The three papers on which my survey will focus are [Cheung2015], [Ungi2014], and [Zheng2015]. They are cited in the References section.

The structure and content of the survey paper are planned to be as follows:

1. Introduction

i.   Scoliosis

The papers I have read generally give a brief description of scoliosis.

- Define scoliosis
- Describe need for monitoring
- X-ray as gold-standard for monitoring
- Health risks of X-ray lead into tracked ultrasound

ii.   Tracked Ultrasound

This method of scoliosis quantification is common to my main papers and a number of others. The variety of papers on tracked ultrasound methods should provide me with enough content to describe the general procedure. I will describe specifics of different methods in their respective sections.

2. Methods

i.   [Ungi2014] – Sagittal Ultrasound Snapshots

I believe I should start with [Ungi2014]'s method since it can be seen as preliminary to the other two by being earlier and performed on phantom models.

- Tracked ultrasound snapshot method
- Phantom models scanned
- X-ray ground-truth

ii.   [Cheung2015] – Axial Ultrasound Snapshots

Of all three works' methods, this is the most similar to the other two and, as such, should be described between the other two.

- Single pass, wide-transducer scan
- Live patients, mention all curvatures less than 30°
- X-ray ground truth

iii. [Zheng2015] – Axial Ultrasound Scan

- Single-pass, wide-transducer scan
- Live patients, mention all curvatures less than 45°
- X-ray ground truth
- Also compared inter and intra-user data

3. Results

The results of the works being surveyed might be conveyed effectively without separate sub-sections.

- Works in this field typically seem to produce promising results.
- Accuracies within clinically acceptable limits of error
- Inter and intra-user variability low

4. Discussion (Belongs in survey?)

- Mention [Zheng 2015]'s difficulties with false positive and false negative curve detection
- Mention [Zheng2015] and [Cheung2015] both having to discard data because they couldn't locate all landmarks
- Mention [Chueng2015]'s discussion of difficulties in using this method for patients with high BMI

5. References

[Cheung2015] C.-W. J. Cheung, G.-Q. Zhou, S.-Y. Law, K.-L. Lai, W.-W. Jiang, and Y.-P. Zheng, "Freehand three-dimensional ultrasound system for assessment of scoliosis", Journal of Orthopaedic Translation 2015; 3:123-133.

[Ungi2014]   T. Ungi, F. King, M. Kempston, Z. Keri, A. Lasso, P. Mousavi, J. Rudan, D. P. Borschneck, and G. Fichtinger, "Spinal Curvature Measurement by Tracked Ultrasound Snapshots", Ultrasound in Medicine and Biology 2014; 40(2):447-454.

[Zheng2015]   R. Zheng, A. C. Y. Chan, W. Chen, D. L. Hill, L. H. Le, D. Hedden, M. Moreau, J. Mahood, S. Southon, E. Lou, "Intra- and Inter-rater Reliability of Coronal Curvature Measurement for Adolescent Idiopathic Scoliosis Using Ultrasonic Imaging Method - A Pilot Study", Spine Deformity 2015; 3:151-158.