EXCITE Summer School 2019 - Project Day

Paleoradiology - Impact and challenges of diagnostic imaging of ancient human remains

Abstract
The value of ancient remains for the study of the evolution of human morphology and disease patterns (e.g., infectious or degenerative disease) has become increasingly recognized. Paleoradiology, the radiological examination of ancient human remains, such as skeletal material or mummified soft tissue (including natural and artificial mummies from different cultures and periods), is fundamental to the progress of an evolutionary perspective in medicine. Frequent challenges in paleoradiology are imposed by taphonomy often leading to structural alterations such as, tissue density changes, cracks, and cavities as well as - in mummies - specific mummification-related soft tissue alterations.

Techniques used in paleoradiological examinations are primarily (portable) conventional X-ray and clinical computed tomography (CT), as well as more novel and more experimental imaging approaches, such as UTE-MRI, Terahertz-Imaging, portable cone beam X-ray tomography or Compton-scatter X-ray imaging.

The course includes a short theoretical introduction on the impact and technical challenges of paleoradiology and a half-day hands-on experience part with practical work in small groups on paleoradiological imaging data processing (e.g., image segmentation using OsiriX).

Program
09:00 - 10:30 Introduction to Paleoradiology PE
Coffee break
11:00 - 12:00 Demonstration: Image segmentation in OsiriX PE
   From a CT-scan to a 3D-model: On the example of funerary amulets contained in an ancient Egyptian mummy
Lunch break
13:00 - 16:00 Practical training: Image segmentation in OsiriX PE
   Participants are encouraged to bring their own notebook computers, as we can only provide a total of 4 (Apple) computer-workstations in the seminar room. We will be working with the Apple-computer based software OsiriX MD. An almost identical free version of this software (Horos) can be downloaded under: https://horosproject.org

Coordinates
Meeting time: Friday, 6 September 2019, 9 am.
Meeting place: University Zürich; Irchel Campus Y-42-G-66
To get there take tram no. 9 or 10 and disembark at stop Universität Irchel; walk to University
of Zurich Irchel Campus

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