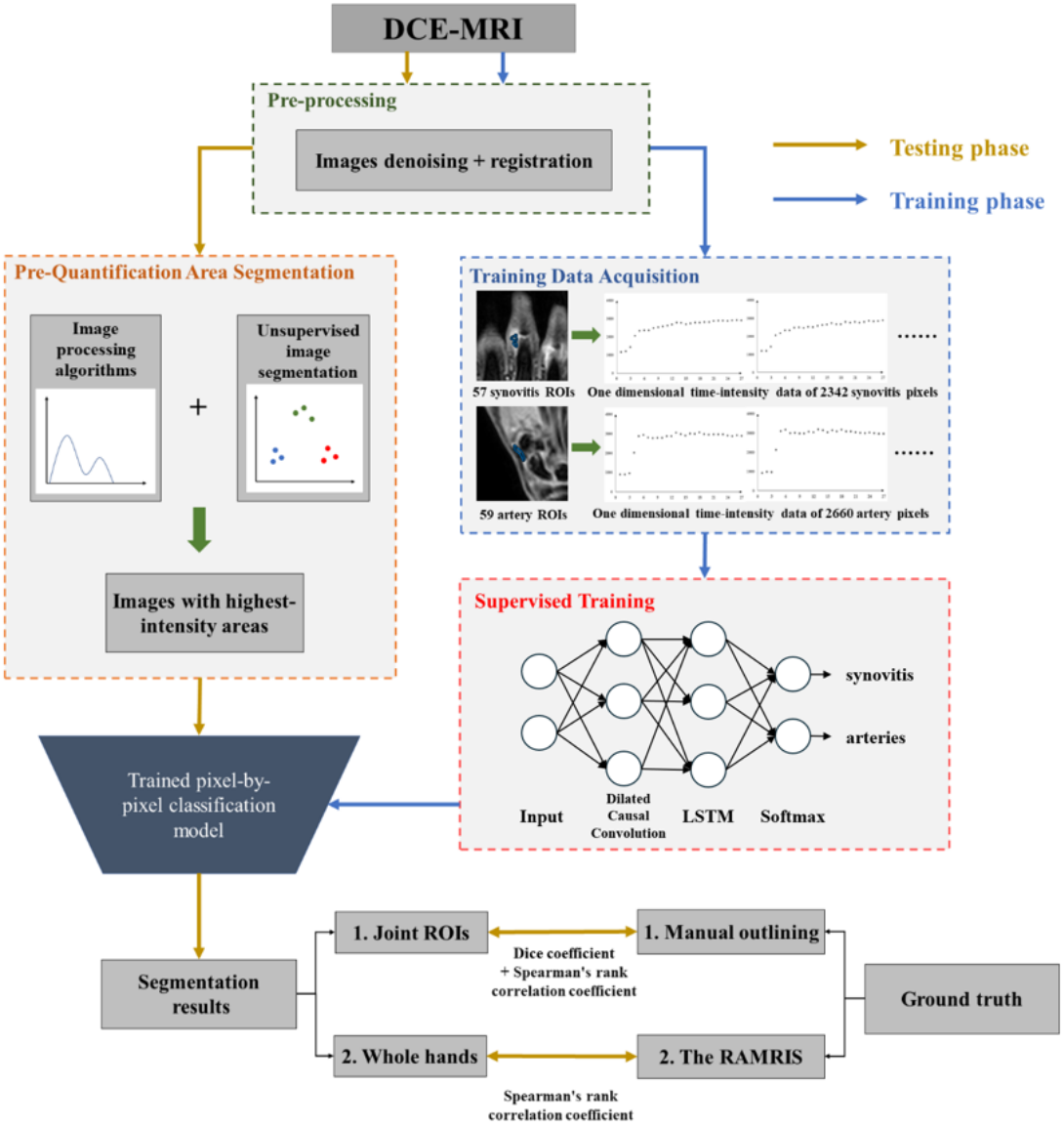
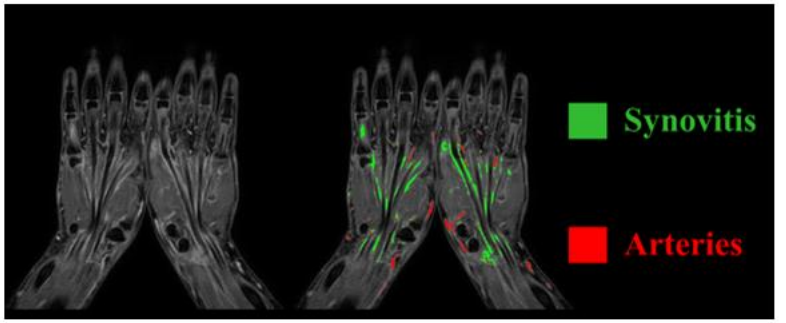
Artificial intelligence quantification of enhanced synovium throughout the entire hand in rheumatoid arthritis on dynamic contrast-enhanced MRI





1. This study processes DCE-MRI images with denoising, registration, and deep learning-based synovitis segmentation using Dilated Causal Convolution and LSTM layers. The model, evaluated through joint ROI and whole-hand tests, effectively quantifies RA progression.

2. The deep learning model accurately segments whole-hand synovitis in RA patients, with AI-generated results significantly correlating with radiologist scores, while reducing acquisition time without compromising accuracy.

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