

30 subjects with confirmed axSpA, qualitative MRI (per subject)

- 30 pre-biological treatment scans
- 30 post-biological treatment scans

*Scans to standardize procedures*

**Manual segmentation guidelines** (5 different subjects)

- 2 pre-biological treatment scans
- 3 post-biological treatment scans

**Procedure to remove residues on automatic segmentations of inflammatory lesions** (2 subjects: pre-biological treatment scans)

*Based on visual assessment by reader 1*

*Scans for studies*

**Manual segmentation of inflammatory lesions on STIR MRI** (8 different subjects)

- 4 pre-biological treatment scans
- 4 post-biological treatment scans

**Reader 1**

Two independent trials ( $R_{11}, R_{12}$ )

**Reader 2**

Two independent trials ( $R_{21}, R_{22}$ )

**Intra-Reader Variability Study**

- $R_{11} vs R_{12}$
- $R_{21} vs R_{22}$

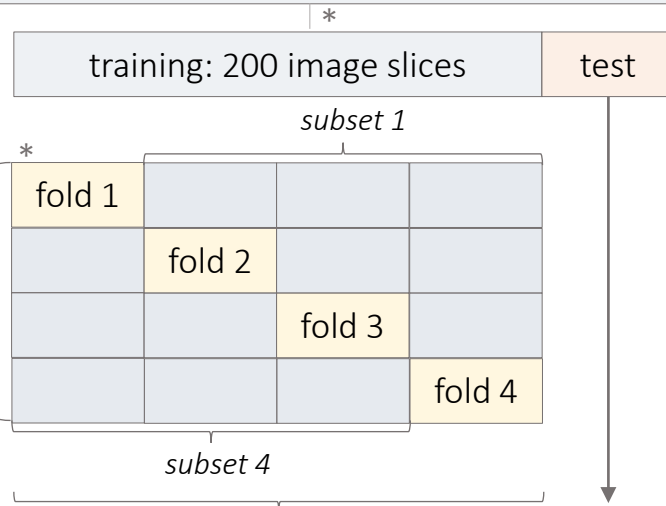
**Inter-Reader Variability Study**

- $R_{11} vs R_{21}$
- $R_{11} vs R_{22}$
- $R_{12} vs R_{21}$
- $R_{12} vs R_{22}$

*Scans for deep learning algorithm training and testing*

**Automating segmentation of disease region on T1W MRI** (10 different subjects)

*\* Data split at subject level*



Optimal model

training

testing (48 image slices)

Final model

training: 248 image slices

evaluation (500 image slices; remaining 20 subjects (40 scans))

**Automatic segmentation of inflammatory lesions on STIR MRI via two thresholds within disease region**

**Reader 1**

Removal of residues ( $R_1$ )

**Reader 2**

Removal of residues ( $R_2$ )

**Inter-Reader Variability Study**

- $R_1 vs R_2$