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Efficient support for digital pathology in standard medical imaging repositories

Tiago Marques Godinho and Carlos Costa
University of Aveiro, Portugal

Nowadays, the field of digital pathology is in the spotlight thanks to advances in whole-slide imaging technologies. In this area, the exploitation of digital laboratories has significant advantages, namely, faster and more accurate diagnostic, better support for tele-pathology as well as new clinical and research applications. Despite these advantages, there has been a very slow adoption of whole-slide imaging. In fact, it raises several technical challenges which may jeopardize the benefits of its operation, most notably the performance issues associated with storage and distribution of huge volumes of data and the lack of interoperability with other hospital information systems, such as Picture Archive and Communications Systems (PACS) based on the DICOM standard. We developed architecture of a web pathology PACS that is able to overcome these challenges and unlock the full potential of digital pathology and whole-slide imaging for clinical practice. Our solution is fully compliant with the DICOM standard both for communications and data formats. It includes a PACS archive capable of storing whole-slide images along with other medical imaging modalities as well as a zero-footprint viewer that runs in any common web-browser. In summary, it enables the integration of digital pathology and whole-slide imaging with other medical imaging modalities while being very competitive in terms of efficiency and usability.

Biography

Tiago Marques Godinho has completed his Master's degree in Computer and Telematics Engineering from the University of Aveiro in 2013. He is currently pursuing Computer Science PhD program. He was awarded a national scholarship for conducting his research on performance optimization in medical imaging information systems. He has published 5 papers in international peer-reviewed journals and has participated in the fields major conferences. He focused his research on computer systems for digital pathology.

tmgodinho@ua.pt