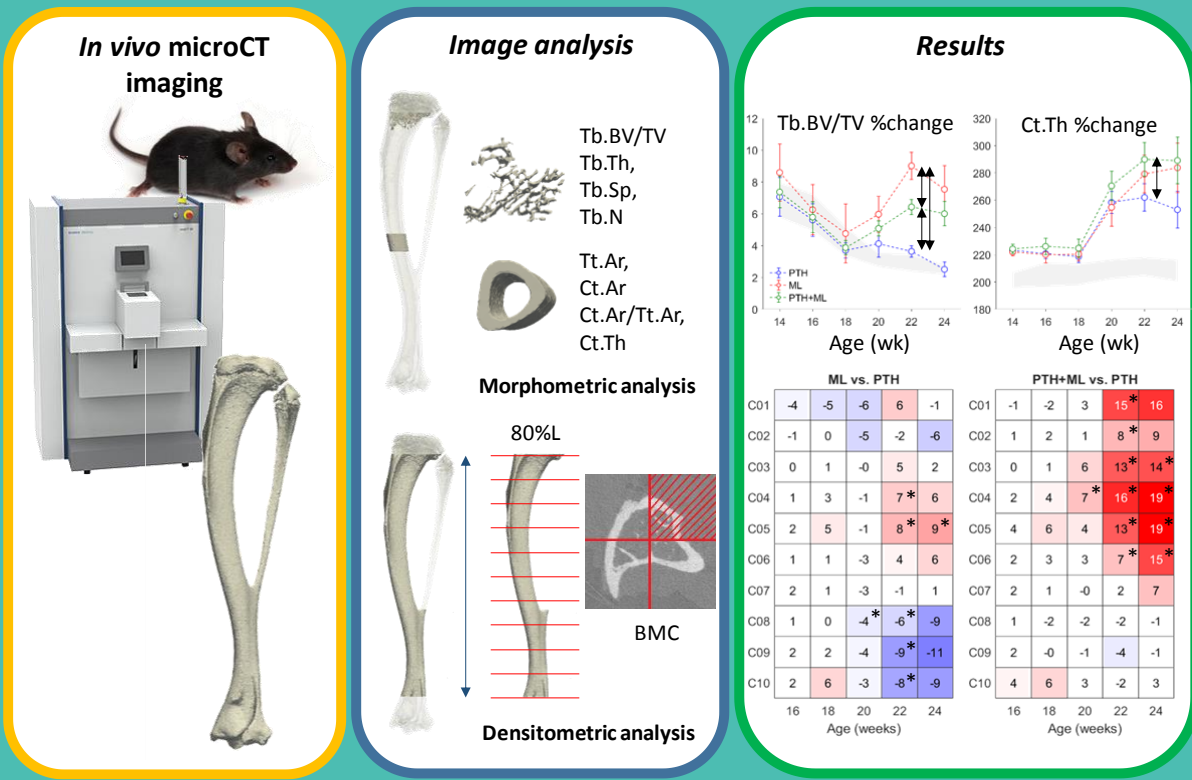


# Bryant Roberts



**Bryant Roberts** graduated with a PhD in Biomedical Engineering from Flinders University, Australia in 2017. While at Flinders University, he used high-resolution *ex vivo* microCT and 3D gait analysis to quantify relationships between knee joint subchondral bone microarchitecture, cartilage morphology and joint loads in patients with knee osteoarthritis. Dr Roberts joined MultiSim in May 2018 as a Research Associate and this allowed him to extend his expertise toward *in vivo* microCT and animal models. In particular, he applied *in vivo* microCT to the longitudinal assessment of bone properties in response to novel treatments in a mouse model of osteoporosis. He has four first-author journal articles, fifteen conference abstracts and was recipient of a Young Scientist and PhD Award from the US and Australia—New Zealand Orthopaedic Research Societies, respectively. He will continue work in MultiSim2 to develop expertise in microMRI and extend imaging methods developed in MultiSim toward quantification of soft tissue changes in an animal model.

*In vivo* imaging study to quantify anabolic effects of PTH and mechanical loading in the ovariectomised mouse.



## Publications

**Roberts, B.C.**, Giorgi, M., Oliviero, S., Wang, N., Boudiffa, M., Dall'Ara, E. (In Revision), "The longitudinal effects of ovariectomy on the morphometric, densitometric and mechanical properties in the murine tibia: a comparison between two mouse strains", *Bone*.

**Roberts, B.C.**, Solomon, L.B., Mercer, G., Reynolds, K.J., Thewlis, D., Perilli, E. (2018), "Relationships between *in vivo* dynamic knee joint loading, static alignment and tibial subchondral bone microarchitecture in end-stage knee osteoarthritis", *Osteoarthritis and Cartilage*, 26(4):547-556.

**Roberts, B.C.**, Solomon, L.B., Mercer, G., Reynolds, K.J., Thewlis, D., Perilli, E. (2017), "Joint loading and proximal tibia subchondral trabecular bone microarchitecture differ with walking gait patterns in end-stage knee osteoarthritis", *Osteoarthritis and Cartilage*, 25(10):1623-1632.

**Roberts, B.C.**, Thewlis, D., Solomon, L.B., Mercer, G., Reynolds, K.J., Perilli, E. (2017), "Systematic mapping of the subchondral bone 3D microarchitecture in the human tibial plateau: variations with joint alignment", *Journal of Orthopaedic Research*, 35(9):1927-1941.

**Roberts, B.C.**, Perilli, E., Reynolds, K.J. (2014), "Application of the digital volume correlation technique for the measurement of displacement and strain fields in bone: a literature review", *Journal of Biomechanics*, 47(5):923-934.

## Other Achievements

### Grants and Awards

Awarded Diamond Light Source imaging beamtime on Proposal No: MG21628. Dall'Ara E, **Roberts BC**. "Assessing the individual and combined effects of parathyroid hormone (1-34) and mechanical loading on the micro- and nano-structural properties of murine cortical bone."

**Australian-New Zealand Orthopaedic Research Society (ANZORS) PhD Award** at the ANZORS and RSA Joint Conference, Adelaide, Australia, October 7-10, 2017. Awarded to best presentation by a PhD student.

**Force & Motion-Orthopedic Research Society (ORS) Young Scientist Travel Grant** at the ORS 62<sup>nd</sup> Annual Meeting, March 5-8, 2017. Awarded to the top 10 abstracts presented by a young investigator.

### Select Conference Abstracts

**Roberts BC**, Arredondo Carrera HM, Zanjani Pour S, Boudiffa M, Gartland A, Wang N, Dall'Ara E. (2019) Longitudinal effects of PTH(1-34) and mechanical loading on trabecular and cortical bone morphometry in the ovariectomized mouse. 46th Annual Meeting of the European Calcified Tissue Society, May 11-14, Budapest, Hungary.

**Roberts BC**, Thewlis D, Solomon LB, Mercer G, Reynolds KJ, Perilli, E. Joint loading and subchondral bone microarchitecture differ among biomechanical gait phenotypes in end-stage knee osteoarthritis. ISB 2017, Jul 23-27, Brisbane, Australia.

**Roberts BC**, Thewlis D, Solomon LB, Mercer G, Reynolds KJ, Perilli, E. Linking regional proximal tibia bone microarchitecture to *in vivo* dynamic joint loads in end-stage knee osteoarthritis. Orthopaedic Research Society 62nd Annual Meeting, Mar 5-8, Orlando, Florida, USA.