World Academy of Science, Engineering and Technology
International Journal of Computer and Information Engineering
Vol:16, No:11, 2022

Assisting Dating of Greek Papyri Images with Deep Learning

Authors : Asimina Paparrigopoulou, John Pavlopoulos, Maria Konstantinidou

Abstract : Dating papyri accurately is crucial not only to editing their texts but also for our understanding of palaeography and the history of writing, ancient scholarship, material culture, networks in antiquity, etc. Most ancient manuscripts offer little evidence regarding the time of their production, forcing papyrologists to date them on palaeographical grounds, a method often criticized for its subjectivity. By experimenting with data obtained from the Collaborative Database of Dateable Greek Bookhands and the PapPal online collections of objectively dated Greek papyri, this study shows that deep learning dating models, pre-trained on generic images, can achieve accurate chronological estimates for a test subset (67,97% accuracy for book hands and 55,25% for documents). To compare the estimates of these models with those of humans, experts were asked to complete a questionnaire with samples of literary and documentary hands that had to be sorted chronologically by century. The same samples were dated by the models in question. The results are presented and analysed.

Keywords : image classification, papyri images, dating
Conference Title : ICDAR 2022 : International Conference on Document Analysis and Recognition
Conference Location : Jerusalem, Israel
Conference Dates : November 29-30, 2022