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## Enhancement of statistical shape models to achieve segmentation of anatomy in fluoroscopic images

### **Abstract:**

Medical images, and particularly fluoroscopic X-rays, are challenging. These are used in Computer Assisted Surgery (CAS), in which the bones need to be segmented in the images. These applications demand real time and high accuracy, whereas the resolution is low, and also the anatomy varies among individuals. Furthermore, the access to training data, labeled data, etc. is very complicated.

Active Shape Models (ASM), based on a Statistical Shape Model (SSM), are an algorithm to fit iteratively the model of the expected shape. It does not require training datasets as big as some state-of-the-art Deep Learning strategies, and can be computed in real time. Modifications are required to make ASM and SSM work in this applications: add robustness to ASM and design better SSM. Furthermore, our research goal is that the designed techniques are also extensible to different anatomical parts, image modalities, or even other applications non related to medicine where an object has to be segmented (computer vision in general).