UGrow Fellow Research Assistant in the Digital Humanities

The Center for Computational Science (CCS) at the University of Miami would like to appoint a graduate student with a strong sense of independence, persistence and curiosity who is interested in developing computational skills while working with historical or textual information.

CCS hosts one of the largest centralized academic cyber infrastructures in the country, providing our research community with the computational power and data management capabilities needed for cutting edge research. Our focus areas include research that spans the physical, social, and natural sciences, music engineering, data visualization and cognitive science, new urbanism architecture and smart cities (http://ccs.miami.edu). CCS has a vibrant training and outreach initiative, offering workshops and courses to empower students, faculty and staff in developing their computational skills. Our outreach programs are working with the broader community to increase computational literacy across the board.

Position Description

All our research areas could potentially have an opening for a diligent graduate student with good interpersonal skills who has some knowledge of and an interest in computational research. Applicants must either be familiar with command line scripting skills or with geographical information systems (GIS), or be able and willing to learn fast. Our setting is interdisciplinary, with projects spanning across all 11 Schools and Colleges, therefore the fellow would benefit from being able to integrate smoothly into our cross-disciplinary group.

We are open to collaborating on projects that already exist in the digital humanities at UM, or to develop a unique project with the applicant. There exists a range of project possibilities in the spectrum of digital humanities. These extend from the application of developed methods to documents of interest, to the adaptation of existing methods for a context in which they have not been used before, and finally to the development of new computational methods to answer specific humanistic questions that existing methods cannot adequately address.
Some examples of projects at the intersection of the humanities and computational science are listed below:

- Geospatial humanities projects that use visualization to study space and time. For example, the Broken Paths of Freedom project uses visualization to aid the study of the passages through enslavement and freedom experienced by a cohort of West Central Africans aboard the Cezar, a Brazilian-flag slaver.

- The application of computational criticism to the study of literature. For example, Mark Algee-Hewitt et al seek to identify the formal features that may be responsible for producing the experience of suspense as it is felt by the reader in anticipation of impeding events.

- Using computational methods to “learn how media pundits, politicians, business leaders, administrators, scholars, students, artists and others are actually thinking about the humanities”, as described by Lindsay Thomas and colleagues in a project called WhatEvery1Says.

- Topic modeling, a text mining tool from the field of natural language processing, uses machine learning algorithms to identify the key topics that appear in a document or in a set of documents. For example, for his doctoral work, Cameron Blevins applied topic modeling to Martha Ballard’s diary to examine thematic patterns and whether those support a set of arguments. Separately, topic modeling can be applied to a large collection of documents, larger than could reasonably be read and processed by a human, allowing researchers to step back and identify larger patterns that they may then choose to examine further by reading more closely.

- Network analysis from text data to identify connections between people, goods, services, or any other entity or object connected to other entities and/or objects. For example, the Berkeley Prosopography Services developed an open-source application to study biological and social connections that link documented individuals. The group has applied this prosopographical toolkit on an initial corpus of Hellenistic Babylonian legal texts.