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(57) Abstract :

“ARTIFICIAL INTELLIGENCE BASED INTRA-OPERATIVE SURGICAL GUIDANCE SYSTEM” Accordingly, embodiments herein disclose an artificial intelligence (AI) based intra-operative surgical guidance system in joint replacements, spine, trauma fracture reductions and deformity correction, and implant placement/alignment. The system includes an interface unit configured to receive two-dimensional fluoroscopic images and electromagnetic tracking data produced by one or more electromagnetic tracking devices. Further, the proposed system may include a processor configured to execute one or more algorithms for registering the two-dimensional fluoroscopic images to the three-dimensional images through a digital radiographic reconstruction (DRR). The system is trained to detect a plurality of anatomical structures, where the interface unit is configured to detect the plurality of anatomical structures in the fluoroscopic images of a patient. The plurality of anatomical structures is detected by the interface unit for classifying the fluoroscopic images with reference to the patient good side fluoroscopic images and constructing a graphical representation of data.

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