadiv Foundation.** The program plans to initiate an internship program for students in high-tech firms, public libraries, archives and museums.

**An International Research Hub**

The proposed projects will foster digital humanities research at the University and advance Israel’s international standing in the field. **Working in collaboration with the University’s Younes and Soraya Nazarian Library, the University will focus on incubating innovative digital humanities projects, offering support and research infrastructure during the planning stage, facilitating collaborations and connections on and off campus, identifying sources of funding, participating in international conferences and serving as Israel’s representative to the Digital Research Infrastructure for the Arts and Humanities (DARIAH)**.

**Current Leading Projects**

The University of Haifa boasts a number of innovative research projects that have drawn media attention and international recognition. During the coming years, we will focus on developing projects that will enable academics and the general public digital access to an increasing number of ancient Hebrew Manuscripts.

**Tikkun Sofrim**

Tikkun Sofrim is aimed at combining Handwritten Text Recognition (HTR) with crowd sourcing tools for transcription of medieval Hebrew Manuscripts. Following the successful digitization of Hebrew Manuscripts, millions of digitized images are now available. **The project, which won the Israeli-French Maimonides Grant**, is aimed at creating full textual availability of the images, focusing on a study case of Late Rabbinic Midrashim**.** The project is **in collaboration with National Library Israel and The École Pratique des Hautes Études (EPHE), Paris**. Tikkun Sofrim and its future expansion - Systematic Textual Availability of Hebrew Manuscripts (STAM) - are aimed at creating textual availability of the large corpus of Hebrew manuscripts that are already digitized. The project will enable users to conduct textual search, utilize big-data analysis and access an extensive collection of texts via distant reading. The funding (and the project) are scheduled to end in May 2020. We are currently looking for opportunities to generalize the research results and extend them (see STAM project).

**STAM - Systematic Textual Availability of Hebrew Manuscripts**

STAM, the future expansion of Scribes and Tikkun Sofrim, aims to facilitate full, online access to a large collection of Hebrew manuscripts (12 million images). The project will adopt the tools developed in the Scribes and Tikkun Sofrim to support such a process and develop further tools for automatic classification and tagging of manuscripts. The products of the project will be incorporated into advanced viewers and web publishers that will be used by libraries around the world and for publishing critical editions.

**Scribes of the Cairo Genizah**

Scribes of the Cairo Genizah, the first project of the newly established e-Lijah Lab, is aimed at developing tools for sharing scholarly efforts of transcribing and classifying Genizah fragments with the active participation of the wider public. To further this goal, the project developed trilingual tools and will launch a worldwide educational campaign inviting people to participate in the process. **The project is being conducted in collaboration with the Geniza Lab at Princeton University, Oxford Zooniverse and Pennsylvania Digital Humanities Judaica.**

**Building a digital work environment to study the Dead Sea Scrolls**

*Scripta Qumranica Electronica* is a joint German-Israeli project that brings together scholars of the scrolls, preservation specialists from the Israel Antiquities Authority, computer scientists and information technicians with the aim of providing academics and the general public access to the scrolls, their images and transcriptions. The end product of the project will be a new website – offering a virtual desktop for the reconstruction of scrolls using the most advanced images available today, as well as access to a robust textual database. In addition, the project fosters advanced editions of previously known scrolls using digital methods.

**Supervised Classification of Automated Transcriptions of Hebrew Manuscripts**

The research plan for development of “Supervised Classification of Automated Transcriptions of Hebrew Manuscripts” has recently won the dignified Yuval Ne’eman Postdoc Fellowship from the Ministry of Science. The project will focus on analyzing the content of manuscripts, providing automatic cataloging of content, a model for analyzing genres as well as geo-chronological contextualization, identifying the time-frame and the Jewish centers the texts belong to.

**eLijah-Lab for DH projects in Jewish Studies**

The eLijah Lab for DH projects in Jewish Studies is fostering projects in the areas of manuscript and document reading and analysis, crowdsourcing platforms for DH in, and spatial analysis of Jewish History. In addition to Tikkun Sofrim and Scribes of the Cairo Genizah, the lab is developing a range of mapping projects in Jewish History (J-Atals, Atlas of Jewish Communities in Late Antiquity; Mapping Jewish communities in the borders of the Early Islamic Caliphate, Mapping the use of rabbinic literature in East Europe, and Urban Memory, for contemporary community based mapping of memories related to the city of Haifa.)

Looking Ahead

In order to continue our success in the field of Hebrew Manuscripts, we are planning to expand the STAM project, which will stand in the core of the research activity.

In the current framework, we are seeking funding support for the following elements of scribes:

1. **Generalizing Tikkun Sofrim**, providing systematic transcription module applied to chosen corpora. We aim to make the University’s Younes and Soraya Nazarian Library the first library in Israel (if not in the entire world) to enable full access to the text of all Hebrew manuscripts in its collection.
2. **Developing transfer learning technologies for Hebrew Manuscripts recognition**. These technologies will enable us to expand the variety of manuscripts, and reduce time consuming efforts involved in our current pipe-line.
3. **Applying text re-use technologies** for facilitating critical digital edition of rabbinic texts and relational analysis of the texts.
4. **Developing combine text-image viewer** for Hebrew Manuscripts.

**Academic Leadership**

**Prof. Tsvi Kuflik, Department of Information Systems,** is a Professor of Information Systems; former Chair of the Information Systems department and Co-Chair of the B.Sc. program in Digital Humanities at the University of Haifa. He is an ACM distinguished scientist and the Chair of the ACMSIGCHI\_IUI steering committee. His main areas of research are Ubiquitous User Modeling and Intelligent User Interfaces. For the past fifteen years, Prof Kuflik has lead a research group focused on applying novel computing and communication technology for supporting museum visitors. As part of the research, the University’s onsite museum was outfitted with devices and is now a “living lab” – a museum and an experimental site. Currently, he is leading collaborations with researchers at the Faculty of the Humanities to apply state-of-the art information and communications technologies to Humanities research – making the Humanities “Digital”. He holds a PhD from Ben-Gurion University of the Negev.

**Dr. Moshe Lavee, Department of Jewish History and Thought,** is a senior lecturer in Talmud and Midrash; former Chair and Co-Founder of the Inter-Disciplinary Centre for Genizah Research and Education in Haifa; Co-Director of the new BSc in Digital Humanities and Director of eLijah-Lab (eLearning in Jewish Studies at Haifa Laboratory) for DH projects in Jewish studies. He holds a PhD from Ben-Gurion University of the Negev. Together with Prof. Kuflik, Dr. Lavee is leading the introduction of the field of Digital Humanities to the University of Haifa, as well as to the entire academic community in Israel.

**Request for Support**

Research into the human experience helps us understand the world we live in and opens up avenues for us to imagine a better future. The research activities will lead to new discoveries that will shed light on our past, critically evaluate the present and imagine a better future.

* **A gift of $450,000 will enable the University to expand its research activities in the field of Digital Humanities**. During the initial three years, the research groups will focus on realizing our STAM vision, and will provide scholarship support for graduate, doctoral and post-doctoral students.

3 Year Budget

STAM – Systematic Textual Availability of Manuscripts, Initial Budget Plan (USD)

