

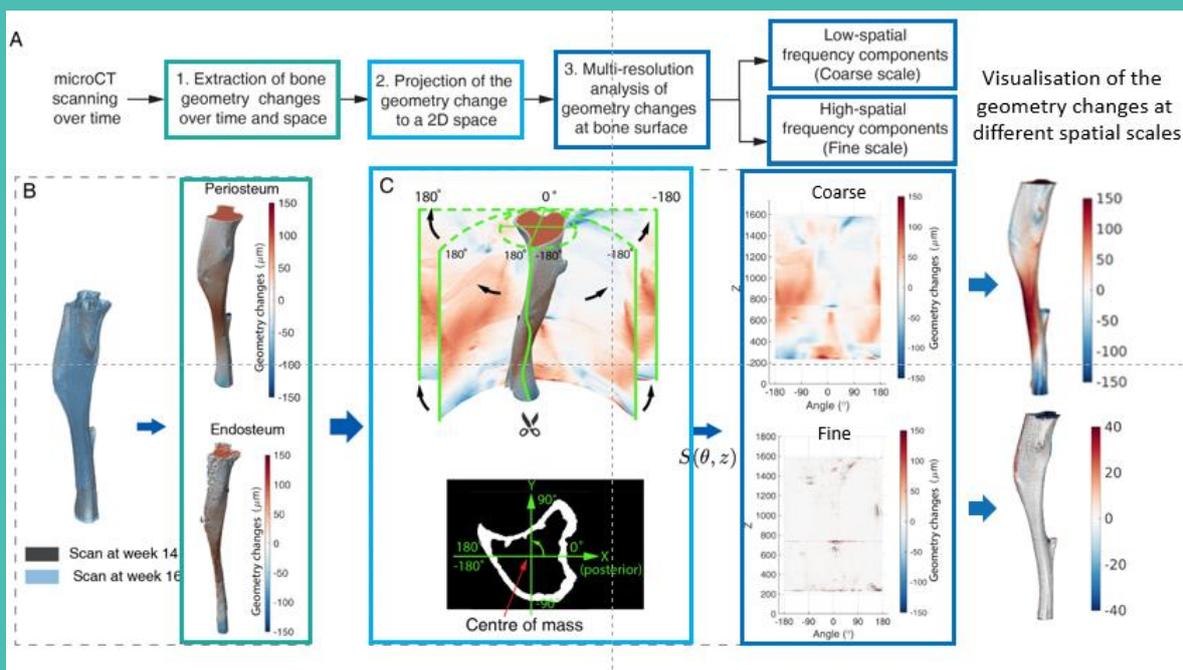
# Yang Zhang



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**Yang Zhang (YZ)** joined MultiSim in March 2016. Her area of expertise is developing and applying methodologies in the fields of machine learning, system identification and signal processing on multidisciplinary research projects associated with the life sciences and healthcare. In MultiSim, she is supporting the development of a multiscale modelling and identification framework for the bone cellular activities (modelling and remodelling) that alter bone over time in any species. YZ is investigating this framework using data obtained from longitudinal in vivo microCT studies of mouse bones. She is interested in using her framework to gain a better understanding of how bone remodelling is influenced by different treatments, for which she has developed a bone remodelling mathematical model that links the cell and tissue levels. She has presented her work in five conferences in the field and in one journal paper that is currently under review and another is in preparation. In MultiSim2, YZ will continue developing in this direction of investigation and adopt a data driven modelling framework for muscle tissue properties using the microMRI and ultrasound data to complement the finite element models.

A new method to monitor bone geometry changes at different spatial scales in the longitudinal in vivo CT studies of mice bones



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## Publications

Zhang, Y., Dall'Ara, E., Viceconti, M., Kadiramanathan, V. (In Submission), "A new method to monitor bone geometry changes at different spatial scales in the longitudinal *in vivo* CT studies of mice bones", PLoS One

## Other Achievements

Selected conference presentation:

- Multiscale Computational Models Studying Resilience of Complex Systems (18th Jan. 2018), "Towards spatio-temporal quantification of bone dynamics using level sets".
- UK Conference on Multiscale Biology (16th — 18th April 2018), "A Framework for Separation of Bone Growth and Remodelling at Tissue Scale".
- Multiscale Hard and Soft Tissue Modelling Workshop (18th — 20th June 2018), "A Framework for Separation of Bone Growth and Remodelling at Tissue Scale".
- Engineering Research Symposium, University of Sheffield. (26th June 2018), Four minutes presentation of the topic "Bone growth and remodelling".

Awards:

- Best poster award, UK Conference on Multiscale Biology (16th — 18th April 2018),
- Successfully created and supervised the Insigneo summer 2018 research project IN18-004 "The application of the framework for separation of bone growth and remodelling", Institute for in silico Medicine (Insigneo) £1934 (04/2018 — 09/2018).
- Co-creator for the project "A 3D realistic FE model of the growing mouse knee joint", EPSRC MultiSim Frontier Engineering Award, £30000 (05/2017 — 05/2018).