Department Research

Intelligent System to Digitally Support Paleographic Analysis of Ancient Manuscripts in Qatar

Abstract: Domain of handwriting in the Arabic script presents unique technical challenges and has been addressed more recently than other domains. There are hundreds of thousands of rare Arabic documents and old manuscripts in libraries, museums, and private collections in the state of Qatar. A rich archival heritage of Arab world and Qatar are preserved in the Qatar National Library (QNL) and the Museum of Islamic Art (MIA) in Doha. It is estimated that about seven million rare manuscripts documenting the contributions of the Arab Islamic civilization in Astronomy, Medicine, Mathematics, Science, Engineering, Art, Religion, Philosophy, etc. still survive in libraries, museums, and private collections around the world. The goal of this research project is the development of techniques and tools for the classification, investigation, and analysis of such sources to support paleography studies by automatically deriving the writer, date, and geographic location of the relevant scripts. Furthermore, true physical image degradation modeling, which includes stochastic processes, will be developed to model the degradation phenomena and other characteristics of these documents (e.g. creation, age). Therefore, the general objectives is to plan, analyze, design, build, and test a novel classification algorithms and tools to support Paleography Analysis of historical Arabic manuscripts. Considering a true fiber network for paper we will use the Boltzmann lattice method for obtaining the ink distribution. We will develop a data-driven pattern analysis method that learns enhancement and restoration models for the collection under study, with the autonomous authority to validate the adapted model with less reliance on reference data and expert feedback

Team: Lead PI:Dr. Somaya Al-Maadeed,
Co-PI:Dr. Sherine Al-Menshawy
PI:Prof. Ahmed Bouridane,
PI:Prof. Mohamed Cheriet