Methods for 3D reconstruction from multi-view images are widely used in paleontology for digitizing fossil collections. Typically, these pipelines heavily rely on detecting and matching of certain types of keypoints, e.g. SIFT or SURF. However, conventional feature detectors and descriptors do not perform well on images of bones and skeletons. The purpose of this project is to use machine learning methods to learn feature descriptors for such data. Siamese network architecture will be used for this task, see [2] for more details. Finally, the performance of the structure-from-motion pipeline operating on the new features should be evaluated.

Tasks:
- Literature research
- Development and implementation of the framework
- Evaluation of the proposed approach

Requirements:
- very good programming skills (e.g. C++, Matlab, python)
- prior knowledge in Machine Learning (e.g. attendance of ML lectures)
- prior knowledge in Computer Vision (e.g. attendance of PCV, AIA or DIP lectures)

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Related literature: